

**Justice Sensitivity in Middle Childhood: Exploring the Measurement and  
Manifestation of a Trait in a Sensitive Developmental Phase and its Relations to  
Variables from the Social and Moral Development Space**

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### **Abstract**

Justice structures societies and social relations of any kind; its psychological integration provides a fundamental cornerstone for social, moral, and personality development. The trait justice sensitivity captures individual differences in responses toward perceived injustice (JS; Schmitt et al., 2005, 2010). JS has shown substantial relations to social and moral behavior in adult and adolescent samples; however, it was not yet investigated in middle childhood despite this being a sensitive phase for personality development. JS differentiates in underlying perspectives that are either more self- or other-oriented regarding injustice, with diverging outcome relations. The present research project investigated JS and its perspectives in children aged 6 to 12 years with a special focus on variables of social and moral development as potential correlates and outcomes in four cross-sectional studies. Study 1 started with a closer investigation of JS trait manifestation, measurement, and relations to important variables from the nomological network, such as temperamental dimensions, social-cognitive skills, and global pro- and antisocial behavior in a pilot sample of children from south Germany. Study 2 investigated relations between JS and distributive behavior following distributive principles in a large-scale data set of children from Berlin and Brandenburg. Study 3 explored the relations of JS with moral reasoning, moral emotions, and moral identity as important precursors of moral development in the same large-scale data set. Study 4 investigated punishment motivation to even out, prevent, or compensate norm transgressions in a subsample, whereby JS was considered as a potential predictor of different punishment motives. All studies indicated that a large-scale, economic measurement of JS is possible at least from middle childhood onward. JS showed relations to temperamental dimensions, social skills, global social behavior; distributive decisions and preferences for distributive principles; moral reasoning, emotions, and identity; as well as with punishment motivation; indicating that trait JS is highly relevant for social and moral development. The underlying self- or other-oriented

perspectives showed diverging correlate and outcome relations mostly in line with theory and previous findings from adolescent and adult samples, but also provided new theoretical ideas on the construct and its differentiation. Findings point to an early internal justice motive underlying trait JS, but additional motivations underlying the JS perspectives. Caregivers, educators, and clinical psychologists should pay attention to children's JS and toward promoting an adaptive justice-related personality development to foster children's prosocial and moral development as well as their mental health.

## 1. Introduction

Since the beginning of 2020, a tiny virus, not visible to the naked eye, challenged us with fundamental questions of human existence: the distribution of goods, burdens, and risks when physical integrity is threatened, personal responsibility and freedom versus mutual consideration and solidarity, and consequences of selfishness, egoism, or exploitation. This implicated an urge for negotiating justice conflicts and moral dilemmas on a highly intensified level. Harsh societal and interpersonal debates showed that violations of personally relevant justice norms and moral sentiments can arouse strong emotions, promote disruptive behavior, and threaten social relationships. Importantly, whereas some individuals strongly reacted to these issues raised above, others seemed less agitated. Individuals apparently vary in the level of perception of and response to (potential) injustice and amoralities, indicating that related conflicts may underlie external events, but do play themselves out on an individual, internal stage as well. Moreover, individuals seem to have “default settings” in evaluating justice from a more self- or other-oriented perspective. What is perceived as just is hence no universally straightforward concept, but seasoned by a substantial personal note, pointing to the relevance of traits.

One such trait is justice sensitivity (JS; Schmitt et al., 1995, 2005, 2010), which captures individual differences in perception and responses toward injustice. JS describes a dispositional sensitivity that manifests in pronounced cognitive (strain, stress, rumination), affective (anger, moral outrage, guilt), and behavioral (victim compensation, perpetrator punishment) responses when confronted with (potential) injustice (Schmitt, 1996; Schmitt et al., 1995, 2005, 2010; Thomas et al., 2011). Research accumulated knowledge on JS in adults for nearly three decades now, but we know less about JS in younger individuals. Particularly JS and relations to other variables of social, justice, and moral development are not conclusively researched in childhood to date. One explanation may be that although different



branches of psychology are broadly interested in how justice and morality organize relationships, and how constructs develop and affect behavior or well-being, these branches were either more strongly concerned with understanding the psychology of morality (for example, within developmental psychology) or of justice (within personality, social, or organizational psychology) (Skitka et al., 2016). This separation limited a multi-perspective approach. Not least because morality has been conceptualized in terms of justice by a line of (developmental) research (Rawls, 1971, designed a moral political theory introducing fair and impartial ideas on distributive justice [“A theory of justice”]; Kohlberg, 1976, investigated the development of [cognitive] moral stages via decisions in justice conflicts based on Rawls’ ideas and Piaget’s [1965] theory on cognitive development), it seems fruitful to explore relations between justice-related traits and moral- or social-related correlates and outcomes in childhood.

The age range of middle childhood should be sensitive to the manifestation and differentiation of justice- and moral-related traits (Shiner, 2021), fostered by influences from stimulating environments such as family, educational, or peer contexts with frequent justice conflicts (Killen & Smetana, 2015; McHale et al., 2012; Rubin et al., 2006; Sengsavang & Krettenauer, 2015; Smetana & Ball, 2018). Middle childhood is a sensitive period for the formation of traits (Caspi, 2000; Shiner & Caspi, 2003; Shiner, 2021), the development of social skills that enable reciprocal perspective-taking and self-reflection (Selman, 1984), and of moral and justice norms in general (Molchanov, 2013). Exploring the role of JS as a justice-related personality trait in middle childhood may enrich the understanding of justice, moral, and social behavior development in general, and the interpersonal variability of reactions to justice- and moral-related questions from childhood onward in particular. Moreover, relations between dispositional justice perceptions and responses and other moral dispositions, decisions, and behavior may allow drawing conclusions on interventions to foster adaptive social development. This may help to prepare individuals for justice and moral conflicts in

times of crises (Baumert, Thomas, et al., 2012), but also in everyday social interactions, providing a basis for functional relationships as an important aspect of resilience and psychological well-being.

### **1.1 The Psychology of Justice: A Dispositional Approach**

Where there are people, there is conflict. Because humans are social beings who depend on each other for survival, it is evolutionary adaptive to find just solutions for crises and conflicts. Justice is an important cornerstone for human decisions and behavior in everyday as well as extraordinary situations. Hence, the development of traits that regulate the perception of and responses toward injustice such as JS must have been evolutionary adaptive.

Justice had been at the core of ethical considerations since ancient times, whether attributed to the responsibility of gods and priests, as an object to philosophical debates, or as legitimation for civil disobedience and norm-transgressing activism of revolutionaries and moral exemplars. Justice is defined by the procedures and outcomes to settle conflicts or handle different interests, including legal procedures and principles for the distribution of goods and burdens, or individual rational choices (*APA Dictionary of Psychology*, n.d.; Kohlberg, 1976; Gollwitzer & van Prooijen, 2016). It is strongly related to the concept of morality; interrelations between both concepts enrich our understanding of the respective other construct. Morality comprises the essence of how individuals shall treat one another concerning justice, welfare, and rights of others (Turiel, 1983). Hence, whereas morality might be considered a more abstract principle with a branch of potential and often ambiguous or even contradictory outcomes, justice brings morality into practice by clear-cut intuitions and fixed, rational norms about what is considered fair. Justice may therefore reflect a higher-level moral principle that aims at elaborating the best solution for all parties by compromising goals (Baumert, Rothmund, et al., 2013). Justice norms as the concrete rules of conduct and decision are an important aspect of what is conceived as moral (Vaish & Tomasello, 2014).

The psychology of justice aims at elucidating what people perceive as just according to both situational and individual attributes and how they eventually react to these perceptions (Gollwitzer & van Prooijen, 2016). Whereas some individuals frequently perceive and intensively negatively respond toward objective and subjective injustice, others perceive situations less often as unjust and are less irritable by injustice. Justice sensitivity (Schmitt et al., 2005) was introduced as a trait to assess the inter-individual reactions to injustice, irrespective of objective or subjective. The trait informs processes underlying justice- and moral-related behavior by guiding perception and processing of injustice and related cognitive, affective, and action responses (Baumert et al., 2011; Baumert, Otto, et al., 2012; Baumert & Schmitt, 2016). Individuals can take different positions in an unfair situation: they can be the victims of injustice, observers of injustice between others, perpetrators of injustice, or beneficiaries of unjust outcomes (Mikula, 1994). JS was therefore differentiated into four perspectives: victim-, observer-, perpetrator-, and beneficiary JS (short: JS-V, JS-O, JS-P, JS-B; Schmitt et al., 2005, 2010) that show different intrinsic brain activities (Wu & Tian, 2017). According to the predominant perspective(s) from which individuals perceive injustice, their reactions differ (Schmitt et al., 2005, 2010; Thomas et al., 2011). Victim JS was associated with the readiness to perceive injustice that is detrimental to the self, anger as a predominant affective reaction, and an urge for perpetrator punishment. Victim JS was also associated with fear of exploitation and protecting oneself from future injustice (Gollwitzer & Rothmund, 2011; Gollwitzer et al., 2009). Observer JS was associated with the readiness to perceive injustice between others, moral outrage, and an urge for perpetrator punishment or victim compensation to restore justice. Perpetrator JS was associated with the readiness to perceive oneself as behaving unfairly toward others, feelings of guilt, and an urge for victim compensation or self-punishment to restore justice. Beneficiary JS was associated with

sensitivity toward profiting from injustice befalling others, feelings of guilt (also existential guilt; Gollwitzer et al., 2005), and an urge for victim compensation or self-punishment.

All JS perspectives share frequent perception of and prolonged rumination when confronted with injustice, the general affective reactivity toward injustice, and a motivation to restore justice (Baumert & Schmitt, 2016). A factor structure of four distinct scales confirmed the unique contribution of each single JS perspective to overall trait JS (Schmitt et al., 2010). Importantly, however, closer examinations of injustice perceptions, processing, and reactions related to the different JS perspectives indicated two broader dimensions within the general dispositional sensitivity toward injustice: Whereas victim JS has been described as self-oriented and egoistic, observer-, perpetrator and beneficiary JS have been described as other-oriented and altruistic (Baumert, Schlösser, et al., 2014; Gollwitzer et al., 2009; Lotz et al., 2013; Stavrova & Schlösser, 2015). Correspondingly, beneficiary and perpetrator JS showed the highest correlation levels due to highly similar cognitive, affective, and behavioral reactions (Schmitt et al., 2010). Both perspectives are then less pronounced, but still substantially related to observer JS based on the shared other-focused perspectives. Due to high intercorrelations of observer, perpetrator, and beneficiary JS, these three or a combination of two of these perspectives were often combined into one common factor of other-oriented or altruistic JS by previous research (Baumert et al., 2022, for examples). Victim JS is most strongly correlated with observer JS, reflecting shared outward-focused emotional reactions of anger and moral outrage (Thomas et al., 2011), but is least correlated with the other three perspectives due to its outstanding egoistic focus. Discriminant validity of the subscales was shown by moderate relations to related concepts from the nomological network, for example with the big five (Schmitt et al., 2005) or other narrow justice-related and social-cognitive dispositions namely the just world belief (Rezrazi & Gangloff, 2020); the hostile attributive bias, provocation

sensitivity, and trait anger (Bondü, 2018; Bondü & Richter, 2016a); or rejection sensitivity in adolescents (Bondü & Elsner, 2015; Bondü & Krahe, 2015).

JS is related to a higher activation potential and hyper-vigilance toward injustice cues, interpretations of ambiguous situations as unjust, a deeper degree of elaboration, and better memory performance for justice-related incidents (Baumert et al., 2011; Baumert, Otto, et al., 2012; Baumert & Schmitt, 2009, 2016). JS was therefore considered more of a social-cognitive trait than a global personality variable as for example the big five (Baumert, Otto, et al., 2012; Baumert & Schmitt, 2009, 2016; Bondü & Richter, 2016a). Beyond social-cognitive qualities, JS was thought to comprise an underlying justice motive (Baumert, Rothmund, et al., 2013; Baumert & Schmitt, 2016). This motive structure may unfold already in middle childhood, as early as the trait may manifest and further develop.

Based on accumulating research, including JS research, the idea of a universal justice motive in individuals is prevailing (Baumert, Rothmund, et al., 2013; Gollwitzer & van Prooijen, 2016; Lerner, 1977; Montada, 2002). Motives cover dispositions that prepare individuals to aim for certain incentives or goals (Emmons, 1989) via goal-directed behavior and are activated by situational stimuli that signal the confrontation with a respective motive (McClelland, 1985). In dilemma or conflict situations, the justice motive prepares individuals to overcome egoistic choices of a self-interest motive as proposed by rational choice theory (Kroneberg & Kalter, 2012). The measurement of justice-related dispositions and traits pointed to interindividual differences in a universal justice motive (Baumert & Schmitt, 2016; Schmitt et al., 1995). For example, individuals generally pay attention to fair input/ outcome ratios (equity sensitivity; Huseman et al., 1987) but differ in their extended attitudes toward fair distributions of goods and burdens (preferences for distributive principles; Deutsch, 1975). The belief in a general or personal just world (BJW) was introduced to describe an external justice motive that orders the world in a sense that everyone, including the self, gets what they deserve

(Baumert, Rothmund, et al., 2013; Dalbert, 1999, 2009; Lerner, 1980). Because all perspectives were positively correlated, a general justice motive may also be reflected in trait JS that guides justice-related information processing (Baumert & Schmitt, 2016; McClelland, 1985). This justice motive was considered internal, comprising the personal commitment to justice as a moral principle and the need for such within human interactions (Baumert, Rothmund, et al., 2013; Gerlach et al., 2012). However, JS differentiates into a self- and other-oriented perspectives, indicating a complex motive structure. For example, victim JS may comprise a self-protective motive that competes with a justice motive (Gerlach et al., 2012). To date, we do not know whether an internal justice motive is already present in childhood, and which goal orientations beyond justice may guide the differentiation into the trait's underlying perspectives. By investigating various correlate and outcome relations in middle childhood, the present research project explores the role of a potentially underlying internal justice motive and further potentially underlying goals.

## **1.2 Justice Sensitivity Research**

Since ancient times, mankind has pondered what can be considered just and fair. However, justice is not only an abstract philosophical question; it is quite a personal affair, as the psychology of justice was able to show. Initially, the construct of dispositional sensitivity to befallen injustice (SBI, Schmitt et al., 1995) was introduced to explain variance in sensitivity toward injustice from a victim's perspective via the frequency of perceived injustice, the intensity of invoked anger, the intrusiveness of thoughts, and the desire to punish the perpetrator; irrespective of the type of injustice, the principle violated, or the objective disadvantage (Schmitt, 1996; Schmitt & Mohiyeddini, 1996). To increase instrument efficiency by shortened scales and content validity by taking into account that injustice can be perceived and experienced from different perspectives (Mikula, 1994), the initial measure was re-developed by a) concentrating on anger and intrusiveness as best indicators (Schmitt, 1996)

and b) by further adding the perspective of an observer of others' injustice (observer JS) and a perpetrator profiting from others' injustice (voluntary or involuntary, initially named perpetrator JS) (Schmitt et al., 2005). Later, the items of the perpetrator perspective were disentangled and divided into a beneficiary perspective - (involuntarily) profiting from others' injustice – as well as a perpetrator perspective – actively conducting unfairness for own profit (Schmitt et al., 2010). The adapted construct was renamed to justice sensitivity and operationalized via the Justice Sensitivity Inventory (JSI, Schmitt et al., 2005, 2010). The JSI is a self-report questionnaire that consists of 10 items per perspective. Items ask for the intensity of cognitive (rumination, perseveration, strain) and affective (anger, outrage, guilt according to the perspective) reactions when confronted with injustice as a victim, observer, beneficiary, or perpetrator. Later, also a two-item short form was developed, asking for the affective reactivity toward injustice only (Baumert, Beierlein, et al., 2014).

JS explained a substantial amount of variance in reactions to injustice. The trait was linked with pro- and antisocial behavior in adults and adolescents (Bondü & Elsner, 2015; Bondü & Krahe, 2015; Gollwitzer et al., 2009) and with more specific justice-related, that is, distributive or political attitudes and behavior by previous research in adults (Bondü et al., 2021; Fetchenhauer & Huang, 2004; Jahnke et al., 2020; Rothmund et al., 2017, 2020; Schlösser et al., 2017). Indicating the relevance for moral psychology, JS had been theoretically or empirically linked with moral judgement, intention, and behavior (Faccenda et al., 2009; Sonnentag et al., 2018), preferences for distributive justice norms (Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004; Schlösser et al., 2017; Schmitt et al., 1997), moral self-regulation in the form of disengagement from own moral standards (Maltese & Baumert, 2019), moral-emotional responses toward injustice (Stavrova & Schlösser, 2015), the personal importance of being just and moral (Bondü, Hannuschke, et al., 2016; Gollwitzer et al., 2009), or re-establishing norms via punishment (Lotz et al., 2011).

JS research also increasingly accumulates findings on outcomes across different age ranges, underlining its relevance for developmental research. One line of research showed first findings in adolescent samples: significant influences of victimization and bullying on JS and vice versa (Bondü, Rothmund, et al., 2016; Park, 2018; Yoo & Park, 2019); significant correlated or outcome relations to mental health, emotional, and behavioral problems (Bilgin et al., 2022; Bondü & Inerle, 2020; Bondü & Krahé, 2015; Bondü et al., 2017, 2022; Lis et al., 2018) or ADHD symptoms (Bondü & Esser, 2014). Also, the trait manifestation itself (Bondü & Elsner, 2015) and the stabilization of JS (Bondü, Hannuschke, et al., 2016) were investigated in adolescence. Some studies started to investigate JS at the end of middle childhood (Bondü & Elsner, 2015; Ehrhardt-Madapathi et al., 2018; Jiang et al., 2019; Pretsch et al., 2016).

Research, however, neglected to examine justice- and moral-related traits such as JS in earlier ages. This may be because measuring traits in childhood is challenging (De Pauw & Mervielde, 2010). Also, despite a growing interest in distributive behavior (for example, Schmidt et al., 2016) or punishment motivation (for example, Bernhard et al., 2020; Smith & Warneken, 2016) in childhood, pointing to the importance of justice constructs in developmental psychology, developmental research traditionally showed more interest in questions of moral development. In general, moral psychology constituted an important part of developmental psychology and promoted the understanding of social-cognitive development. The theory of justice was traditionally more subject to psychological research in adults and to social or differential psychology. However, links between justice and moral variables seem evident and were sometimes explicitly theorized or more often, implicitly presumed to operationalize certain research questions. Investigating trait JS in middle childhood may foster the understanding of justice-related trait influences on moral development. The present research program, therefore, aims to further connect these fields of psychology. Including a social-cognitive trait with an underlying motive structure in research on moral development



also aligns with the field's recent aims to integrate cognitive, emotional, behavioral, and motivational approaches into a more cohesive and informative picture (Damon et al., 2018). Furthermore, the construct's quality of being a narrow trait allows for promoting research in personality psychology of children. The present research, therefore, claims to add to a multi-perspective approach to developmental psychological research by investigating a justice- and moral-related trait and various social, justice-, and moral-related correlates and outcomes in middle childhood.

### **1.3 Justice Sensitivity in Younger Samples**

Because JS was related to various behavior outcomes in adults and adolescents, researching JS in middle childhood promised to be fruitful to acquire new knowledge about the trait manifestation, early outcome relations, and its role in social and moral development. Already the instrument designed to measure the original construct of SBI (Schmitt, 1996; Schmitt et al., 1995) assessed dispositional sensitivity to injustice via situations from childhood and adolescence such as experienced injustice in school to explore the trait's generalization across manifold situations and larger parts of the own biography (Mohiyeddini & Schmitt, 1997). A recently emergent line of developmental JS research explored the construct's measurement, correlates, and outcomes in adolescence and end of middle childhood using an adapted, easier worded five-item version of the JSI (Justice Sensitivity Inventory for Children and Adolescents [JSI-CA5], Bondü & Elsner, 2015). The complex beneficiary perspective was considered too difficult to understand for younger children and was therefore omitted by the authors. The JSI-CA5 (Bondü & Elsner, 2015) was proven valid and reliable across different studies (Bondü, 2018; Bondü & Elsner, 2015; Bondü, Hannuschke, et al., 2016; Bondü, Rothmund, et al., 2016). An adapted two-item instrument was also explored in children at the end of middle childhood (Baumert, Beierlein, et al., 2014; Pretsch et al., 2016) Via the five-item version, the typical factor structure of three discriminant but correlated perspectives of

victim-, observer-, and perpetrator JS has been replicated in children from nine years onward (Bondü & Elsner, 2015). Via the two-item version, the 4-factor solution was replicated in sixth graders (Pretsch et al., 2016). Children accordingly differ in trait levels of JS congruent to adults at least from late childhood onward. An even more simplified version of the two-item instrument with vivid vignette descriptions of unjust situations did not allow to replicate the factor structure in primary school children (Ehrhardt-Madapathi et al., 2018). The present research project, therefore, explored the measurement and manifestation of JS in middle childhood including different measurement approaches.

Importantly, in adolescents and children from the end of middle childhood onward, relations between JS measured with the adapted JSI version and social behavior replicated findings from older samples: Whereas victim JS was cross-sectionally and longitudinally related to more aggressive and cross-sectionally to less prosocial behavior, observer JS was cross-sectionally and longitudinally related to more prosocial behavior, and perpetrator JS was cross-sectionally and longitudinally related to more prosocial behavior and cross-sectionally to less antisocial behavior (Bondü & Elsner, 2015; Bondü & Krahe, 2015). These first findings point to the existence of an internal justice motive that is reflected in JS from childhood onward, but also self- and other-oriented goal orientations that may show themselves in behavioral reactions to (anticipated) injustice. To further investigate JS in younger samples seems promising (Bondü & Elsner, 2015; Bondü, Hannuschke, et al., 2016). As mentioned above, the applied vignette measure by Ehrhardt-Madapathi et al. (2018) did not allow to replicate the four-factor structure; instead, a one-factor solution fitted the data best. These finding does not necessarily indicate that children cannot discriminate between perspectives or distinct perspectives cannot be established in children; alternative measurement approaches may be more successful. Findings by Bondü and Elsner (2015) suggest to further discovering the applicability of the 5-item instrument for the victim-, observer-, and perpetrator scale in middle

childhood. Considering that children in middle childhood are still developing self-reflective skills and personality assessments are therefore challenging, it seems useful to combine self- and other-ratings of JS. A reliable and valid measurement of the JS perspectives may allow us to understand how trait JS manifests in middle childhood.

### ***1.3.1 Exploring the Measurement, Manifestation, and Psychology of JS in Middle Childhood***

Children from 9 years onward showed meaningful differences in their JS levels, indicating an even earlier onset of JS manifestation (Bondü & Elsner, 2015). However, since one study in primary school children was not able to replicate the factor structure (Ehrhardt-Madapathi et al., 2018), it remained questionable whether JS and its perspectives, hence, the trait's facets may be validly and reliably measurable in younger children. Moreover, relations between JS and important variables from the nomological network had not yet been explored in younger samples. Hence, as a first aim, the present research project explores a reliable and valid measurement of JS in children in middle childhood, its manifestation, and potential relations to related variables to explore the psychology of the trait in this age range.

Importantly, because self-reports are challenging in childhood, the first study explored different ways of reliably and validly measuring JS in middle childhood based on a further adapted version of the JSI-CA5 (Bondü & Elsner, 2015). JS was assessed via self-reports, content equivalent, vivid vignettes, and parent-ratings of children's JS based on the established JSI-CA5 (Bondü & Elsner, 2015) adapted for other-reports. Thereby, it was the first study that measured JS via other-ratings. In line with previous research, the beneficiary JS perspective was omitted from that and all following studies from the present research project because children in middle childhood may lack the cognitive capacities to understand a perspective of indirect profiting (Bondü & Elsner, 2015).

Due to its quality of being a narrow, fairly stable trait from late childhood/early adolescence onward (Bondü, Hannuschke, et al., 2016), relations of trait JS and related variables that were found in older samples may suggest early related variables in middle childhood. Moreover, social influences that may form JS and its development across lifespan, particularly unfairness, exploitation, or positive reinforcement of own fair behavior should be particularly present in middle childhood with regular conflicts in peer and school socialization contexts (Jiang et al., 2019). The relations between JS and temperamental dimensions may therefore resemble relations between JS and dispositions and traits found in adult samples. Particularly victim, but partly also observer and perpetrator JS were related to traits and dispositions reflecting impairments in social and affective regulation. Victim JS was positively related to neuroticism, negative affect, Machiavellianism, paranoia, jealousy, and hostility, and negatively related to agreeableness, conscientiousness, compliance, and interpersonal trust; observer JS was positively related to neuroticism, paranoia, and jealousy; perpetrator JS was positively related to increased rumination and negative affectivity that are key components of neuroticism (Baumert, Beierlein, et al., 2014; Bondü & Inerle, 2020; Schmitt et al., 2005, 2010). All subscales were positively related to general anxiety, social phobia, fear of criticism and rejection, and negatively to self-esteem (Bondü & Inerle, 2020). Victim JS and partly also observer JS were negatively related to internal and positively related to external locus of control, whereas perpetrator JS was unrelated or negatively related to external locus of control (Baumert, Beierlein, et al., 2014; Bondü & Inerle, 2020). Victim and observer JS were negatively related to life satisfaction (Baumert, Beierlein, et al., 2014). Hence, the JS facets may also relate to early precursors of these dispositions, such as the temperamental dimension of negative affectivity (Rothbart & Hwang, 2005). However, observer and perpetrator JS were mostly positively related to prosocial and adaptive traits, such as empathic concern, agreeableness, conscientiousness, modesty, and social responsibility, and negatively to social

dominance orientation and right-wing authoritarianism (Baumert, Beierlein, et al., 2014; Decety & Yoder, 2016; Edele et al., 2013; Reese et al., 2014; Schmitt et al., 2005, 2010). Hence, also in middle childhood, the altruistic scales may be predominantly related to temperamental traits fostering prosocial interactions, for example, effortful control (Rothbart & Hwang, 2005).

Middle childhood is related to important steps in social capacities (Selman, 1984), indicating that JS as a social-cognitive skill may be related to such. Individual differences in social skill development, particularly theory of mind (ToM) and empathy may play an important role for JS development (Pretsch et al., 2016). Due to the trait's association with pronounced affective reactivity and social behavior outcomes, indicators of (affective) self-regulation, such as inhibition and anger reactivity may be related to JS in childhood but have not been considered as potential correlates so far. The altruistic scales focus on others' interests and may therefore be positively related to ToM and empathy (Baumert, Halmburger, et al., 2013; Decety & Yoder, 2016; Edele et al., 2013; Pretsch et al., 2016; Schmitt et al., 2005), inhibition as self-regulation skill, and negatively to anger reactivity as a risk factor disposition. Investigating these relations may also elucidate the mechanisms behind the prosocial outcomes of altruistic JS, which were not as much examined as the negative behavioral outcomes related to victim JS yet. Victim JS, focusing on own gains, may not be significantly related to ToM, empathy, and inhibition as social skills (Baumert, Halmburger, et al., 2013; Decety & Yoder, 2016) or may be negatively related to such, as negative relations to general self-efficacy in adults suggest (Baumert, Beierlein, et al., 2014). Victim JS may be positively related to anger reactivity, in line with anger as an associated affective reaction to injustice and frequent antisocial behavior outcomes (Bondü, 2018; Bondü & Krahé, 2015; Bondü & Richter, 2016b; Jiang et al., 2019; Yoo & Park, 2019).

Investigating pro- and antisocial behavioral outcomes of JS may further indicate whether JS effects can be replicated in childhood and whether JS is a criterion and predictive

valid trait already in middle childhood. Whereas victim JS should predict less prosocial and more antisocial behavior, the altruistic scales should predict more prosocial behavior and perpetrator JS should predict less antisocial behavior based on findings in adults (Bondü & Richter, 2016b; Gollwitzer et al., 2009; Stavrova & Schlösser, 2015) or adolescents (Bondü & Elsner, 2015; Bondü & Krahé, 2015). Similar prediction patterns as in adults may point to a reliable and valid measurement of JS in childhood and the importance of an internal justice motive as an antecedent of moral behavior across the life span.

Taken together, the first study of the current research project explored the measurement and manifestation of trait JS in middle childhood, its psychometrics, associations with important constructs from the nomological network comprising temperamental dimensions, social, and self-regulation skills, and outcome relations to social behavior. It investigated different rating sources, namely child self-ratings, vignettes, and parent-ratings in a pilot sample of elementary school children. It aimed at answering the following research questions:

Can JS be reliably and validly measured with further adapted versions of the JSI-CA5 (Bondü & Elsner, 2015; Schmitt et al., 2005, 2010) and via self- and parent-ratings? Does the trait manifest with similar psychometrics, a similar factor structure, and subscale correlations known from older samples? Are the JS perspectives divergently related to important variables from the temperamental and social skills space, reflecting an early differentiation of JS and adding to a better understanding of the JS perspectives? Do the JS perspectives cross-sectionally predict social behavior in middle childhood, resembling findings from adolescents and adults?

### ***1.3.2 JS as a Justice-Related Trait: JS and Distributive Justice in Middle Childhood***

An important indicator of justice and moral development is the distribution of goods and underlying attitudes concerning distributional fairness (Vaish & Tomasello, 2014). JS may relate to decisions and preferences in distributive situations in childhood because it reflects the

personal importance of and internalization of justice norms (Baumert, Halmburger, et al., 2013; Baumert, Rothmund, et al., 2013). Despite an increasing interest in distributive behavior in childhood (McAuliffe et al., 2020; Schmidt et al., 2016; Zhang, 2020), and associations between JS and distributive preferences and behavior in adults (Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004; Schmitt et al., 1997), developmental psychology neglected potential relations to justice-related traits in childhood to explain distributive behavior. This may be due to the gap between research on justice-related dispositions and moral development in children and underlines the importance of including JS in such research.

Distributive behavior is considered a specific type of moral behavior (Damon, 1984; Killen & Smetana, 2015). It allows to ecologically operationalize the understanding of social and justice norms which is considered important for justice and moral development. To study distributive justice among children, experimental (laboratory) studies have been conducted primarily, but large-scale data collection has been less common. Researchers of distributive behavior in childhood were interested in children's decisions from the perspective of a disinterested judge or a potential beneficiary. As a disinterested judge, contextual variables such as the relation between recipients or specific features of the resource may influence an allocation decision. Importantly, also justice norms of distribution and the internalization of such norms or principles are highly relevant. Equity theory (Adams, 1965; Deutsch, 1975) describes how individuals assess whether one is treated just for example by distributive principles of equality (everyone receives the same, irrespective of situation, person, or resource specifics), merit (allocations based on input, performance, or outcome, hence, the effort of the recipient; sometimes also referred to as equity), and need (allocations based on lack of resources or special needs of the recipient). Distributive principles can be located at the crossroad of justice and morality because they represent the translation of moral sentiments into concrete justice rules or norms. Hence, it seems highly relevant to investigate whether JS

is related to distributive decisions following equality, merit, or need and whether the JS perspectives are related to preferences for specific principles.

The readiness to relinquish of own benefits, that is, sharing, is considered a subcategory of prosocial behavior that develops in childhood along with helping and comforting (Imuta et al., 2016; Paulus, 2014). Because JS was shown to predict pro- and antisocial behavior across samples of different ages from childhood to adulthood, it may also predict sharing.

In general, when children decide about fair distributions between others in specific situations, they generally tend to prefer equality if possible (Keller et al., 2013). The equality norm is also highly relevant in sharing situations and increasingly replaces a norm of self-profit from early childhood onward (Keller et al., 2013). However, children increasingly integrate situation and person specifics from early to middle childhood (Rizzo et al., 2016; Rizzo & Killen, 2016). To deviate from a dominant norm of equality in early childhood becomes then for example justified by merit and/ or need characteristics of recipients or situations, respectively (Schmidt et al., 2016). Nevertheless, equality stays a strong norm and children do not deviate from equal shares to a large amount (Elenbaas, 2019; Rizzo et al., 2016; Schmidt et al., 2016). To date, researchers of distributive behavior in childhood did not sufficiently consider traits as possible correlates of distributive decisions. This may be partly explained by the fact that justice norms and particularly their internalization within justice-related traits, reflecting an underlying internal justice motive, had been subject to research in adult samples and within social or differential psychology, but less so in areas of developmental psychology.

Research in adults, however, established relations between JS and prosocial sharing, distributive behavior, or preferences for distributive principles (Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004; Schmitt et al., 1997). To investigate such relations was evident considering that the construct development of JS is based on a line of research on dispositional attitudes toward distributive justice, for example, equity sensitivity - the sensitivity toward fair



income/outcome ratios and procedures (Baumert & Schmitt, 2016; Huseman et al., 1987; Schmitt, 1996; Schmitt et al., 1995). In general, equity in distributional practices is a marker of fairness and justice (Gollwitzer & van Prooijen, 2016). Hence, construct relations between JS and equity were considered important (Schmitt, 1996) and the different JS perspectives have been divergently linked with the personal importance of fair income/outcome ratios and general attitudes toward distributional fairness (Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004; Schmitt et al., 1997) as well as sharing and cooperative behavior in adults (Baumert, Schlösser, et al., 2014; Edele et al., 2013; Schlösser et al., 2018). High levels of victim JS were positively related to less sharing (Stavrova & Schlösser, 2015), more self-serving distributions (Fetchenhauer & Huang, 2004), and preferences for the merit principle (Faccenda & Pantaléon, 2011); and negatively related to the tendency to pay back favors and positively to the tendency to revenge when disadvantaged, in line with an underlying self-related justice motive to protect oneself before undeserved disadvantages (Baumert, Schlösser, et al., 2014; Baumert & Schmitt, 2016; Gollwitzer et al., 2009, 2013; Maltese et al., 2016). Observer and perpetrator JS were positively related to a higher tendency to share with disadvantaged others (Stavrova & Schlösser, 2015), distributions following and preferences for the equality and need principles (Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004; Schlösser et al., 2017; Schmitt et al., 1997), social responsibility and agreeableness (Baumert, Beierlein, et al., 2014), cooperation in absence of punishment or less free-riding behavior (Schlösser et al., 2018), and relinquishing own resources to establish distributional justice (Lotz et al., 2011), in line with a prosocial justice motive underlying the altruistic scales.

Relations between JS and distributive behavior in middle childhood have not yet been examined. Moreover, whereas relations between social-cognitive and -emotional skills measures such as ToM or empathy and prosocial or moral behavior are well established (Edele et al., 2013; Eisenberg et al., 2010; Paulus & Leitherer, 2017; Schug et al., 2016; Yu et al.,

2016), there is a general lack of research considering justice- and moral-related traits as correlates of moral behavior in childhood. Children with a strong focus on justice for the self should be less prone to share between themselves and another child, while children with a strong interest in justice for others should be more prone to share. When distributing between others, children high in JS should generally follow justice principles whenever made salient due to the trait's inherent justice motive. Preferences, however, should differ by perspectives in line with the respective underlying motivation, replicating findings from adults: whereas victim JS should be particularly related to merit, the altruistic scales should particularly follow equality (Faccenda & Pantaléon, 2011; Schlösser et al., 2017; Schmitt et al., 1997). These relations may prevail over the inclusion of social skills as covariates, because whereas these reflect being *capable* of following salient norms, traits may reflect being *motivated* to follow those. Considering that perpetrators of injustice are often able to understand justice and moral norms but, for motivational reasons, do not follow them (Aharoni et al., 2012), JS should show a more pronounced effect on distributive decisions than social skills.

In sum, it seems crucial to explore relations between JS and distributive decisions to understand the influence of a trait reflecting an internal justice motive on prosocial and moral behavior in the form of sharing and distributive behavior. This may help to further develop a theory of justice in childhood but to also extend knowledge on moral development and influences of related traits. The second study of the present research project addressed these issues by use of the further adapted JSI-CA5 (Bondü & Elsner, 2015) instrument established in study 1 and experimental vignette measures to assess moral behavior in the form of distributive decisions in a large-scale, ecologically valid approach. This adds to a dominant line of experimental studies on distributive behavior of children. The study aimed at answering the following research questions:

Are differences in sharing behavior related to the JS perspectives, replicating antisocial outcomes related to victim JS and prosocial outcomes related to altruistic JS? How is JS related to distributive fairness decisions reflecting salient principles of distributive justice (equality, merit, need)? Is there a general tendency of all JS perspectives toward distributions following any principle made salient, reflecting a general focus on justice norms? Do children high in victim JS prefer a norm of merit, and children high in altruistic JS prefer a norm of equality when contrasting all principles? Do the predictive effects of JS prevail when social skills (ToM, empathy) are included?

### ***1.3.3 JS as a Moral-Related Trait: Relations to Moral Reasoning, Moral Emotions, and Moral Identity***

Previous findings on JS outcome relations from adult and adolescent samples pointed to associations with constructs that may promote moral motivation or help to suppress immoral behavior, such as moral cognitions, moral emotions, and moral identity. Due to conceptualizations of JS as a moral-related trait (Baumert, Rothmund, et al., 2013) and relations of JS with moral-related variables (Maltese & Baumert, 2019; Sonnentag et al., 2018), JS and moral constructs may show early associations. When the construct of SBI (the predecessor of JS) was introduced, Schmitt (1996) suggested that if positive correlations between subscales will be established, sensitivity toward injustice should reflect a moral consciousness and the subscales may correlate with moral sophistication, competence, and reasoning. Indeed, positive scale correlations between JS subscales had been established in various samples across ages (Baumert, Beierlein, et al., 2014; Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Schmitt et al., 2005, 2010), pointing to shared moral concerns reflected in trait JS. Examining relations between JS and important variables of moral development may be fruitful to understanding JS trait (and underlying motive) influences on moral motivation and to develop relevant interventions. Authors from the field of moral research stressed the importance of multi-

component research (e.g., Darnell et al., 2019) because moral motivation is most probably a heterogeneous construct. This is also in line with recent claims for a holistic approach within moral research that comprises cognitive, emotional, and behavioral aspects (Damon et al., 2018).

Integrating JS into research on moral development in childhood opens a wide field of theoretical approaches. The psychology of morality has been subject to psychological theories and research since the childhood days of that discipline (Turiel, 2006). Theories on moral development and motivation (Freud, 1962; Kohlberg & Kramer, 1969; Piaget, 1965; Skinner, 1938) therefore reflected general trending lines of psychological research. Psychoanalytical theories emphasized the role of parents and culture as socializing agents which are considered prerequisites to form a super-ego, balancing behavior in congruence with own needs, drives, and social demands (Freud, 1962). Behavioral theories emphasized the integration of rules through socially informed learning, observation, or reinforcement (Bandura, 1965; Skinner, 1971). The theories of Piaget (1965) and Kohlberg (1976), however, emphasized the development of increasingly advancing moral cognitions. These cognitive approaches to moral development revolutionized the understanding of an individual that increasingly autonomously reasons and reflects morality and justice beyond integrating socializing agents' values. Moral cognitions in a wider sense comprise the cognitive capacities to decide or judge what a moral reaction, solution, or action in general is – hence, the level of elaboration and abstraction of moral and justice norms. Piaget (1965) introduced, and Kohlberg (1976) advanced a theory of cognitive moral development via assessing moral reasoning – the justification of decisions in moral-related situations - in children. They established a theory of stage-ordered moral and justice development in childhood. Different stages of reasoning for moral decisions in dilemma situations, from punishment- and benefit-oriented, toward empathic and complex moral norm-oriented justifications, grasp qualitative changes in children's understanding of ambiguous

moral situations and (in)justice in childhood (Kohlberg, 1976; Piaget, 1965). However, an exclusively cognitive stance failed to explain large variance parts in moral motivation (Blasi, 1983; Hardy, 2006; Keller, 2007).

To better understand what motivates moral behavior, research then also focused on individual difference measures. To answer the question of why people act morally and by that, beyond egoistic and in line with others' interests, a focus on moral cognitions was complemented by moral affectivity or emotions – the quality and level of emotional reactivity on moral-related events (Batson et al., 1991; Eisenberg, 2000; Eisenberg et al., 2014; Hoffman, 2000; Keller, 2007; Keller et al., 2003; Tangney et al., 2007). Research investigated empathy (experiencing congruent feelings to others' emotional states) and sympathy (feeling concern and responsibility for others' distress without experiencing their emotions) to explain why individuals are motivated to overcome egoistic goals in moral-related situations (Eisenberg et al., 2010). According to empathy theory (Hoffman, 2000), individuals are increasingly able to anticipate the potential outcomes of actions for others' physical or psychological integrity and well-being based on their sentiments and are hence motivated to avoid negative or enhance positive outcomes also for others. The branch of moral emotion research later focused on second-order, self-conscious emotions of positive or negative valence regarding (anticipated) moral-related actions as a motivator to resist norm transgressions and behave morally: shame, guilt, or pride (Malti & Krettenauer, 2013; Tangney et al., 2007). These emotions may be experienced or attributed to others or the self when moral norms and (anticipated) behavior are incongruent (guilt, shame) or congruent (pride) (Krettenauer & Johnston, 2011). Empathy and sympathy, but also guilt, shame, and pride were related to prosocial actions or avoiding antisocial behavior from childhood onward (Krettenauer et al., 2011; Malti & Krettenauer, 2013; Menesini & Camodeca, 2008). Like moral cognitions, however, also moral affectivity only partly explains variance in moral actions (Darnell et al., 2019; Hardy, 2006).

Psychological theories on motives and motivation suggested that goal-directed behavior requires personal relevance through goal achievement (Aarts & Elliot, 2012). Thus, if being a moral person is a personal goal because it establishes a person's self-perception and self-coherence, one should commit to moral norms and prosocial behavior. Moral identity as the centrality of morality for the self was introduced to explain why people overcome egoistic goals (Aquino & Reed, 2002; Blasi, 1983; Damon, 1984; Hardy & Carlo, 2005) and was considered important for moral development (Hardy & Carlo, 2011b). This self-relevance focus advanced an understanding of dispositional variability in morality beyond universal social-cognitive stage development (moral cognitions) or affect-based motivation (moral emotions) (Walker, 2014). Moral identity comprises the importance and centrality of moral attitudes, such as honesty, sympathy, or fairness for the self-concept (Blasi, 2004; Hardy & Carlo, 2011a). More recently, the formation of a moral self or a moral identity received theoretical and empirical attention also in childhood (Hardy & Carlo, 2005; Kingsford et al., 2018; Kochanska et al., 2010; Thompson, 2012). Moral identity predicted moral attitudes, motivation, and behavior in adults and children (Darnell et al., 2019; Doering, 2013; Walker, 2014, for an overview). However, a recent meta-analysis indicated that although moral identity is a significant predictor of moral behavior, effects are not more pronounced than those of moral judgements and emotions (Hertz & Krettenauer, 2016). Furthermore, moral identity may interact with other personological or situational variables to bring about moral actions (Hertz & Krettenauer, 2016).

Taken together, research is not able to satisfyingly answer the still persistent gap between internally experienced morality and externally performed moral behavior (or other manifold gaps in moral research, see Krettenauer, 2019). Moral motivation and prosocial behavior in childhood may be more heterogeneously informed than previous theories implied (Sengsavang et al., 2015). Therefore, it seems highly relevant to explore the relations of these

moral constructs with justice- and moral-related traits, such as JS. Simultaneously, investigating relations with JS may contribute to a better understanding particularly of the prosocial mechanisms of altruistic JS.

Relations between JS and established measures of moral development have not yet been examined in middle childhood, although moral development strongly advances in this critical developmental period and knowledge about underlying factors can aid to promote an adaptive development. Moral motivation and behavior may be informed by a multitude of constructs, but it may be particularly important to investigate potential personality-related precursors. Earliest research on sensitivity toward injustice indicated relations to moral judgement (Schmitt & Mohiyeddini, 1996). JS was considered a social-cognitive trait that guides justice-related information processing, with cognitive intrusiveness and perseveration as well as (moral-)affective reactivity (anger, moral outrage, guilt) as central indicators of all JS perspectives (Schmitt, 1996; Schmitt et al., 1995, 2005). Reflecting the anti- and prosocial differentiation of the trait, the altruistic JS perspectives should be correlated with higher developed moral cognitions to justify moral decisions (moral norm-oriented reasons) and with moral, that is, negative emotions following norm transgressions. Victim JS should be negatively related to advanced moral reasoning, indicating that moral decisions are justified with self-serving arguments (avoid punishment, gain benefits). Victim JS may be positively related to less moral emotions (that is, more positive emotions) following norm transgressions, indicating satisfaction with outcomes following a moral norm violation. JS and moral identity both emphasize the personal significance of justice norms; emotional reactivity to injustice should be particularly pronounced when justice is a central value for the self (Baumert & Schmitt, 2016). Empirical findings should therefore confirm theoretically assumed construct relations between JS and moral identity (Bondü, Hannuschke, et al., 2016; also see Gollwitzer et al., 2009). Because the justice motive is thought to underlie all perspectives, all JS facets should

be positively related to moral identity. Relations between JS and moral cognitions, moral emotions, and moral identity should persist beyond including social skills, such as ToM (Imuta et al., 2016) or empathy (Eisenberg & Miller, 1987). This would indicate the central role of a justice-related, social-cognitive trait with an underlying internal justice motive for moral development beyond social-cognitive and -emotional capacities to understand and consider others' interests.

Taken together, previous research on JS suggested relations to other moral dispositions. Moral development research broadly investigated what motivates children to behave beyond their interests and in line with moral norms but did not satisfyingly answer this question yet. It thereby established manifold lines of research, comprising cognitive, affective, and identity-related approaches. What has been neglected so far, however, are justice-related traits such as JS and their relations to moral variables that are important for moral decisions and behavior. Investigating JS in that regard may contribute to understanding to date open issues, for example, the gap between moral- and justice-related perceptions, responses, and (in)consistent moral behavior (Krettenauer, 2019) by adding a motivational trait perspective. Study 3 of the present research project was unique and novel in investigating relations between JS and cognition, emotion, and identity domains of moral development in middle childhood. Moreover, these moral variables had rarely been considered in conjunction. Examining relations between JS and important variables of moral development may aid to better understanding the altruistic JS perspectives which have been less studied than victim JS. The study aimed at answering the following research questions via large-scale questionnaires and vignette measurement:

Is JS a correlate and a cross-sectional predictor of important dimensions of moral motivation and development, namely moral reasoning, emotions, and identity? Do the JS perspectives show diverging relations to the moral outcomes, reflecting the pro- and antisocial



dimensions of the trait? Is moral reasoning less advanced in children high in victim JS, and more advanced in children high in altruistic JS? Can low levels of perpetrator JS and high levels of victim JS explain why some children lack moral emotions beyond the normal age range? Are all JS perspectives positively related to moral identity? Do the relations between JS and moral variables persist when social skills (ToM, empathy) are included as covariates?

#### ***1.3.4 When Justice Norms are Violated: JS and Punishment Motivation***

When justice norms are violated, punishment is an important tool to reinstall justice. Understanding and inserting fair punishment is an important task in moral development because it ensures that rules structuring the own social environment are obligatory and reliable. Fair punishment is balanced in strength and effect, otherwise, it may perpetuate injustice sentiments. Punishment enables people to live in communities and has been the subject of justice considerations since ancient times. Because JS is related to a strong emphasis of justice rules and fairness considerations, it may also inform punishment motivation. Importantly, children do not only have to insert punishment when justice norms are violated, but they must also deal with inflicted punishment within their social contexts. JS may not only relate to the motivation to punish as an active agent but may also inform how children perceive punishment implemented by others.

The psychology of punishment has to date unresolved questions, especially about childhood. Overall, punishment serves either deontologist and/or utilitarian motives (Carlsmith & Darley, 2008). When norms are violated by transgressions, individuals experience an urge to restore justice via retaliation, deterrence, or restoration. Deontologically oriented, that is, retributive punishment, aims at the immediate punishment of an offender in the sense of “just deserts”, mainly to reduce the transgressor’s outcome and to re-establish a feeling of evenness for the victim. Utilitarian, that is, consequentialist punishment aims at deterring future transgressions to re-establish norms and counteract future injustice. Some punishing acts seem

to satisfy both motives simultaneously, but research indicated a general tendency toward implicitly preferred retributive acts (Carlsmith, 2008). That is, even if people may often verbally indicate to pay special attention toward deterrence and a learning effect for the perpetrator by the inflicted punishment, they behave more in correspondence with retributive ideas (for example, investing in punishment even if the offender will not learn from it; Crockett et al., 2014). However, the intuitive retributivism hypothesis was challenged by some studies that indicated an outspoken explicit *and* implicit preference for consequentialist motives (Funk et al., 2014). These findings warrant further exploration, particularly in younger samples that showed mixed motivations (Marshall et al., 2021; Twardawski & Hilbig, 2020). They also indicate that people generally are not so clear about why they punish and that punishment motives may be best assessed via indirect approaches, such as appropriateness ratings of hypothetical reactions to norm transgressions (Twardawski, Tang, et al., 2020). Investigating punishment motives in childhood and its relations to JS may aid to broaden knowledge on precursors of punishment motivation. It may further elucidate the role of JS for a theory of justice in childhood, and the early relevance of that trait and its underlying internal justice motive for justice and moral development.

Punishment can be an important tool to satisfy the justice motive. This can be achieved by reducing the norm transgressor's outcome, deterring future misbehavior of the perpetrator or others, and/or compensating the victim and restoring their status and dignity. Punishment decisions and behavior of children are important indicators of moral rule understanding and integration of justice norms. Simultaneously, the development of justice comprises an understanding of punishment and (collective) responsibility. Punishment motivation is related to a need for immanent justice, that is, the idea that reward or punishment immediately follows the good or bad deed as a direct and just consequence of actions, implicating a confrontation with authority (Piaget, 1983). The development of punishing behavior, however, should not

only correspond with an understanding of norms, consequences, and responsibility or the approval of authority; punishment may be *desired* to even out a feeling of wrongness and unfairness. Thereby, it represents the implication of the justice motive (Gollwitzer & van Prooijen, 2016). Importantly, punishment motives have not been sufficiently researched in childhood yet. Particularly justice-related traits have been neglected as potential correlates or predictors, and aspects of the situation that demands punishment decisions as well as specific types of punishment motives may be further disentangled than previous research has done. Examining which variables influence the motivation for punishment thereby informs a theory of justice in childhood.

Previous research in children already differentiated between consequentialist motives concerning only one offender (special preventive) or more than one/ many (potential) offenders (general preventive) (Twardawski, Hilbig, et al., 2020). Retributive acts can also be distinguished as being truly revenging (tit-for-tat) or not. So far, there is a lack of studies that differentiate between retributive punishment in the form of tit-for-tat actions (hit back when getting hit) or other acts of “just deserts” (shouting at someone when getting hit), that are in line with the severance of the norm transgression but do not comprise the exact same action (Gerber & Jackson, 2013). Furthermore, a third option of restoration was rarely considered in punishment motivation research: the focus on “restoring” relations among victim, offender, and community (Cohen, 2016). Because restorative motives mostly aim for conflict resolution and de-escalation and reflect stronger concerns for victim compensation than perpetrator punishment, a preference for this response can be considered *intuitive pacifism*. The further disentangled motives of intuitive retributivism and consequentialism were neither tested against each other in childhood nor tested against restorative motives. Restorative actions may be particularly preferred because they guarantee the re-establishment of norms and victim compensation.

Punishment motivation should manifest and develop particularly in middle childhood, an age range that is sensitive to justice considerations and experiencing consequences of (subjective) injustice frequently in the school setting (Pretsch et al., 2016; Resh & Sabbagh, 2014). Punishment-related justice perceptions and motives for punishment in classroom contexts are not well researched yet, although this seems important for a supportive learning environment. Understanding which norm transgressions children consider worthy of punishment, which punishment they consider fair, and thus, which punishment motives they follow and consider appropriate may provide knowledge for educational practice. The school setting allows us to consider at least two punishment perspectives: children themselves and teachers can be punishing agents, which also includes differences in status (equal with the perpetrator or higher status) and in first- or third-person perspective. To disentangle which reactions to norm transgressions children consider appropriate for themselves and which for teachers may further allow differentiating between implicit own motives (hence, what is personally satisfying when justice norms are violated) and what is considered appropriate for agents responsible for norm clarification (hence, what is considered appropriate to re-establish a just order). Children may find retributive punishment more appropriate for themselves to get even, whereas they may expect teachers to punish in a way that re-educates the offender (and communicates the norms to everyone else). Also, the type of norm transgression may inform punishment motives differently. Children may show more general and retributive punishment motivation in cases of personal transgressions directed toward themselves (versus directed toward many individuals) when they are the punishing agent (versus the teacher). Understanding which punishment children find just and appropriate may help to improve school-specific well-being, individual functioning, and mental health, aspects that were related to how adolescents perceive teacher justice (Mameli et al., 2018).

Beyond situation aspects, justice-related trait variables, such as JS, may motivate punishment and may inform punishment motives. The first operationalization of sensitivity toward injustice by Schmitt et al. (1995) comprised punishment as a fourth indicator along with the frequency of experienced unjust events, with emotional, and ruminative reactions to injustice, because retaliation and retribution are means to counteract injustice. Even if this motivational component was later omitted from the JSI in the name of parsimony and economy (emotional and ruminative reactions converged most; Schmitt et al., 2005), earliest research on sensitivity toward injustice indicated relations to approval of activities addressing injustice (Schmitt & Mohiyeddini, 1996). The motivation to address injustice via punishment is still considered an important criterion related to trait JS (Baumert & Schmitt, 2016). Punishment motivation may be early related to JS due to the underlying internal justice motive. Individuals high in JS generally tend toward perpetrator punishment in the face of injustice, irrespective of the perspective from which injustice is perceived (Fetchenhauer & Huang, 2004; Lotz et al., 2011; Thomas et al., 2011). Hence, children high in JS should generally be more likely to endorse punishment. Victim JS was also related to vengeful and retributive behavior and unforgiveness in close relationships, mainly for self-protective reasons (Gerlach et al., 2012). Due to an urge for retaliation and self-protection, victim JS may be positively related to higher appropriateness of retributive punishment and negatively related to general preventive punishment that includes own punishment. Perpetrator JS was also related to self-punishment (Thomas et al., 2011); individuals high in altruistic JS were observed to punish even when it means sacrificing their resources (Lotz et al., 2011). This form of costly punishment indicated an altruistic or prosocial motive of punishment to protect the norms of the group (Gollwitzer & van Prooijen, 2016). Due to the other-oriented focus and strong adherence to prosocial norms, particularly children high in perpetrator JS should approve general preventive

punishment including own costs. However, across all perspectives, children high in JS should generally approve of restorative actions because these ensure that the victim is compensated.

In sum, it seems important to investigate punishment motivation and its relations to JS in middle childhood. Investigating the preference for retributive, consequentialist, or restorative punishment, influencing variables, and particularly the potential role of trait JS in explaining these preferences contributes to a theory of justice in childhood and would underline the importance of trait JS for social and moral development. The fourth study aimed at measuring punishment motivation via vignettes and thereby combines experimental and observational methods to assess the preferences for punishment economically and ecologically in a variety of situations in the school setting. It aimed at answering the following research questions:

Can the intuitive retributive hypothesis be supported in middle childhood and qualified via further disentangled punishment motives, the punishing agent, the type of norm transgression, and JS as a potential correlate/cross-sectional predictor? Do early relations to punishment motives contribute to understanding the psychology of JS in childhood?

## **2 The Present Research Project**

The present research project aimed at investigating JS in middle childhood, a justice-related trait that was mostly researched in older samples to date. Hence, little is known about the psychology of JS in childhood. Furthermore, JS has not sufficiently been considered as a potential correlate or predictor of social and moral-related outcomes in childhood; trait aspects have generally been neglected in justice and moral development research hitherto. Hence, the present research project aimed at filling a gap in psychological research by investigating an important justice-related trait variable and its relations to manifold outcomes in an age range sensitive to moral development, thereby linking developmental, social, and personality psychology.

The first study investigated JS measurement and manifestation, its relations to temperamental and social skills variables from the nomological network, and JS as a cross-sectional predictor of pro- and antisocial behavior, aiming at replicating findings from adolescent and adult samples. Based on the measurement and construct establishment in middle childhood, the following studies then investigated relations between JS and a variety of other variables that are considered important for adaptive social behavior, justice development, and moral motivation. Precisely, JS has been investigated as a cross-sectional predictor of distributive behavior, as well as of moral cognitions, emotions, and identity. Influencing factors on punishment motivation as an important aspect of justice and moral development were then examined, whereby JS was investigated as a potential correlate and cross-sectional predictor of different punishment motives. The present research project made use of various measures and information sources to explore the reliable and valid measurement of a trait and its potential correlates and outcomes in middle childhood. Via economic large-scale designs, it also contributed to ecologically validly measuring traits and moral variables in childhood, adding to a dominant line of experimental research in that field. Taken together across all studies, it aimed at investigating the following overarching research objectives:

1. The studies of the present project investigated whether a reliable and valid measurement of JS is possible in middle childhood. They examined the manifestation of the trait and the psychology by investigating its psychometrics, subscale correlations, the factor structure; relations to related variables; and by comparing these to JS in older samples.
2. The studies investigated whether the underlying victim and altruistic JS subscales showed diverging correlate and outcome relations in line with theory and previous findings. By examining the differentiation of JS into its self- and other-oriented perspectives and their divergently related correlates and outcomes in middle childhood,

the present research project may provide new theoretical ideas on the construct and its differentiation in childhood and beyond.

3. Investigating JS in middle childhood and various potentially related variables may also elucidate whether the trait reflects an underlying justice motive that informs social-cognitive processing of injustice and guides prosocial, justice-, and moral-related motivation and behavior from early ages onward. By examining an underlying justice motive as has been suggested by previous JS research in adults, the present research project also contributes to a theory of justice in childhood. Moreover, the diverging JS perspectives suggest additional underlying motivations associated with the subscales. Findings allow proposing such motivations and related developmental mechanisms. Importantly, this may provide more insight into the manifestation, development, and effects of the altruistic JS perspectives that had not been studied as much as the victim JS perspective yet.

Taken together, previous studies found that JS informs social and moral behavior in adults and adolescents. However, research on justice- and moral-related development did not consider justice-related personality traits sufficiently yet. The present research project is therefore novel and significant by relating a justice-related trait with important developmental constructs in childhood, thereby extending the psychology of JS to childhood, adding to a theory of justice in childhood, and linking different fields of psychology with a multi-perspective approach. A developmental trait approach within the psychology of justice, prosocial, and moral development may aid to understand what motivates or hinders individuals to react and act in just and moral ways in daily life and in the face of extraordinary, challenging circumstances. Findings may provide implications for caregivers and educators on how to support an adaptive justice-related development, thereby also promoting functional social relationships, resilience, and mental health in children.



**3. Study 1: “Justice Sensitivity in Middle Childhood: Measurement and Location in the Temperamental and Social Skills Space”**

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### 3.1 Abstract

Research suggested that justice sensitivity (JS)—the tendency to perceive and negatively respond to injustice—may already manifest in middle childhood, but empirical evidence is sparse. We, therefore, examined the measurement of JS in this age range and its associations with prosocial behavior, aggressive behavior, temperamental traits, and social skills. We had 361 children between 6 and 10 years of age and/or their parents rate the children's JS and its potential correlates. We replicated the JS-factor structure with three correlated subscales in both child and parent-ratings that showed strict measurement invariance. In line with previous findings in older age groups, victim JS positively predicted aggressive and negatively predicted prosocial behavior, whereas observer and perpetrator JS positively predicted prosocial and perpetrator JS negatively predicted aggressive behavior. The JS perspectives showed expected links with temperamental traits. All three subscales were positively related to empathy and theory of mind, but victim JS was negatively related to affective self-regulation. Findings suggest that interpersonal differences in JS may reliably and validly be measured in middle childhood and that JS is associated with aggressive and prosocial behavior already in childhood. Thus, future research should consider the role of JS for moral and personality development and developmental psychopathology.

*Keywords:* justice sensitivity; social skills; temperament; prosocial behavior; aggression

### **Justice Sensitivity in Middle Childhood: Measurement and Location in the Temperamental and Social Skills Space**

Injustice bothers most people, but individuals reliably differ in the tendency to perceive and negatively respond to injustice (Schmitt, 1996; Schmitt et al., 2010; Schmitt et al., 2005)—that is, their justice sensitivity (JS)—from 10 years onwards (Bondü & Elsner, 2015). Research suggests that JS may mold even earlier (Bondü & Elsner, 2015; Bondü et al., 2016), but empirical evidence is sparse. We, therefore, examined whether individual differences in JS can reliably and validly be measured already in middle childhood when personality first starts to consolidate (Shiner & Caspi, 2003; Caspi, 2000).

Investigating JS in childhood is important because in adults, JS was related to but discriminant from other personality traits (Schmitt et al., 2005, 2010), whereas nothing is known about its potential relations with temperamental traits in childhood. Furthermore, JS was positively related to empathy in adults (Decety & Yoder, 2016; Edele et al., 2013; Schmitt et al., 2005). However, other social skills, such as Theory of Mind or self-regulation that become more complex during middle childhood (e.g., by taking into account a societal perspective that influences the understanding of justice; Hartup, 1984) and have been suggested to be related to JS (Bondü & Elsner, 2015; Bondü et al., 2016), have not yet been considered. Thus, the present study examined relations between JS and temperamental traits and a broad range of social skills in order to gain further insights into the nature of JS. We also investigated whether JS can be considered as a distinct trait already in middle childhood, in order to provide evidence for the construct's discriminant validity.

Finally, in adolescents, JS predicted social behavior and well-being one to two years later (Bondü & Elsner, 2015), suggesting influences of JS on pivotal areas of development. We, therefore, examined whether JS predicts prosocial and aggressive behavior in children in the same way as it did in adolescents and adults (Bondü & Krahé, 2015; Bondü & Richter,

2016). That way, we aimed at identifying potential early effects of JS and providing further evidence for the validity of the scale.

The present study assessed victim, observer, and perpetrator JS in middle childhood via self- and parent-reports. We first examined the reliability of our measures, their factor structure, and the measurement invariance between child- and parent-ratings. Based on these findings, we aimed to replicate previous findings on the prediction of prosocial and aggressive behavior by JS in middle childhood and further examined the relations between JS and surgency, negative affectivity, effortful control, affective and cognitive empathy, affective and cognitive Theory of Mind, inhibition, as well as anger reactivity. Thus, we present evidence for the valid and reliable measurement, correlates, and effects of JS in middle childhood and add to the ongoing discussion about difficulties and possibilities of personality measurement via child self-reports (De Pauw & Mervielde, 2010; Tackett et al., 2019). We investigated an age group underrepresented in personality research and thereby link developmental- and personality-psychology research. Finally, the present study may inform parents, teachers, or therapists about individual differences in justice perceptions and their consequences, assessment, and handling.

### **Justice Sensitivity**

Justice sensitivity (JS) is a trait measure that captures and reflects stable individual differences in the personal importance of justice norms. Consequently, on a cognitive level, individuals high in JS are thought to be hyper-vigilant to justice-related cues, to frequently perceive injustice, to interpret even ambiguous cues as unjust, to ruminate about injustice, and to feel stressed in the face of injustice. The primary affective response associated with JS depends on the perspective from which injustice is perceived (Mikula, 1994). These differences in affective responses also account for diverging, even contradictory behavioral impulses associated with these perspectives. Four JS perspectives can be distinguished

(Schmitt et al., 2010): First, victim-justice sensitive individuals tend to perceive injustice to their own disadvantage and respond with anger and the urge for revenge. Consequently, victim JS was reliably related to adverse social behavior (see below). Hence, individuals high in victim JS are mainly concerned for justice to their own benefit. Second, observer-justice sensitive individuals frequently perceive others' unjust treatment, respond by indignation, and strive for victim compensation or perpetrator punishment. Third, perpetrator-justice sensitive individuals fear causing injustice, respond with guilt and an urge for victim compensation or self-punishment. Hence, individuals high in observer and perpetrator JS are mainly concerned for justice for the benefit of others (altruistic JS) and tend to show prosocial behavior. Finally, beneficiary-justice sensitive individuals dislike (involuntarily) profiting from injustice inflicted onto others (Schmitt et al., 2005, 2010). Due to high cognitive demands required from participants in order to understand this perspective, we refrained from assessing it in the present sample of elementary-school children.

In adults, the four JS perspectives can be reliably and validly measured with 10 items each by the Justice Sensitivity Inventory (JSI; Schmitt et al., 2010). Participants are asked to rate their agreement with 10 statements that describe potential affective (victim: "I get angry ...", observer: "I am indignant ...", perpetrator: "I feel guilty ...") and two cognitive responses (1. rumination, all perspectives: "I ruminate for a long time ...", 2. perceived strain, all perspectives: "It bothers me...") to typical unjust situations (e.g., victim: "... when others get a reward that I have earned"; observer: "... so. does not get a reward he/she has earned"; perpetrator: "... I deny someone the acknowledgement he/she deserves"; see Schmitt et al., 2010 for all item wordings). These indicators for JS were derived from theoretical considerations particularly with regard to victim JS. In addition, individuals high in JS were considered to perceive injustice frequently and to cause adverse behavioral responses, but these additional indicators were not included into the JSI. The original JSI version is in

German language. Internal consistencies range around .90 for all subscales (Schmitt et al., 2005, 2010). A short measure using only 2 items per perspective and the adverse affective response as well as perceived strain as indicators was also introduced (see Baumert et al., 2014 for item wordings). Using both measures, in adults, all JS perspectives were consistently positively correlated, reflecting a common underlying interest in justice, but were distinct from each other in confirmatory factor analysis (i.e., item parcels or single items belonging to one of the four subscales, loaded on different latent factors) (Baumert et al., 2014; Schmitt et al., 2010).

One study replicated this factor structure of three distinct (victim, observer, perpetrator), but positively correlated JS subscales in  $N=1,472$  children and adolescents between 10 and 17 years of age by using 5 out of the 10 original JSI items per perspective (beneficiary JS was not measured; see Bondü & Elsner, 2015, for exact item wordings). The wording of 2 out of the 15 items was adapted (“to unilaterally profit from so.” was changed into “to take advantage of so.”) in order to make the item easier to understand. Similar to findings in adults, scale inter-correlations ranged from  $r=.25$  for victim and perpetrator JS to up to  $r=.67$  for observer and perpetrator JS and highest mean level scores were found for perpetrator JS and lowest mean level scores were found for victim JS. In addition, internal consistencies were good ( $\alpha=.78-.88$ ) and strong factorial invariance across ratings of boys and girls was shown (Bondü & Elsner, 2015). These findings indicate that JS can be measured reliably and validly at least from 10 years onwards. Stable differences between girls and boys as well as only slight mean-level changes in observer and perpetrator JS over the course of adolescence (Bondü & Elsner, 2015; Bondü et al., 2016) suggest that interpersonal differences in JS may form even at earlier stages of development, namely in middle childhood.

So far, however, only one study examined JS in this age range with the help of a self-

report measure including eight vignettes describing unjust situations from each of the four JS perspectives. Children were asked to rate the emotional valence of the situations (good-bad), to name their emotional response(s) to them, to rate the intensity of these emotional responses, and to choose one out of four behavioral responses (see Ehrhardt-Madapathi et al., 2018, for more details). Using this measure, the intended factor structure of four distinct JS perspectives could not be replicated. Instead, a one-factor solution fit the data best, suggesting that the measure was either unsuitable for this age range or that children were unable to discriminate between the JS perspectives. Given that child self-reports on personality traits are often challenging and may be psychometrically impaired (Tackett et al., 2019; De Pauw & Mervielde, 2010), in the present study, we instead combined three different JS measures with 5 items per perspective based on the JSI-CA5 (Bondü & Elsner, 2015), respectively: first, further simplified items for child self-ratings; second, vignettes describing unjust situations for child self-ratings; third, adapted items for parent-reports. With the help of these corresponding measures, we aimed at challenging the assumption that children in middle childhood are unable to discriminate the JS perspectives and gaining deeper insights into the measurement and development of JS in middle childhood.

### **Relations with Prosocial and Aggressive Behavior**

Although research on JS in childhood and adolescence is only starting to emerge, relations between JS and prosocial and aggressive behavior were studied in both child/adolescent and adult samples. Findings were consistent: Victim JS, the egoistic perspective of JS and associated with anger and revenge, positively predicted different aggression measures. In particular, it predicted self-reported physical (e.g., hitting) and relational (e.g., gossiping) forms of aggression as well as parent- and teacher-rated aggression in a cross-sectional study with nearly 1,500 participants between 9 and 19 years of age (Bondü & Krahe, 2015). It also cross-sectionally predicted self-reported relational aggression

in 349 adults between 18 and 75 years of age, even when controlling for the similar construct of rejection sensitivity (Bondü & Richter, 2016). Similarly, in 279 children and adolescents between 10 and 17 years of age, victim JS predicted physical, relational, and verbal (e.g., screaming at sb.) aggression even when controlling for the hostility bias (Bondü, 2018). In contrast, it was unrelated to self-reported prosocial behavior, such as helping or sharing, in children and adolescents between 9 and 19 years of age one to two years later (Bondü & Elsner, 2015). Similarly, it was unrelated to (Baumert et al., 2014) or showed only small negative relations with (Fetchenhauer & Huang, 2004) the amount of sharing in the experimental dictator game among adults. Observer JS, the tendency to perceive injustice to the disadvantage of others, and perpetrator JS, the tendency to fear causing injustice, showed the opposite pattern of findings. They were positively related to prosocial behavior measures in children/ adolescents and adults in experimental and questionnaire studies (Baumert et al., 2014; Bondü & Elsner, 2015; Fetchenhauer & Huang, 2004). Particularly perpetrator JS tended to be negatively related to different forms of aggression in cross-sectional research (Bondü, 2018; Bondü & Krahe, 2015; Bondü & Richter, 2016). Hence, trying to replicate these links with prosocial and aggressive behavior in middle childhood may provide evidence for the (predictive) validity of the present JS measures.

### **Relations with Social Skills and Temperamental Dimensions**

We also explored links between JS and temperamental traits as well as social skills, in order to get insights into its functioning and to provide evidence for its discriminant validity.

#### ***Temperamental Dimensions***

In adults, JS is related to the Big Five, particularly neuroticism, but cannot be explained by these personality dimensions alone (Schmitt et al., 2005, 2010). Temperament comprises three dimensions (Rothbart & Hwang, 2005) that are related to personality dimensions in adults: Surgency, the tendency to experience positive emotions, be sociable,



and strive for pleasurable activities, is considered a precursor of extraversion; negative affect, the tendency to experience negative emotions, such as anger, fear, or sadness, is considered the precursor of neuroticism; effortful control, the tendency to inhibit impulses and to control behavior and attention, is considered the precursor of conscientiousness (Shiner & Caspi, 2012). In adults, links between JS and extraversion were inconsistent (negative, positive, non-significant; Baumert et al., 2014; Beierlein et al., 2012; Schmitt et al., 2005, 2010). Therefore, we did not expect to find correlations between any of the three JS perspectives and surgency. JS is linked to frequent experiences of negative affect; accordingly, research consistently showed positive correlations between all JS perspectives and neuroticism (Baumert et al., 2014; Schmitt et al., 2005, 2010). We, therefore, expected all JS perspectives to positively correlate with negative affect as well. Concerning effortful control, observer and perpetrator JS should be positively related to inhibiting selfish behavioral impulses, because they reflect altruistic concerns for justice (Gollwitzer et al., 2005). In contrast, victim-sensitive individuals have egoistic concerns for justice and tend to experience anger. They may, therefore, be less inclined to inhibit selfish behavioral impulses and to control emotions. Accordingly, observer and perpetrator JS showed positive and victim JS showed negative links with conscientiousness in adults (Schmitt et al., 2010). Thus, we expected the same pattern of links between effortful control and these three JS perspectives in middle childhood.

### ***Social Skills***

Cognitive and affective social skills are considered prerequisites for prosocial behavior and protective factors from adverse social behavior. Particularly, knowing and feeling that others will feel bad after unjust treatment should be a powerful motivator for avoiding others' unfair treatment or for restoring justice. First, empathy as a social-emotional skill and the ability to both understand (cognitive empathy) and feel (affective empathy; Decety & Svetlova, 2012) others' feelings was reliably related to prosocial behavior

(Williams et al., 2014). Empathy and associated own negative feelings when others feel bad should be a central driving force for fairly treating others. Hence, empathy may be linked to or even be a prerequisite for observer and perpetrator JS (Bondü & Richter, 2016). Positive relations of victim JS with adverse social behavior on the other hand would indicate a lack of empathic skills in individuals high in victim JS. However, in adults, all JS perspectives including victim JS were positively related to a general empathy score (Schmitt et al., 2005). In two further studies, altruistic JS was correlated only with affective (Edele et al., 2013) or only with cognitive empathy (Decety & Yoder, 2016). Given these contradicting findings in adults and substantial development of empathy during middle childhood, examining links between cognitive and affective empathy and JS in this age-range seems important.

Second, a further prerequisite for socially competent behavior (Astington, 2003) is Theory of Mind (ToM), the ability to attribute and infer other's thoughts, intentions, desires (cognitive ToM) or emotions (affective ToM; Doherty, 2009). Whereas the concept and the outcomes of affective ToM are similar to cognitive empathy, cognitive ToM does not involve affective components and is considered a social-cognitive skill. Hence, although it is mostly positively related to prosocial behavior, it can also be used to reach egoistic aims via adverse social behavior (e.g., manipulating others). Understanding others' desires and needs may aid individuals high in observer and perpetrator JS to understand unjust situations from a victim's point of view and foster prosocial behavior. This reasoning suggests high ToM skills in observer- and perpetrator-sensitive individuals. In contrast, frequent perceptions of others' untrustworthiness (Gollwitzer et al., 2012) and positive associations with paranoia (Schmitt et al., 2005) or aggression (Bondü & Richter, 2016) suggest low ToM abilities in victim-sensitive individuals. Consequently, examining exact relations with ToM might help to gain a better understanding of JS not only in children.

In addition, the relations between self-regulatory skills and JS were not investigated

so far. Inhibition, the ability to successfully inhibit pre-potent behavioral impulses, is one component of executive functions, higher-order cognitive processes that allow for the conscious control of cognition and goal-directed behavior (Diamond, 2013). Intact executive functions and/or inhibition are prerequisites for other social skills, such as ToM (Devine & Hughes, 2014), as well as more prosocial (Denham et al., 2014) and less aggressive behavior (King et al., 2018; Thomson & Centifanti, 2018). Anger reactivity, the tendency to experience and respond by anger, is an indicator of (low) affective self-regulation skills. Given that those high in observer and perpetrator JS tend to help others and to refrain from acting selfishly, they should be expected to show high behavioral and affective self-regulatory skills. In contrast, individuals high in victim JS that is associated with frequent experiences of anger and aggressive behavior, can be expected to show impaired behavioral and affective self-regulatory skills.

### **3.2 The Present Study**

We examined the measurement of JS via self- and parent- ratings as well as its relations with social behavior, temperamental dimensions, and social skills in middle childhood. We used three adapted versions (self-report questionnaire, self-report vignettes, parent-report) of the Justice Sensitivity Inventory for Children and Adolescents (JSI-CA5; Bondü & Elsner, 2015) to measure JS in 361 German children between 6 and 10 years of age. In doing so, the present study is the first to investigate JS in middle childhood via questionnaires and vignettes as well as self- and other-ratings, and to relate JS to temperamental traits, ToM, and self-regulatory skills. Based on past research and theoretical considerations summarized above, we derived the following hypotheses:

1. JS can reliably be measured in middle childhood via self- and parent-reports and shows: (i) a factor structure of three distinct, but positively correlated JS subscales (reflecting victim, observer, and perpetrator JS), (ii) correlation patterns resembling previous findings

(observer and perpetrator JS showing highest correlations, victim and perpetrator JS showing lowest correlations), (iii) positive correlations of corresponding JS perspectives in self- and parent-reports.

2. Criterion and predictive validity can be replicated: (i) high victim and low perpetrator JS predict physical, verbal, and relational aggression; (ii) high observer and perpetrator JS predict prosocial behavior; high victim JS predicts less prosocial behavior.

3. JS is related to temperamental dimensions and social skills, but moderate levels of correlations account for discriminant validity: We expected to find (i) no relations between surgency, but (ii) positive relations between negative affect and JS; (iii) positive correlations between observer and perpetrator JS and a negative correlation between victim JS and effortful control; (iv) positive correlations between observer and perpetrator JS and social skills and negative correlations with anger reactivity; (v) no or negative correlations between victim JS and social skills and positive correlations with anger reactivity.

### **3.2.1 Method**

**Sample.** The sample consisted of  $N=361$  children between 6 and 10 years ( $M=7.66$ ,  $SD=0.96$ ; 53.4% girls). All children attended elementary school classes 1 to 3 in South Germany. Child questionnaires were available for  $N=350$  and parent questionnaires were available for  $N=338$  children. 43% of the mothers ( $N=337$ ) had a university degree (20.8% A-Levels, 35% secondary education, 0.9% no graduation, 0.3% others) and 44.7% of the fathers ( $N=322$ ; 19.3% A-Levels, 35.4% secondary education, 0.6% no graduation). Children had 0 to 9 siblings ( $M=1.36$ ,  $SD=1.15$ ).

### **Measures**

**Justice Sensitivity.** First, we measured JS via self-rated questionnaires. According to results from different pilot studies, we further simplified the German wording of items from the Justice Sensitivity Inventory for Children and Adolescents (JSI-CA5; Bondü & Elsner,

2015; Schmitt et al., 2005; e.g., “I get angry” instead of “I am outraged”, “I feel bad” instead of “I have a bad conscience/I feel guilty”, “praise” instead of “recognition”; see the supplementary material for indication of further rewordings) and reduced the number of response options from originally 6 to 4 (0=*not at all true* to 3=*exactly true*) in order to make the items understandable and easier to rate for children. Victim (“I cannot easily bear it when others take advantage of me.”), observer (“I cannot easily bear it when someone takes advantage of others.”), and perpetrator JS (“I cannot easily bear the feeling of taking advantage of someone.”) were measured with five congruently worded items per perspective, that is, 15 items in total. The items capture experiences of negative emotions, strain, and rumination in the face of different unjust situations.

Second, we measured JS via vignette self-ratings. We created 15 descriptions of unjust situations (5 per JS perspective) that children may experience in their daily lives by asking parents for relevant situations, in order to facilitate the understanding of JS (e.g., observer JS: “Imagine a child from your class brought nice stickers. You see that two other children want some of those stickers and treat the child very nicely. The child gives them a sticker each. Afterwards the two other children leave to play and do not let the other child join in. How much does it bother you when you see that someone takes advantage of others?”). Response options were 0=*not at all*; 1=*a little*; 2=*very*.

Third, parents rated their children’s victim (e.g., “My child cannot easily bear it when others take advantage of them.”), observer, and perpetrator JS with the same items of the JSI-CA5 questionnaire as for children reworded for other-ratings with 5 items per perspective. Response options ranged from 0=*not at all true* to 5=*exactly true*. Thus, all three measures were equal in number, content, and order of items. We computed mean scores separately for the victim-, observer- and perpetrator perspective and all three JS measures. The scale range for the self-rated questionnaire was 0-3, 0-2 for vignette scales, and 0-5 for the parent-rated

questionnaire. Evidence for the reliability and validity of the original JSI-measure (Schmitt et al., 2005, 2010) and the JSI-CA5 (Bondü & Elsner, 2015) was provided. We included all items in the supplementary material.

**Prosocial and Aggressive Behavior.** Parents rated their children's prosocial behavior with the 5-item subscale of the German Strengths and Difficulties Questionnaire (Goodman, 1997, "Shares readily with other children"; response options: 0=*not true* to 2=*exactly true*). We computed a mean score (range: 0-2). The mean internal consistency of parent reports from 26 studies in children between 4 and 12 years of age was .65 (Stone et al., 2010). The subscale was shown to be valid by substantially correlating with behavioral measures of prosocial behavior (Ensor et al., 2011). We measured aggressive behavior via eight translated items of the Children's Social Behavior Scale (Crick, 1996) covering physical (3 items), relational (3 items), and verbal (2 items) aggression ("Hits, pushes, kicks others."; response options: 0=*never* to 4=*daily*). We computed separate mean scores for the three forms of aggression (range: 0-4, respectively). The Dutch version of the scale was administered to mothers, fathers, and teachers, with consistencies between .78 and .79 for the parent reports in a sample of 600 Flemish children between 8 and 10 years of age (Kuppens et al., 2009).

**Temperament.** Parents rated their children's surgency ("Likes rough and rowdy games."; 12 items), negative affect ("Is afraid of burglars."; 10 items), and effortful control ("Is good at following instructions."; 12 items) with the German short version of the Children's Behavior Questionnaire (Rothbart et al., 2001; Putnam & Rothbart, 2006; response options: 0=*not at all true* to 4=*exactly true*). We computed mean scores for each subscale (range: 0-4, respectively). Evidence for construct, convergent (parental agreement), and criterion (prediction of social behavior patterns) validity of the original instrument was reported, internal consistencies of mother reports ranged between .73 (4- and 5-year olds) and .75 (6- to 7- year olds) (Rothbart et al., 2001; Putnam & Rothbart, 2006).

**Empathy.** Parents rated their children's cognitive ("My child finds it hard to know if others are frightened."; 9 items) and affective empathy ("My child doesn't become sad when it sees other people crying."; 11 items) with translated and adapted items from the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006; response options: 0=*not at all true* to 3=*exactly true*) to measure the level of understanding and sharing of emotions. We computed mean scores for both empathy scales with a range from 0-3 each. Evidence for the reliability and construct validity of the original scale and adaptations to other languages was provided (e.g., Sánchez-Pérez et al., 2014). For example, internal consistencies were .79 for cognitive and .85 for affective empathy in a sample of 720 British 15-year olds (Jolliffe & Farrington, 2006).

**Theory of Mind.** Parents rated their children's cognitive ("My child understands the word 'think'.", 18 items) and affective ToM ("My child understands how others feel.", 10 items) via translated items of the Theory of Mind Inventory (ToMI; Hutchins et al., 2010; response options: 0=*not at all true* to 4=*exactly true*). We computed mean scores for both ToM scales with a range from 0-4 each. Internal consistency of mother ratings of typically developing 2- to 12-year olds was .98 for the original measure, and evidence for construct and criterion validity was provided (Hutchins et al., 2012).

**Inhibition and Anger Reactivity.** Parents rated their children's inhibition with six items ("My child can stop him/herself when s/he is told to stop.") and anger reactivity ("My child has explosive outbursts of rage") with five translated items from the Temperament in Middle Childhood Questionnaire, respectively (TMCQ; Simonds & Rothbart, 2004; response options: 0=*not at all true* to 4=*exactly true*). We computed mean scores for both scales with a range from 0-4 each. Internal consistencies of parent ratings in a sample of 7- to 10-year olds was .75 for the inhibition and .83 for the anger reactivity subscale (Simonds & Rothbart, 2004).

### *Procedure*

We collected data from children in schools during sessions of 45 to 60 minutes. Instructions and items were read aloud to the children. Children were instructed to ask questions if they did not understand something. Instructors ensured children's comprehension, repeated questions if necessary, and had standardized explanations for wordings or phrases that seemed challenging to understand. Children in first grade were questioned in groups of 1 to 5, children in second grade in groups of 7 to 10, children in third grade with all attending students of the class, respectively. Children marked their answers in the questionnaire and were asked to neither copy nor to read out answers. All children participated voluntarily, were guaranteed privacy, and received presents. Parents answered their questionnaires at home. Written informed consent was obtained from all parents. Questionnaires and proceedings were approved by the ethics committee of the university.

### *Analysis*

We replaced missing data (6.1-18.6% per item) by 10-times multiple imputation using SPSS 23.0 in order to compute means, mean differences, and correlations. We averaged standard deviations and relied on non-imputed data when calculating internal consistencies.

We conducted latent data analyses using *Mplus* 8 (Muthén & Muthén, 1998-2012). We used the full maximum likelihood procedure to replace missing data. Because the  $\chi^2$ -test is sensitive to sample size, model fits were considered acceptable if absolute fit indices were acceptable ( $CFI \geq .95$ ,  $RMSEA \leq .08$ ,  $SRMR \leq .06$ ; Hu & Bentler, 1999). To account for the factorial validity of the JS measure, we used confirmatory factor analysis (CFA) in order to replicate the intended JS-factor structure of three related, but distinct subscales in both child- and parent-questionnaire ratings. We used two identical but separate models for child- and parent-ratings. Because parceled indicators are more likely to meet the normal distribution assumptions underlying maximum-likelihood parameter estimation (Little et al., 2002) and in



line with previous research (Schmitt et al., 2005, 2010), we formed two item parcels for each of the three JS subscales and used them as indicators of the three latent JS factors (i.e., two item parcels per JS subscale). The first three items per scale formed the first and the last two formed the second item parcel. All parcels loaded significantly on their latent factors (Figure 1). In order to account for shared variance of parcels, we modeled a latent indicator-specific factor with loadings of second parcels. Indicator-specific and trait factors were constrained to be uncorrelated. Correlations of latent JS perspectives were estimated. We repeated the CFA by separately entering all 15 items of the JS questionnaire measures for children and parents. All items loaded significantly on their accordant latent factors. After inspections of modification indices, we allowed for two (children) or three (parents) correlations between error terms of items with similar wordings.

We then tested measurement invariance between child- and parent-ratings. We specified a model integrating the two CFA models using z-standardized data in order to account for different metrics in child- and parent-ratings. We modeled one indicator factor per rater. Corresponding JS perspectives were allowed to correlate. First, we examined equivalent model forms (configural invariance). We then restricted corresponding factor loadings (weak invariance), intercepts (strong), and error variances (strict) to be equal. We inspected chi-square difference test, fit indices, Akaike's Information Criterion (AIC), and Bayesian Information Criterion (BIC) to determine the level of measurement invariance. We also examined measurement invariance across gender.

Finally, we conducted latent path analysis in order to examine the association between prosocial behavior, aggressive behavior, and parent-reported JS. We modeled the JS perspectives as previously described and three latent factors for physical, relational, and verbal aggression with respective items as indicators for those factors (as the number of items did not allow for a parceled structure). Like JS, prosocial behavior was indicated by two

parcels (first three and last two items). All indicators showed significant loadings on the latent factors. We controlled for age and gender.

### 3.2.2 Results

**Descriptive Statistics, Factorial Validity, Measurement Invariance.** Table 1 shows ranges, internal consistencies, means, and standard deviations of all measures. Regarding JS, internal consistencies ranged between  $\alpha=.65-.74$  for child questionnaires,  $.73-.80$  for child vignettes, and  $.80-.90$  for parent questionnaires (victim JS lowest, perpetrator JS highest, respectively). In line with previous research, victim JS showed lowest and perpetrator JS showed highest mean scores in both child self-ratings but the opposite pattern emerged in parent-ratings.

A MANCOVA including all variables and using age as a covariate showed a significant main effect of gender ( $F(22, 326)=4.546, p<.001, \eta^2_p=.235$ ). On subscale level, girls showed significantly higher observer and perpetrator JS in self-rating questionnaires and higher perpetrator JS in self-rating vignettes, whereas boys showed significantly higher physical and verbal aggression. Girls showed significantly lower surgency but higher effortful control, higher cognitive and affective empathy and inhibition and lower anger reactivity.

Table 2 shows zero-order correlations of all JS ratings and perspectives, respectively. In line with previous research and Hypothesis 1(ii), a pattern of low to moderate positive correlations between perspectives emerged for all three ratings with highest correlations between observer and perpetrator JS ( $r=.517$  to  $.599$ ) and lowest correlations between victim and perpetrator JS ( $r=.155$  to  $.189$ ; victim-observer:  $r=.341$  to  $.414$ ). In child-questionnaire and vignette self-ratings, corresponding scales showed moderate correlations ( $r=.422$  to  $.493$ ), but only ranged between  $r=-.020$  to  $.134$  for corresponding scales of child-vignette self- and parent-ratings (perpetrator JS significant) and between  $r=.093$  to  $.108$  for

corresponding scales of child and parent questionnaire-ratings (victim and observer JS significant), partly supporting Hypothesis 1(iii). Internal consistencies, mean values, and correlation patterns within and across corresponding scales of raters/instruments did not differ between children below and above eight years of age.

We proceeded with examining the JS-factor structure using CFA and child and parent questionnaire-ratings (due to the better comparability, higher correlations between corresponding scales, and somewhat more similar correlation patterns with further variables than vignette-ratings). Supporting Hypothesis 1(i), we were able to replicate the intended factor structure of three distinct, positively correlated subscales in both child- and parent-ratings using item parcels (Figure 1; children:  $\chi^2(df=3)=3.447$ ,  $p=.328$ , CFI=.999, RMSEA=.021 [.000-.095], SRMR=.014; parents:  $\chi^2(df=3)=8.151$ ,  $p=.043$ , CFI=.994, RMSEA=.072 [.011-.133], SRMR=.023) and single items (children:  $\chi^2(df=85)=117.621$ ,  $p=.011$ , CFI=.961, RMSEA=.033 [.017-.047], SRMR=.048; parents:  $\chi^2(df=84)=177.094$ ,  $p>.000$ , CFI=.952, RMSEA=.058 [.046-.069], SRMR=.053) as indicators for the latent factors. Latent child-questionnaire scales correlated .71 (observer, perpetrator), .49 (victim, observer) and .27 (victim, perpetrator), latent parent-rated scales correlated .72 (observer, perpetrator), .47 (victim, observer) and .23 (victim, perpetrator). Furthermore, non-significant  $\chi^2$ -difference tests, minor changes in comparative fit indices, and decreases in BIC and AIC values indicated strict factorial invariance (Table 3), that is, equal factor structure, factor loadings, intercepts, and error variances in child- and parent-ratings. Finally, findings indicated strong measurement invariance between girls and boys for both child and parent questionnaire-ratings (children:  $\chi^2(df=13)=8.917$ ,  $p=.779$ , CFI=1.00, RMSEA=.000 [.000-.051], SRMR=.030; parents:  $\chi^2(df=13)=15.085$ ,  $p=.302$ , CFI=.997, RMSEA=.031 [.000-.087], SRMR=.032).

**Predictions of Prosocial and Aggressive Behavior.** In line with Hypothesis 2,

parent-ratings showed negative links of victim JS and positive links of observer and perpetrator JS with prosocial behavior (the latter also shown in vignette self-ratings). Further, we found positive relations between victim JS and physical aggression, and negative links between perpetrator JS and all aggression measures (partly also shown in child vignette-ratings). Also in line with Hypothesis 2 and with previous findings, in latent path analysis (Figure 2) controlling for age and gender, higher parent-rated victim JS predicted less prosocial behavior and more physical and relational aggression; observer and perpetrator JS predicted more prosocial behavior and perpetrator JS predicted less physical, relational, and verbal aggression ( $\chi^2(df=104)=147.09, p=.004, CFI=.973, RMSEA=.036 [.021-.048], SRMR=.044$ ). The model explained 46.3% variance in prosocial behavior and 22.1% variance in physical, 16.1% in relational, and 18.5% in verbal aggression.

**Relations with Temperamental Dimensions and Social Skills.** As can be seen from Table 4, all JS ratings and perspectives were unrelated to age during middle childhood. Generally, the links between the JS measures and all other variables showed the expected positive or negative relations, significant relations were small to moderate in size ( $r=.104$  to  $.405$ ). Links between parent-ratings and all other variables were consistently larger than links with child self-ratings. Considering temperamental dimensions, in line with Hypothesis 3(i), all JS measures were unrelated to surgency; only partly supporting Hypothesis 3(ii), victim, but not observer and perpetrator JS showed positive relations with negative affect (child- and parent-questionnaire ratings); partly supporting Hypothesis 3(iii), victim JS was unrelated to, but observer (parent-rating) and perpetrator JS (child- and parent-rating) were positively related to effortful control. Concerning social skills, in line with Hypothesis 3(iv), but contrasting Hypothesis 3(v), in parent-ratings, all JS sub- scales showed positive links with cognitive and affective empathy and ToM (for perpetrator JS also shown in child ratings, particularly questionnaire-ratings). Finally, supporting both Hypotheses 3(iv) and 3(v) and

consistently across all ratings, victim JS was unrelated to and observer and perpetrator JS were positively related to inhibition, whereas anger reactivity showed positive relations with victim and negative relations with observer and perpetrator JS (in parent-ratings only).

### **3.3 Discussion**

The present study examined the measurement of justice sensitivity in middle childhood via self- and parent ratings. It aimed to replicate previous findings on the effects and correlates of JS in adolescents and adults in this age group. Acceptable to good psychometric properties of the JS sub- scales, the replication of the well-established factor-structure and scale inter-correlations, strict measurement invariance between child- and parent-questionnaire ratings, strong measurement invariance across gender, and well-known mean-level gender differences indicated that the reliable measurement of JS is possible via both self- and other-ratings. The findings also imply that individuals differ in JS from middle childhood or six years of age onwards. Small to moderate meaningful, mostly expected correlations in line with previous theoretical assumptions and research between the JS perspectives and prosocial and aggressive behavior, temperamental dimensions, as well as social skills provided evidence for the validity of the JS measures, particularly parent-ratings. The findings indicated differences between JS and temperamental traits and revealed problems of emotion-regulation specifically among participants high in victim JS. Evidence for the validity of parent-ratings was also supported by the replication of the prediction of prosocial and aggressive behavior by JS. Hence, JS may influence social behavior early on, indicating its importance for social child development. Our findings add to the understanding of the psychology of justice and the early development of justice-related interpersonal differences, and provide evidence for the notion that personality measurement is challenging but possible already in childhood (Tackett et al., 2019).

#### ***Measurement of Justice Sensitivity in Middle Childhood***

Contrasting previous research using a vignette-based JS measure (Ehrhardt-Madapathi et al., 2018), the present study showed that JS can be measured from 6 years onwards with a 5-item questionnaire and vignette version of the JS measure as well as via self- and other-ratings. Replications of the intended factor structure, strong measurement invariance between self- and other-ratings, expected inter-scale correlations, and expected correlation patterns with other variables indicate that children from 6 years onwards were able to validly discriminate victim, observer, and perpetrator JS. With regard to frequently discussed self-report methods in younger children, our results provide evidence for a reliable and valid measurement of JS. There were no differences in consistencies, means, and correlations between children below and above 8 years of age, indicating that also young children comprehended the measure. All self-reported variables were uncorrelated with age, indicating that our findings apply to the whole age range in the present study.

Internal consistencies of self-, but not parent-rated JS were slightly lower than in adolescent samples (Bondü, 2018; Bondü & Elsner, 2015), but still indicated a reliable measurement of all perspectives. Note that a reduced number of response options in child self-ratings may have limited variance and partly accounted for lower internal consistencies. Furthermore, the present internal consistencies were in the expected range for child-personality self-ratings (Quartier & Rossier, 2008). Research has pointed to frequent psychometric problems of these ratings (De Pauw & Mervielde, 2010; Tackett et al., 2019), but given strong overlaps with previous findings in adolescents and adults (Baumert et al., 2014; Bondü et al., 2016; Bondü & Elsner, 2015; Schmitt et al., 2005, 2010) and strong psychometric similarities between self- and parent-ratings (subscale correlations, factor structure, measurement invariance), the present findings indicate that the reliable measurement of JS is possible. For example, children apparently differentiate and perceive overlaps between the JS perspectives in the same way as older age-groups do (Bondü et al.,

2016; Schmitt et al., 2010). In addition, typical gender differences including higher observer and perpetrator JS in females than in males were already present in middle childhood (Bondü & Elsner, 2015; Schmitt et al., 2010). Finally, substantial positive correlations between corresponding JS perspectives using different self-rating methods ( $r=.42$  to  $.49$ ) further indicated convergent validity, the robustness of self-ratings, and the comprehension of items, and were in line with child-personality research indicating a limit of convergence in the range of  $.50$  to  $.60$  (Tackett, 2011). Hence, children from 6 years onwards seem able to compare and reflect their general responses in unjust situations, resulting in reliable and valid statements about JS even with a parsimonious number of items.

Concerning comparisons between child- and parent-ratings, despite the equal factor structure and indications of strict measurement invariance, there were also substantial differences: First, correlations between corresponding subscales were small and non-significant for perpetrator JS. Diverging findings between self- and other-ratings, however, are often observed (De Los Reyes & Kazdin, 2004). Second, in child self-ratings, victim JS showed lowest and perpetrator JS showed highest mean values of the JS perspectives in line with previous findings (Bondü & Elsner, 2015; Schmitt et al., 2005, 2010); parent reports showed the opposite pattern with highest mean values in victim JS and lowest in perpetrator JS. Hence, parents apparently do not rate their children exclusively positively, they may rely on different indicators for JS than children, and self-ratings may be biased by self-serving perceptions.

Because our study is the first to assess JS via other-report, it may be the first to find proof for the influence of social desirability. In fact, findings of a more recent study support this notion (Strauss & Bondü, 2019). However, parent-ratings may also be distorted, because accurate other-rating is challenging and requires trait salience, observability, as well as detection and utilization of trait information (Funder, 1995; Karver, 2006). Victim JS that is

related to externalizing responses including anger, aggression, and vengefulness may be more salient and easily observable for parents than perpetrator JS that is more strongly related to internalizing responses, such as guilt or self-punishment. Given these findings, combining self- and other-reports in childhood-JS research seems reasonable (Quartier & Rossier, 2008). Third-party ratings from teachers may provide information about potential biases in self- (e.g., social desirability) or parent-reports (e.g., salience, overcorrection of social desirability, stereotypical answering patterns for children with overall disruptive behaviors, less distorted judgements of undesirable traits; Vazire & Carlson, 2011). Teacher ratings could also inform about context-dependent variance, because children could experience different levels or forms of injustice at home and at school.

### ***Prediction of Prosocial and Aggressive Behavior***

In line with previous research in adolescents and adults (Bondü & Elsner, 2015; Bondü & Krahe, 2015; Bondü & Richter, 2016; Fetchenhauer & Huang, 2004; Gollwitzer et al., 2005; Gollwitzer et al., 2009), victim JS, the tendency to feel being unjustly treated, predicted less prosocial and more (physical and relational) aggressive behavior, indicating self-related concerns for justice and fear of exploitation in victim-sensitive individuals (Gollwitzer & Rothmund, 2011). In contrast, perpetrator and observer JS, the tendencies to fear causing and perceiving injustice to the disadvantage of others, predicted more prosocial and perpetrator JS less aggressive behavior in middle childhood, indicating genuine altruistic concerns for justice and high moral standards particularly in perpetrator-sensitive individuals (Bondü et al., 2016). Large overlaps between observer and perpetrator JS may explain why—in line with previous research—observer JS did not add to the prediction of less aggressive behavior beyond perpetrator JS. Close replications of previous findings speak for the (predictive) validity of parent-rated JS.

Taken together, particularly perpetrator JS may serve as a protective factor. This goes



along with more pronounced self-regulation among participants high in altruistic JS that should constrain self-serving behavior and facilitate other-oriented behavior (see below). Longitudinal research is needed to confirm this notion. Our findings also point to more pronounced potential protective effects of perpetrator JS regarding aggression rather than potential negative effects of victim JS, whereas the negative effects of victim JS exceeded the positive effects of observer and perpetrator JS on prosocial behavior. We, therefore, suggest that in middle childhood, JS may have behavior-suppressing rather than behavior-eliciting effects. This notion is also supported by previous findings showing that the potential protective effects of perpetrator JS tend to outweigh the negative effects of victim JS regarding aggression (Bondü & Krahe, 2015).

### ***Relations with Temperamental Dimensions and Social Skills***

Relations between JS and temperamental dimensions as well as social skills were mainly evident in parent-ratings, but generally pointed into the expected directions in both self- and parent-ratings, indicating the validity of the JS measures. Non-significant and/or small correlations between the JS subscales and temperamental dimensions indicate that JS is a distinct trait already in middle childhood that requires separate attention by research on personality development.

In line with our predictions, parent-reported observer and perpetrator JS were positively correlated with all social skills in our study. These findings support the notion that altruistic JS, that is, the tendency to experience negative emotions, strain, and rumination in the face of injustice toward others, as a correlate of prosocial behavior is related to or even based on a good understanding of others' desires, intentions, and feelings (ToM), the ability to infer and feel others' feelings (empathy), and the ability to control behavioral impulses (inhibition, effortful control) and anger-related affect (Nigg, 2017). Taken together, advanced social-cognitive and social-emotional functioning, behavioral self-regulation, and effective

emotional self-regulation may apparently promote altruistic JS. Hence, impairments in social skills cannot account for the positive relations between observer JS and aggressive behavior (Bondü & Krahé, 2015; Bondü & Richter, 2016). The findings of the present study, therefore, suggest that aggression by observers should be considered as altruistic punishment including prosocial and/or norm-clarifying intent.

Similarly, and in line with previous findings on empathy (Schmitt et al., 2005), victim JS, the tendency to respond by anger and to ruminate about perceived own unjust treatment, was positively related to all ToM and empathy measures, indicating a good understanding of others' intentions and feelings and the ability to feel others' feelings. This signals well-developed capacities to understand social situations and, therefore, unjust situations, and contradicts the bad reputation of victim JS. Furthermore, non-significant relations with inhibition and effortful control suggested no impairment of behavioral self-regulation among victim-sensitive children. Victim JS, however, showed positive relations with both anger reactivity and negative affect. Vulnerability to and impaired coping with negative emotions as well as strong anger reactivity indicated impaired affective self-regulation and a readiness to respond by anger and other negative feelings to adverse social situations including injustice. Positive relations of victim JS with anger may also indicate a readiness to fight obstacles hindering the fulfillment of own needs when self-related justice concerns seem threatened (Thomas et al., 2011). This would be in line with positive correlations between victim JS and jealousy and vengeance in adults (Schmitt et al., 2010; Gollwitzer et al., 2005).

These findings further support the notion that the prediction of adverse behavior by victim JS is primarily driven by anger and grounds in affective rather than in cognitive predispositions (Bondü, 2018; Bondü & Richter, 2016). Furthermore, positive relations with social skills support the notion that victim JS may not only be maladaptive, but at times also an adaptive strategy in order to prevent victimization or exploitation (Bondü, 2018). Social

skills combined with self-assertive affective (anger) and behavioral (aggression) responses may be important contributors to social status. Accordingly, victim JS was unrelated to peer problems (Bondü & Elsner, 2015).

### ***Limitations and Outlook***

The present study was the first to examine the measurement, effects, and correlates of JS in middle childhood via both questionnaires and vignettes as well as self- and other-ratings. Its strengths include using three different JS measures as well as considering a large number of measures for social behavior, temperament, and social skills. Limitations include low internal consistencies of inhibition, negative affect, relational aggression, and prosocial behavior that impair the generalizability of the related findings (note that when using ordinal level a for prosocial behavior, internal consistency improves to .70). Second, cross-sectional data do not allow for causal inferences. Third, JS self-ratings showed only limited relations with the other variables, whereas parent-ratings showed more pronounced relations. This may reflect limited variance in child self-ratings, weaker relations between self-ratings and behavior, stereotypical ratings of JS and related behavior by parents, and/or stronger overlaps between other-ratings due to shared rater variance. Further research is needed to explain these findings, as well as low correlations between self- and parent-ratings despite strict measurement invariance. Self-ratings may have been influenced by social desirability and the anticipation of being asked for one's answers by peers after the study session in school.

Future research, therefore, should replicate the present findings using more reliable measures and longitudinal data, also in order to provide evidence for the re-test reliability and the stability of JS in middle childhood. Potential distorting factors may be revealed by considering further raters (e.g., teachers). Social behavior should not only be measured via questionnaires, but also in experimental or real-life settings. JS may already be measurable in younger age groups, that is, in preschool age. Further outcome measures including

psychopathology, well-being, or moral behavior may be accounted for.

The present study is the first to provide evidence for the reliable and valid measurement of JS and its perspectives in middle childhood via self- and parent-ratings, its relations with temperament and social skills and its early relevance for social behavior. Findings show that JS may be distinguished from temperamental dimensions. It adds to a better understanding of the JS perspectives by revealing differential relations with social skills and emotion-regulation deficits associated with victim JS. Because JS may influence well-being (e.g., Bondü & Elsner, 2015; Bondü et al., 2017) and behavior early on, it should be considered by future research on childhood development and pathology using multiple ratings.

To conclude, individual differences in the perception and processing of injustice are associated with temperament and social skills and may already influence social behavior in childhood. This opens the opportunity for early interventions by parents, school staff, or clinicians. The present research may broaden educationalists' understanding of children's diverging perceptions of and reactions to injustice in the classroom. Similarly, knowledge of JS in children might stimulate clinical research and intervention, because research in adolescents and adults has consistently shown positive relations between JS and externalizing and internalizing problem behavior (Bondü et al., 2017). Future research, therefore, should try to determine favorable levels of JS and how JS may be influenced.

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### 3.5 Appendix

**Table 1**

*Descriptive Statistics of all Measures*

Scale	Range	$\alpha$	Total <i>M (SD)</i>	Girls <i>M (SD)</i>	Boys <i>M (SD)</i>	<i>F</i>
Victim JS	0-3	.65	1.94 (0.66)	1.94 (0.63)	1.95 (0.70)	0.059
Observer JS	0-3	.76	2.03 (0.71)	2.14 (0.66)	1.90 (0.74)	10.74
Perpetrator JS	0-3	.74	2.28 (0.69)	2.40 (0.64)	2.16 (0.73)	11.31
Victim JS (vignette)	0-2	.73	1.48 (0.44)	1.48 (0.41)	1.49 (0.47)	0.08
Observer JS (vignette)	0-2	.75	1.58 (0.42)	1.61 (0.40)	1.55 (0.44)	2.21
Perpetrator JS (vignette)	0-2	.80	1.68 (0.41)	1.76 (0.34)	1.60 (0.47)	12.26
Victim JS (parent)	0-5	.80	3.33 (0.99)	3.28 (1.00)	3.38 (0.99)	1.01
Observer JS (parent)	0-5	.88	3.15 (1.07)	3.23 (1.05)	3.03 (1.10)	3.02
Perpetrator JS (parent)	0-5	.90	2.93 (1.19)	3.03 (1.19)	2.79 (1.20)	3.48
Prosocial Behavior	1-3	.55	2.47 (0.26)	2.46 (0.25)	2.48 (0.26)	0.70
Physical Aggression	0-4	.72	0.49 (0.53)	0.35 (0.45)	0.66 (0.55)	32.46
Relational Aggression	0-4	.58	0.47 (0.48)	0.52 (0.48)	0.42 (0.47)	4.45
Verbal Aggression	0-4	.72	0.79 (0.72)	0.66 (0.68)	0.95 (0.72)	13.96
Surgency	0-4	.69	2.40 (0.50)	2.32 (0.47)	2.49 (0.53)	11.14
Negative Affect	0-4	.58	1.97 (0.53)	1.96 (0.54)	1.99 (0.53)	0.23
Effortful Control	0-4	.80	2.98 (0.55)	3.10 (0.51)	2.84 (0.57)	20.77
Cognitive Empathy	0-3	.84	2.35 (0.41)	2.40 (0.41)	2.30 (0.41)	5.40
Affective Empathy	0-3	.75	2.03 (0.40)	2.07 (0.39)	1.97 (0.40)	5.98
Cognitive ToM	0-4	.91	3.14 (0.52)	3.16 (0.50)	3.10 (0.57)	1.14
Affective ToM	0-4	.85	3.07 (0.57)	3.10 (0.54)	3.04 (0.58)	0.98
Inhibition	0-4	.58	2.60 (0.61)	2.68 (0.63)	2.49 (0.57)	8.79
Anger reactivity	0-4	.87	1.24 (0.80)	1.15 (0.74)	1.34 (0.85)	5.35

*Note:* Differences girls-boys: All values greater than or equal to  $F=5.35$  are statistically significant at  $p<.05$ , greater than or equal to  $F=8.79$  at  $p<.01$  and greater than or equal to  $F=13.96$  at  $p<.001$ . Note that ranges are based on calculations of mean scores for the scales.

**Table 2***Correlations of JS-Ratings*

		2	3	4	5	6	7	8	9
1	Victim JS (self, questionnaire)	.341	.180	.422	.173	.116	.107	.053	-.026
2	Observer JS (self, questionnaire)	-	.543	.300	.493	.419	-.013	.108	.054
3	Perpetrator JS (self, questionnaire)		-	.098	.284	.465	-.042	.124	.093
4	Victim JS (self, vignette)			-	.414	.155	-.020	.012	-.016
5	Observer JS (self, vignette)				-	.517	-.017	.073	.065
6	Perpetrator JS (self, vignette)					-	-.007	.145	.134
7	Victim JS (parent)						-	.365	.189
8	Observer JS (parent)							-	.599
9	Perpetrator JS (parent)								-

*Note:* All values greater than or equal to  $r=.107$  are statistically significant at  $p<.05$ , greater than or equal to  $r=.145$  at  $p<.01$  and greater than or equal to  $r=.173$  at  $p<.001$ .

**Table 3***Results for Testing Measurement Invariance Across JS Child and Parent Questionnaire Ratings*

Measurement Invariance	$\chi^2$ (df)	$\Delta\chi^2$ (df)	CFI	TLI	RMSEA [90% CI]	SRMR	AIC	BIC
Configural: Equivalent model forms	46.210 (32)	-	.990	.980	.035 [.001, .056]	.027	8572.05	8797.61
Weak: Factor loadings invariant	49.586 (39)	3.376 (7)	.993	.988	.027 [.000, .048]	.027	8561.43	8759.76
Strong: Factor loadings, item intercepts invariant	49.654 (42)	.068 (3)	.995	.992	.022 [.000, .044]	.027	8555.49	8742.16
Strict: Factor loadings, item intercepts, residuals invariant	65.308 (51)	15.65 (9)	.990	.987	.028 [.000, .046]	.030	8553.15	8704.82

*Note:*  $\chi^2$  = Chi-square test; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root-Mean Square Error of Approximation; 90% CI=Confidence Interval for RMSEA; SRMR= Standardized Root Mean Square Residual; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion.

**Table 4***Zero-Order Correlations of JS Ratings with Social Behavior, Temperamental Dimensions, Social Skills, and Age*

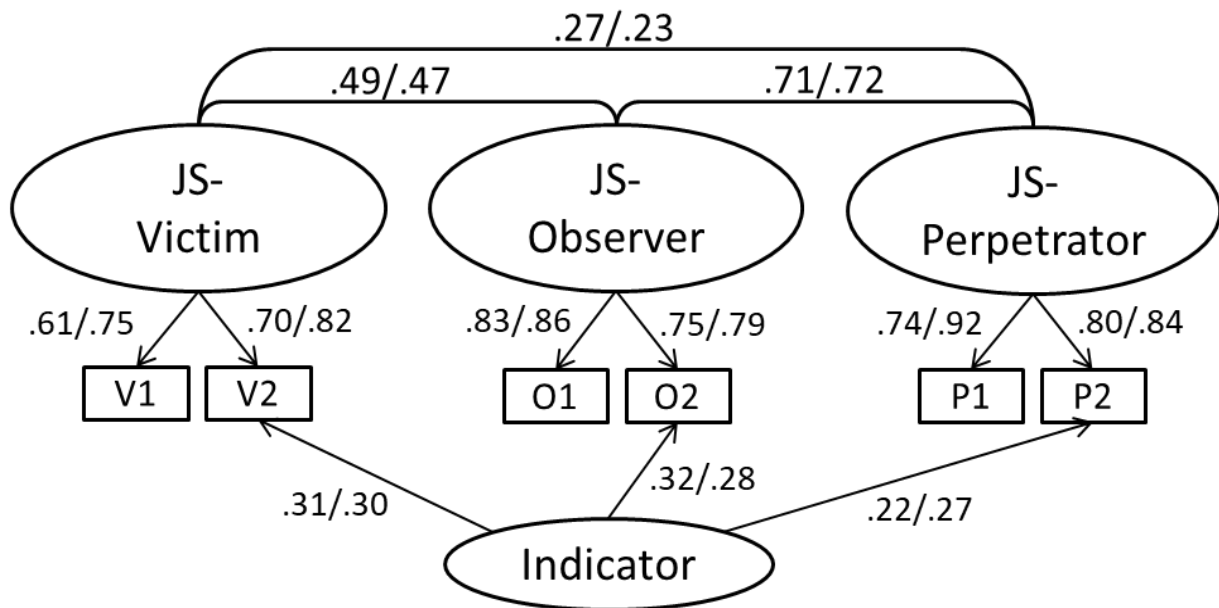
	Prosocial Behavior	Physical Aggression	Relational Aggression	Verbal Aggression	Surgency	Negative Affect	Effortful Control	Cognitive Empathy	Affective Empathy	ToM	Cognitive ToM	Affective ToM	Inhibition	Anger Reactivity	Age
<b>Victim JS</b>															
Self, questionnaire	-.065	.028	.026	.027	.032	.112	-.056	-.006	.068	-.042	-.041	-.030	.031	.039	
Self, vignette	-.007	-.009	.042	-.017	.021	.089	.012	.043	.025	-.030	-.007	.007	-.007	.034	
Parent, questionnaire	-.110	.141	.083	.096	.007	.222	.095	.140	.146	.197	.182	-.019	.161	.030	
<b>Observer JS</b>															
Self, questionnaire	.035	-.114	.040	-.100	.019	.027	.026	.082	.044	.027	.053	.110	-.030	.012	
Self, vignette	.124	-.046	.022	-.093	-.030	-.008	.022	.078	.028	-.006	-.003	.115	-.053	.009	
Parent, questionnaire	.250	-.043	-.080	-.065	.025	-.009	.298	.394	.344	.292	.350	.135	-.112	.058	
<b>Perpetrator JS</b>															
Self, questionnaire	.084	-.086	-.062	-.091	-.052	-.064	.104	.157	.107	.126	.141	.228	-.062	.053	
Self, vignette	.119	-.137	-.056	-.199	-.044	-.006	.076	.085	.033	.110	.134	.151	-.068	.077	
Parent, questionnaire	.332	-.158	-.229	-.226	-.089	-.070	.283	.405	.350	.234	.286	.285	-.215	.083	

*Note:* All values greater than or equal to  $r=.104$  are statistically significant at  $p<.05$ , greater than or equal to  $r=.140$  at  $p<.01$  and greater than or equal to  $r=.182$  at  $p<.001$ .



**Figure 1.**

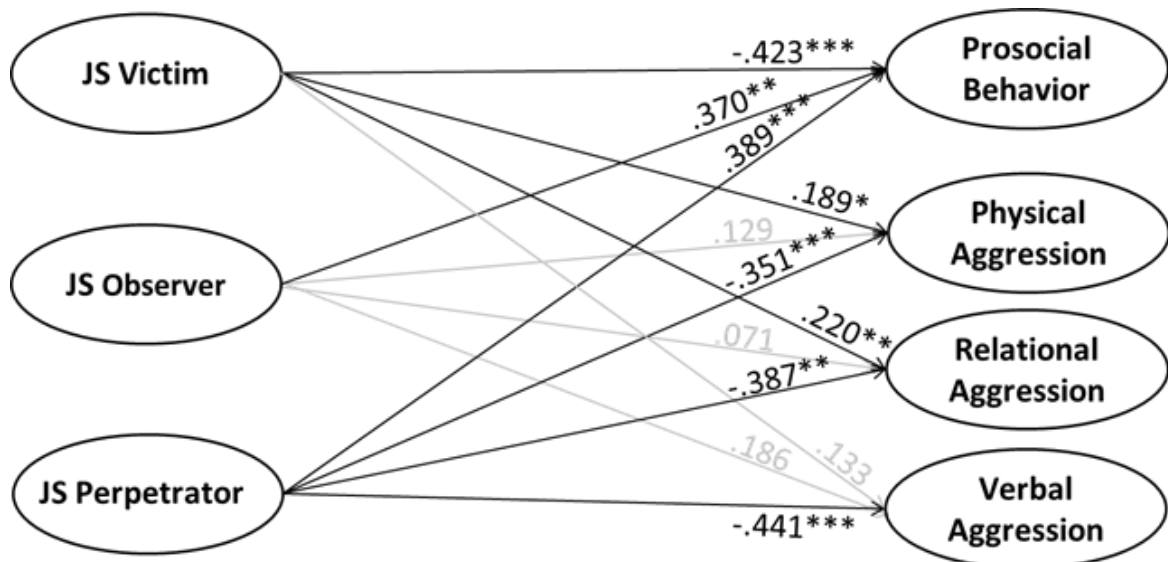
*Confirmatory Factory Analysis*



*Note.* Confirmatory Factory Analysis for Justice Sensitivity measured via self-report (first figure) and parent-report (second figure). Self-report:  $\chi^2(3)=3.447$ ,  $p=.328$ , CFI=.999, RMSEA=.021 [.000; .095], SRMR=.014,  $N=348$ . Parent- report:  $\chi^2(3)=8.151$ ,  $p=.043$ , CFI=.994, RMSEA=.072 [.011; .133], SRMR=.023,  $N=335$ .

**Figure 2**

*Predicting Prosocial Behavior and Physical, Relational and Verbal Aggression from Victim, Observer, and Perpetrator Justice Sensitivity.*



*Note:* Controlled for age and gender.  $\chi^2(df = 104)=147.09, p=.004, CFI=.973, RMSEA=.036$  [.021; .048], SRMR=.044, prosocial behavior  $R^2=.463$ ; physical aggression  $R^2=.221$ ; relational aggression  $R^2=.161$ ; verbal aggression  $R^2=.185$ .  $N= 327$ .

### 3.6 Supplementary Material

#### Justice Sensitivity Items for Children

Perspective	Item wording
Victim	<p>It bothers me when others receive something that I am entitled to</p> <p>It makes me angry when others receive <i>praise</i> that I deserve</p> <p>I cannot easily bear it when others take advantage of me</p> <p>I think about it for a long time when others are treated more friendly than me without reason*</p> <p>It makes me angry when I am treated worse than others</p>
Observer	<p>It bothers me when someone does not receive something they are entitled to</p> <p><i>I get angry</i> when someone does not receive <i>praise</i> they deserved</p> <p>I cannot easily bear it when someone takes advantage of others</p> <p>I think about it for a long time when someone is treated less friendly than others without reason*</p> <p><i>I get angry</i> when someone is treated worse than others</p>
Perpetrator	<p>It bothers me when I take something that others are entitled to</p> <p><i>I feel bad</i> when I deny others <i>praise</i> they deserved</p> <p>I cannot easily bear the feeling of taking advantage of someone</p> <p>I think about it for a long time when I treat someone less friendly than others without reason*</p> <p><i>I feel bad</i> when I treat someone worse than others</p>

Adapted and original items from the justice sensitivity inventory for children and adolescents (JSI-CA5; Bondü & Elsner, 2015). Reworded items highlighted by using italics, items changed in word order marked with\*.

**Justice Sensitivity Vignettes for Children**

Perspective	Vignette wording	Item wording
Victim	Imagine you are at a birthday party. You are playing a game in which the fastest child wins a piece of candy. Although you are the fastest, another child gets the candy.	How much does it bother you when someone receives something that you are entitled to.
	Imagine your teacher asks you and another child to tidy up the classroom. She then leaves the room. You work very hard but the other child does almost nothing. When your teacher comes back and sees how clean the room is, she praises both of you a lot.	How angry does it make you, when someone else receives praise that you deserve.
	Imagine you bring a great toy to school with you. A child who is usually not so nice to you wants to play with it and is now very friendly. You let the child play with your toy. The next day you do not have your toy with you but want to quickly borrow a pen from the child. It does not lend you the pen and does not pay any attention to you.	How much does it bother you when others take advantage of you?
	Imagine you and two children from your class meet your teacher on the street. The teacher smiles at the other two children and greets them using their names but not you.	How long do you think about it when others are treated more friendly than you without a reason.
	Imagine you and a friend hand in a homework that you both did together. The next day, your teacher returns the homework and praises your friend but says nothing to you.	How angry does it make you when you are treated worse than others?
Observer	Imagine your teacher gave all of you a task and said that the fastest child receives a reward. Later he does not give the reward to the fastest child but to another one.	How much does it bother you when you see that someone does not receive something that they are entitled to?
	Imagine two children are building a cave out of branches in the schoolyard. One of the children puts in a lot of effort, gets a lot of branches and has a lot of great ideas to make the cave better. The teacher sees this as well but you see that the teacher praises the other child especially.	How angry does it make you when you see that someone does not receive praise that they deserve?
	Imagine a child from your class brought nice stickers. You see that two other children want	How much does it bother you when you see that

some of those stickers and treat the child very nicely. The child gives them a sticker each. Afterwards the two other children leave to play and do not let the other child join in.

someone takes advantage of others?

Imagine a teacher assists all children that raise their hands because they need help with a math problem. You see that he is friendly to all children and helps them until they understand the problem but is unfriendly to one child and scolds the child for never paying enough attention.

How long do you think about it when you see that someone is treated less friendly than others without a reason?

Imagine the whole class is very loud during recess and runs around. When several children climb on top of a chair, the chair breaks. You see that the janitor goes to one child to tell them that it is their fault that the chair is now broken.

How angry does it make you when you see that someone is treated worse than others?

Perpetrator Imagine you are playing a game with your friends in which the best wins a piece of candy. Before the winner can take the candy, you take it and eat it quickly. There is no more candy left.

How much does it bother you when you take something that someone else is entitled to?

Imagine two children from your class painted a picture for you. You know that one of them put in a lot more effort than the other one. Still, you thank the other child especially because you like it better.

How bad do you feel when you do not give someone the recognition they deserve?

Imagine a child from your class always gives great gifts to others on their birthdays. You do not really like this child but invite them to your party because you want to get a nice gift. During your party you barely speak with the child.

How much does it bother you to take advantage of others?

Imagine you have invited two friends. You let one of them play with your favorite toy but not the other one even though there is no particular reason for this.

How long do you think about it when you treat someone less friendly than others without a reason?

Imagine you have a chocolate bar. You give a big piece to one friend and only a little piece to another friend.

How bad do you feel when you treat someone worse than others without a reason?

---

**Justice Sensitivity Items reworded for Parent-Ratings**

Perspective	Item wording
Victim	It bothers my child when others receive something that my child is entitled to
	My child gets angry when others receive recognition that my child deserves
	My child cannot easily bear it when others take advantage of them
	My child thinks about it for a long time when others are treated more friendly than they without reason
	My child gets angry when they are treated worse than others
Observer	It bothers my child when someone does not receive something they are entitled to
	My child is outraged when someone does not receive recognition they deserved
	My child cannot easily bear it when someone takes advantage of others
	My child thinks about it for a long time when someone is treated less friendly than others without reason
	My child is outraged when someone is treated worse than others
Perpetrator	It bothers my child when they take something that others are entitled to
	My child has a bad conscience when denying others recognition they deserve
	My child cannot easily bear the feeling of taking advantage of someone
	My child thinks about it for a long time when they treat someone less friendly than others without reason
	My child feels guilty when they treat someone worse than others

**4. Study 2: “Fair Sharing is Just Caring: Links between Justice Sensitivity and  
Distributive Behavior in Middle Childhood”**

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#### 4.1 Abstract

Justice sensitivity (JS), the tendency to perceive and adversely respond to injustice, was related to prosocial behavior in different age groups and to distributive preferences in adults. To test influences of JS on sharing and distributive preferences, middle childhood as an important phase for moral development may be particularly interesting. We asked 1320 5- to 12-year-old children ( $M = 8.05$  years,  $SD = 1.02$ ; 51.2 % girls, 1.3 % transgender and gender-nonconforming) to read five vignettes that made salient the different principles of distributive justice (equality, merit, and need) and to distribute imaginary sweets between themselves and one described child (sharing) or between two described children (distributing). Children also rated their JS, and parents rated children's theory of mind (ToM) abilities and empathy. More concerns for justice for the self (victim JS) predicted distributions following the merit principle and a preference for need over equality and merit when forced to choose among the three. Caring for justice for others (altruistic JS) predicted more sharing, equal distributions, less distributions according to the merit principle, and a preference for equal distributions over merit and need when forced to choose among the three. These associations prevailed when ToM and empathy were included as control variables. The findings underline the importance of justice-related personality traits, such as JS, for moral development in middle childhood.

*Keywords:* justice sensitivity, sharing behavior, distributive behavior, resource allocation, empathy, theory of mind



### **Fair Sharing is Just Caring: Links between Justice Sensitivity and Distributive Behavior in Middle Childhood**

Experimental child research has shown strong interest in what motivates children to behave morally, share, or distribute fairly (Cowell et al., 2019; Dahl & Paulus, 2019; McAuliffe et al., 2020; Ongley & Malti, 2014). An important indicator of moral behavior development and understanding of justice is the distribution of goods and underlying attitudes concerning distributional fairness (Vaish & Tomasello, 2014). Understanding why children share resources or follow distributive justice norms may particularly aid the understanding of moral development because distributing comprises (pro)social and rule-based, norm-oriented considerations that are core to moral behavior. Research has identified numerous context factors that influenced resource allocation, including the valence or necessity of the resources, allocator–recipient relationship, recipient behavior, and norm salience (Böhm & Buttelmann, 2017; House & Tomasello, 2018; McAuliffe et al., 2017; McGuire et al., 2018; Rizzo et al., 2016; Zhang, 2020). Individual factors, such as social skills, were also considered as important (Eisenberg et al., 2010; Yu et al., 2016). The potential role of personality traits, however, has largely been neglected, although evidence suggests that personality-related variables may also contribute to (distributive) justice evaluations and decisions (Dalbert & Umlauft, 2009; Faccenda & Pantaléon, 2011; Fetchenhauer & Huang, 2004) and that particularly moral-related personality components may motivate prosocial behavior, that is, behavior that benefits others, for example, by helping, sharing, or comforting (Eisenberg et al., 2015; Lapsley & Hill, 2009). Therefore, researching the relations between such traits and prosocial distributive behavior may aid the understanding, explanation, and promotion of such.

For example, individuals reliably differ in the moral-related trait of justice sensitivity (JS), the tendency to perceive and negatively respond to injustice (Schmitt et al., 2005, 2010)

at least from 6 years of age onward (Strauß et al., 2021). JS reflects the individual importance of justice norms that are highly relevant for distributive decisions by promoting fair results and procedures. Accordingly, JS has been related to prosocial behavior in children and adolescents (Bondü & Elsner, 2015; Strauß et al., 2021) and to distributive behavior in adults (Baumert et al., 2014; Fetchenhauer & Huang, 2004), that is, to decisions about the distribution of certain amounts of goods between two or more parties.

Distributive decisions are often guided by the so-called principles of distributive justice, that is, general assumptions about how fair distributions can generally be reached. These principles include the equality principle (all receive the same), the equity or merit principle (those who invest more receive more), and the need principle (those who need more receive more) (Deutsch, 1975). Previous research has shown differential links between JS and the principles of distributive justice in adults (Faccenda & Pantaléon, 2011; Schmitt, Maes, & Schmal, 1997).

Links between JS and distributive behavior or preferences for the principles of distributive justice in middle childhood, however, have not yet been considered, although it is an important age range to do so for a number of reasons. First, in middle childhood, prosocial and distributive behavior further develop and become more sophisticated. More precisely, distributive behavior shows a shift toward distributions following merit and need in favor of the until then dominant equality principle (Schmidt et al., 2016). Second, middle childhood is a fertile ground for personality development (Shiner, 2021; Tackett et al., 2008). Personality traits are already fairly stable in middle childhood (Roberts & DelVecchio, 2000). Accordingly, middle childhood is also the earliest age range for which reliable individual differences in JS have been established so far (Strauß et al., 2021), and further increases in JS have been shown (Bondü & Kleinfeldt, 2021). Importantly, research has shown links between JS and important variables of moral development in middle childhood, for example, moral

identity (Strauß & Bondü, 2022). Third, increasing social-cognitive skills, such as theory of mind (ToM) and empathy, enable abstract reasoning about, the understanding of, and feeling others' emotions (Edele et al., 2013; Eisenberg et al., 2010; Paulus & Leitherer, 2017; Yu et al., 2016). Fourth, moral features are considered as fundamentally core to one's own self and others' selves by 10 years of age, possibly even earlier (Lefebvre & Krettenauer, 2020), indicating that morality and identity are already relevant for each other. Thus, examining the relations between distributive behavior and JS in this age range beyond social-cognitive skills may further highlight how JS motivates prosocial behavior (Baumert & Schmitt, 2016; Eisenberg et al., 2015, 2016) and precedes rule-based reasoning and stage-oriented justice behavior as an indicator of moral development (Damon, 1984; Kohlberg, 1976; Piaget, 1932/1965; Rawls, 1971). Furthermore, comparing the current findings in children with previous findings in adults may point to life-span developmental trends in these relations or constant potential effects of JS on behavior. Consequently, the current research may also help to derive interventions for fostering fair distributions and, therefore, prosocial behavior.

Therefore, we examined the links between JS and distributive behavior while considering different principles of distributive justice and controlling for ToM and empathy. A vignette approach allowed for a behavior-prone, quasi-experimental examination of a large sample of 5- to 12-year-olds, adding a large-scale perspective to the current research on distributive behavior. We aimed to advance the understanding of JS as a moral-related trait and a potential correlate of prosocial development beyond social skills, intertwining developmental and personality psychology.

### **Justice Sensitivity**

Justice is universally important, yet individuals differ in their dislike of injustice. JS captures how readily individuals perceive and negatively respond to injustice (Schmitt et al., 1995; 2010). Because justice is an important aspect of morality (Kohlberg, 1976; Rawls,

1971), JS can be considered as a moral-related trait that should be associated with prosocial behavior. It reflects the internalization and personal relevance of moral rules. Accordingly, JS can theoretically also be considered as representing a justice motive that drives prosocial behavior across time and situations (Baumert et al., 2013; Baumert & Schmitt, 2016); empirically, it has been related to moral identity as another moral-related personality aspect that describes the subjective importance of being a moral person (Strauß & Bondü, 2022).

People of all ages high in JS tend to ruminate about and perceive strain when facing injustice. Injustice can be experienced from the perspectives of a victim, an observer, a perpetrator, or a beneficiary (Mikula, 1994). Accordingly, individuals can also be sensitive toward injustice from these different perspectives (Schmitt et al., 2005, 2010). Individuals high in victim JS tend to perceive their own disadvantages and respond with anger and retaliation. Individuals high in observer JS often perceive others' unjust treatment, feel indignant, and aim to punish the perpetrator or compensate the victim. Individuals high in perpetrator JS frequently anticipate causing injustice, tend to experience guilt, and strive for victim compensation and/or self-punishment. Individuals high in beneficiary JS dislike (involuntarily) profiting from injustice inflicted onto others (Schmitt et al., 2005, 2010). Note that research in children and adolescents has mostly omitted the beneficiary perspective (Ehrhardt- Madapathi et al., 2018, for an exception) because it was considered to require pronounced cognitive competencies to take this perspective and to be difficult for children to distinguish from the observer and perpetrator JS perspectives.

A factor structure of separate, but positively related, JS perspectives was replicated in children, adolescents, and adults (Bondü & Elsner, 2015; Schmitt et al., 2010; Strauß et al., 2021). This indicates a common underlying concern for justice (Schmitt et al., 1995) that may reflect an internalized justice motive (Baumert et al., 2013). However, correlations between victim JS and the other JS perspectives were typically smaller than correlations between these

other perspectives because victim JS reflects a concern for justice for one's own sake and fear of exploitation, whereas the other perspectives reflect a concern for justice for the sake of others. The latter perspectives, therefore, have sometimes been combined into a common factor of altruistic JS (Fetchenhauer & Huang, 2004; Schlösser et al., 2018; Strauß & Bondü, 2022).

Research on JS in childhood is only starting to accumulate. Because JS has been assessed via self-ratings that are generally challenging for children, a suitable measurement method first needed to be established and tested for this age range (Ehrhardt-Madapathi et al., 2018; Strauß et al., 2021). Victim, observer, and perpetrator JS may reliably and validly be measured via self- and parent-ratings at least from 6 years of age onward, indicating early interpersonal differences in the subjective importance of justice norms (Strauß et al., 2021). Similar psychometric qualities, but only small correlations of the accordant subscales in self- and parent-reports, indicated that children and parents capture somewhat differing aspects of JS (Bondü & Kleinfeldt, 2021; Strauß et al., 2021). Self-report (but not parent-report) data indicated increases in victim, observer, and perpetrator JS over a 1-year period in middle childhood, indicating that children in this age range are increasingly concerned about justice for the self and for others (Bondü & Kleinfeldt, 2021). Retest reliabilities resembled findings in adolescents and adults (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Schmitt et al., 2005), indicating that JS is a fairly stable trait from middle childhood onward. Future research needs to explore whether these or other measurement methods allow for an earlier investigation of trait JS. Cross-sectional findings indicated further increases in victim JS in adolescence (Bondü & Elsner, 2015). What drives JS genesis and development in childhood is fairly unknown. Positive links with negative affect and neuroticism (Schmitt et al., 2005; Strauß et al., 2021) suggested a genetic basis of victim JS. Research in adolescents has shown long-term influences of others' and one's own behavior and of mental health problems

particularly on victim and observer JS (Bilgin et al., 2021), but evidence for children is still lacking. It has been hypothesized that altruistic JS may increase and stabilize with advancing social skills, by positive reinforcement, and by manifesting in a moral identity (Bondü et al., 2016; Bondü & Kleinfeldt, 2021).

The JS perspectives have shown consistent links with prosocial and antisocial behavior in different age groups (Baumert, Schlösser, & Schmitt, 2014; Bondü & Krahe, 2015; Gollwitzer, Rothmund, Pfeiffer, & Ensenbach, 2009; Gollwitzer, Schmitt, Schalke, Maes, & Baer, 2005; Strauß, Bondü, & Roth, 2021), but links between JS and distributive behavior in childhood have not yet been considered. This, however, seems to be important because distributive behavior is an important indicator of prosocial development and investigating its relations with a moral-related trait may add to a better understanding of this behavior and its development in a highly relevant age range.

### **Sharing and Distributive Behavior in Childhood**

Moral behavior in line with social norms and/or benefiting others is important to build and maintain social relationships. One aspect of moral behavior that is closely related to justice norms is distributive behavior, that is, the allocation of goods between two or more parties involving the self as a judge (Kienbaum & Wilkening, 2009; McGillicuddy-De Lisi et al., 2006). Distributive behavior is an important indicator of the understanding of fairness rules, which is important for social development. Following moral identity theory, moral norms, such as justice norms, need to be considered as relevant and mandatory for the self in order to be acted on (Dahl & Paulus, 2019; Hardy & Carlo, 2005). In line with this notion, when children are asked to distribute as a “disinterested judge” in hypothetical stories, they first mostly aim to apply *any* rule. Later, rule-based decisions become increasingly sophisticated. In early childhood, children follow idiosyncratic rules and salient distributive principles with a strict preference for equality; in middle childhood, distributive decisions

become more flexible and exclusively oriented toward legitimate principles (Elenbaas, 2019a; Schmidt et al., 2016). A special case of distributive behavior is sharing, the allocation of goods between oneself and others, involving the self as a potential benefiter and the possibility to relinquish to the benefit of others (Paulus, 2014). Hence, sharing in particular is considered as a typical indicator of prosocial behavior and the readiness to follow social norms (House & Tomasello, 2018).

Distributive behavior is often guided by the principles of distributive justice that reflect typical decision criteria that mainly consider equality (all parties receive the same), merit/equity (those who invest/achieve more receive more), and/or need (disadvantaged receive more) (Deutsch, 1975). An understanding of these principles from infancy onward suggests early sociomoral intuitions or early internalizations of rules for resource allocation (Geraci & Surian, 2011; Sloane et al., 2012; Wang & Henderson, 2018). Children's sharing behavior tends to remain self-focused throughout infancy and early childhood (Fehr et al., 2008; McAuliffe et al., 2017). From middle childhood onward, prosocial, costly sharing behavior strongly increases, which may be explained by, for example, increasing social-cognitive skills, the growing internalization of guilt and shame as self-conscious emotions, and the growing importance of social norms (Edele et al., 2013; House & Tomasello, 2018; Malti et al., 2016; Yu et al., 2016). By the beginning of middle childhood, equality preferences often even result in inequality aversion, indicating that equality is increasingly internalized as a pivotal distributive principle (Blake & McAuliffe, 2011; Elenbaas, 2019a, 2019b; Kogut, 2012; Malti et al., 2012; McAuliffe et al., 2017; Posid et al., 2015). Equality stays a strong norm throughout life even if other principles are salient (Elenbaas, 2019a; Keller et al., 2013).

However, when made salient, the equity/merit principle (Baumard et al., 2012; Huppert et al., 2019; Kanngiesser & Warneken, 2012; Smith & Warneken, 2016; Zhang,

2020) and need principle (Huppert et al., 2019; Kienbaum & Wilkening, 2009; Noh, 2020; Rizzo & Killen, 2016) are also applied in distributive decisions from early childhood onward. Although children may prefer equality, they are able to consider merit in early childhood (Baumard et al., 2012). Children from 5 years of age onward (but not younger children) were shown to enforce a charity norm that prioritizes poor recipients over wealthy ones, reflecting an internalization of the need principle (Wörle & Paulus, 2018). In general, children increasingly understand others' efforts and needs for resources as legitimate reasons to deviate from equality but also agreed-on rules (e.g., winning a game) from early to middle childhood (Noh, 2020; Rizzo & Killen, 2016; Schmidt et al., 2016). However, children do not prioritize effortful or needy receivers with large amounts (Elenbaas, 2019a; Rizzo et al., 2016; Schmidt et al., 2016). Children aged 6–8 years tended to distribute necessary resources based on equality and need but to distribute luxury resources based on merit, indicating differential applications according to the context (Rizzo et al., 2016). Hence, there is abundant indication for influences of age, context, and the early importance of social and justice norms on distributive decisions in children, but there is a gap in research concerning the potential influence of moral-related traits on moral behavior, particularly distributive behavior. Early relations between temperament and prosocial behavior (Eisenberg et al., 2015) suggest a continuing relevance of traits for moral behavior in childhood. Moral-related traits should be particularly informative for distributive decisions because increasingly internalized social and justice norms associated with an aversion to unequal and inequitable outcomes, and more complex considerations of justice and fairness, may support fair sharing or distributing as a disinterested judge. Because moral identity theory suggests that social and justice norms need to be relevant for the self in order to be followed, trait JS, reflecting the personal relevance of justice norms, may be important for distributive behavior in middle childhood.



### **JS and Distributive Justice**

Previous research suggested constant relations between JS and distributive behavior as well as the principles of distributive justice in adults. Because social and justice norm understanding and the internalization of norms are important for fair distributive behavior, JS as a justice-related personality trait may be a correlate or even predictor of distributive justice. In childhood, patterns of stimulus–response associations related to (in)justice may be reinforced across situations and develop toward typical perceptions of and behavioral reactions to injustice, generating a motive that comprises a certain preference of how justice should be protected or (re)established. Given that JS is a stable trait across development that shows reliable associations with social behavior at least from middle childhood onward, we expected that patterns of results found in adult samples would show themselves already in the current sample from middle childhood.

Adults high in victim JS showed self-serving distributions in experimental games (Fetchenhauer & Huang, 2004), a preference for equality only when it would benefit self-interests (Schlösser et al., 2017), less solidarity with other countries or groups in financial need (Rothmund et al., 2017; Süßenbach & Gollwitzer, 2015), and stockpiling intentions during the COVID-19 pandemic (Fischer et al., 2021). Victim JS was negatively related to parent-rated prosocial behavior in children cross-sectionally and longitudinally (Bondü & Kleinfeldt, 2021; Strauß et al., 2021) and to self-rated prosocial behavior in adolescents cross-sectionally (but unrelated longitudinally) (Bondü & Elsner, 2015). Exaggerated perceptions of others' untrustworthiness, expressed concerns of being cheated or exploited, and/or generalized negative expectations in social interactions among individuals high in victim JS may explain these links (Bondü, 2018; Fetchenhauer & Huang, 2004; Gollwitzer et al., 2015). Thus, we expected victim JS to predict less sharing (Hypothesis 1a).

In one previous study victim JS was unrelated to the principles of distributive justice

in adults (Schmitt, Maes, & Schmal, 1997), whereas another study found positive relations with predominantly defining injustice via violations of the merit principle (Faccenda & Pantaléon, 2011). Given these previous research findings, the underlying concern for justice, and the tendency to protect oneself from exploitation, we expected positive relations between victim JS and all principles of distributive justice and predicted distributions in line with the equality principle (Hypothesis 2a), merit principle (Hypothesis 3a), and need principle (Hypothesis 4a) when made salient, but we expected a preference for the merit principle that may work to protect one's own resources (because lazy others may be free riders; Faccenda & Pantaléon, 2011) when forced to choose among the three (Hypothesis 5a).

In previous research, altruistic JS predicted higher offers and more sharing in experimental games (Baumert et al., 2014; Edele et al., 2013; Fetchenhauer & Huang, 2004; Gollwitzer et al., 2009), more cooperation in public good games (Schlösser et al., 2018), and less stockpiling intentions (Fischer et al., 2021) in adults. In children and adolescents, particularly perpetrator JS predicted more self- and parent-rated prosocial behavior cross-sectionally and longitudinally (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Strauß et al., 2021). Positive relations with guilt, a moral emotion that is fundamental for moral self-regulation, sharing in children (Malti et al., 2016), and moral choices in adolescents (Krettenauer et al., 2011), as well as with moral emotion attribution and moral identity (Strauß & Bondü, 2022), may explain these findings. Thus, altruistic JS should predict more sharing in children (Hypothesis 1b).

Altruistic JS was also consistently related to preferences for equality and need (Faccenda & Pantaléon, 2011; Schlösser, Steiniger, Ehlebracht, & Fetchenhauer, 2017; Schmitt, Maes, & Schmal, 1997) in adults. We expected that children high in altruistic JS should comply with every principle that would avoid treating others unfairly. Hence, altruistic JS should show positive relations with the equality principle (Hypothesis 2b), merit principle

(Hypothesis 3b), and need principle (Hypothesis 4b) when made salient, respectively. But because individuals high in perpetrator JS are prone to guilt, they should try to avoid causing injustice whenever possible. This should result in a preference for equal distributions when principles conflict and need to be counterbalanced (Hypothesis 5b).

Considering JS as a justice- and moral-related trait may help to disentangle the relations between such traits and different kinds of prosocial behavior in middle childhood. One important prerequisite for prosocial behavior is moral motivation, that is, the internalized urge to follow moral norms despite potentially conflicting desires and motives (Malti et al., 2009). Moral emotions—that is, affective responses to moral-related situations—are considered an important prerequisite for moral motivation. In addition, moral identity drives this motivation by creating a lasting perceived self-obligation to act in accordance with traits that signify oneself as a moral person (Hardy & Carlo, 2005). Such a consistent prosocial personality disposition has been considered to emerge in childhood (Lapsley & Hill, 2009). JS is inherently associated with moral emotions (Schmitt et al., 2010). JS was associated with both moral emotions and moral identity (Strauß & Bondü, 2022). Thus, JS integrates several aspects that may promote moral motivation. In addition, JS has been assumed to reflect an underlying internalized justice motive itself (Baumert et al., 2013). Accordingly, JS is associated with a strong motivation to counteract injustice and foster justice (Baumert & Schmitt, 2016). Thus, JS may inform prosocial motivation and promote accordant behavior. Victim and altruistic JS may then be representative of the end points of the heuristic continuum of prosocial motivations that reflect egoistic (benefiting the self) and altruistic (benefiting others) goals (Eisenberg et al., 2016). In general, high JS should motivate to preserve or restore justice by respecting the principles of distributive justice. But children high in victim JS should primarily be motivated to avoid their own negative outcomes, whereas children high in altruistic JS should primarily be motivated to avoid negative

outcomes for others.

### **Potential Control Variables and Moderators**

Distributive behavior is related to age but also to gender and social skills. In one study, girls showed stable inequality aversion from early childhood to adolescence, whereas boys showed increases from early to middle childhood and decreases from middle childhood to early adolescence (Ongley & Malti, 2014), indicating that the equality norm is stronger for girls. In addition, previous research showed higher levels of observer and perpetrator JS in girls than in boys (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021) and showed gender- and age-related moderating effects in the associations between JS and some mental health outcomes (Bondü et al., 2017, 2020). Hence, it is important to consider age and gender as control and potential moderating variables when researching the associations between JS and distributive behavior.

Social skills, such as ToM (attributing and inferring others' internal states such as intentions, desires, and needs) and empathy (understanding and feeling others' feelings), enable children to consider others' perspectives and to anticipate others' negative affect after unfair experiences (Lagattuta & Weller, 2014; Ongley & Malti, 2014). In line with this reasoning, some studies found positive relations between ToM and equal sharing in childhood (Schug et al., 2016; Yu et al., 2016), whereas other studies found no such relations (see Imuta et al., 2016, for a meta-analysis; Paulus & Leitherer, 2017). Thus, the ability to understand others' intentions and desires alone does not sufficiently explain why children act altruistically. Similarly, and in line with empathy theory of moral behavior (Hoffman, 2000), empathy was sometimes positively related to prosocial behavior and allocations following the need principle in children and adolescents (Eisenberg et al., 2010; Paulus & Leitherer, 2017) and altruistic sharing in adults (Edele et al., 2013; Klimecki et al., 2016). Other studies, however, did not find close relations with prosocial behavior (Osman et al., 2018; Vachon et

al., 2014) or offers in the dictator game (Baumert et al., 2014). Nevertheless, ToM and empathy should be considered as control variables to examine the potential relevance of JS as a moral-related trait for distributive behavior beyond these skills.

## **4.2 The Present Study**

This study examined the links between JS and intended distributive behavior in middle childhood, a sensitive phase for moral development, in a large sample of 1320 5- to 12-year-olds. We measured sharing behavior, distributions in line with each of the three principles of distributive justice when separately made salient, and the preference for one of these principles when forced to choose using a quasi-experimental vignette design. By considering a large-scale sample, this study contributes to a line of research that assesses hypothetical allocation scenarios via surveys in an age range that has not often been investigated. We aimed to advance the current knowledge both about correlates of distributive behavior in middle childhood and about JS in middle childhood. We expected (a) victim JS to negatively predict and (b) altruistic JS to positively predict the amount of sharing (Hypothesis 1–sharing), higher (a) victim JS and (b) altruistic JS to predict equal distributions when the equality principle is made salient (Hypothesis 2–equality), higher (a) victim JS and (b) altruistic JS to predict merit-based distributions when the merit principle is made salient (Hypothesis 3–merit), higher (a) victim JS and (b) altruistic JS to predict need-based distributions when the need principle is made salient (Hypothesis 4–need), and higher (a) victim JS to predict a preference for merit-based distributions and (b) observer and perpetrator JS to predict a preference for equality-based distributions (Hypothesis 5–preference). We explored age, gender, ToM, and empathy as control variables and the potential moderating effects of gender. Explorations of the moderating effects of ToM and empathy are reported in Supplementary Material S5 of the online supplementary material.

#### 4.2.1 Method

**Sample.** A total of 1320 children aged 5–12 years ( $M = 8.05$  years,  $SD = 1.02$ ; 89.2 % aged 7–9 years; 51.2 % girls, 1.3 % transgender and gender-nonconforming [TGNC]) and/or their parents participated. Child questionnaires were available for 1315 children, and parent questionnaires were available for 846 children (parent-reports only:  $n = 5$ ). Children attended 25 primary schools in the German Federal States of Brandenburg and Berlin. Of the children, 13 % attended first grade, 32 % second grade, 29 % third grade, and 18 % fourth grade (cross-year learning: 8 %). Of the mothers ( $n = 839$ ), 59 % held a university degree or A level (38 % secondary education, 3 % no graduation/others), as did 50 % of the fathers ( $n = 774$ ) (47 % secondary education, 4 % no graduation/others).

#### Measures

**Justice Sensitivity.** We measured the victim, observer, and perpetrator JS perspectives via self- and parent-ratings with the adapted Justice Sensitivity Inventory for children and adolescents (JSI-CA5; Bondü & Elsner, 2015; Schmitt et al., 1995, 2005; Strauß et al., 2021; for item wordings, see <https://www.tandfonline.com/doi/suppl/https://doi.org/10.1080/00223891.2020.1753754>). Victim JS (“It makes me angry when I am treated worse than others.”), observer JS (“I get angry when someone is treated worse than others.”), and perpetrator JS (“I feel bad when I treat someone worse than others.”) were measured with 5 items each, that is, 15 items in total. Response options ranged from 0 = *not at all true* to 3 = *exactly true*. We computed mean scores for each subscale and a composite score for altruistic JS, including all items from the observer and perpetrator perspectives. Previous research indicated the reliability and validity of the measures (Bondü & Kleinfeldt, 2021; Strauß et al., 2021). We focused on findings with self-rated JS in the Results and Discussion sections due to expected stronger overlaps with self-rated distributive behavior. Full results for parent-rated JS are provided in Supplementary Material S6.

**Distributive Behavior.** We presented children with five vignettes to measure intended sharing and distributive behavior (see Supplementary Material S1 for exact wordings). In each vignette, children were asked to distribute 6 sweets (a) between themselves and another child (with a gender-neutral name) to measure sharing behavior (Vignette 1) and (b) between two unknown children (gendered names held constant within one vignette, alternating female/male names across vignettes) to measure distributive behavior (Vignettes 2–5). When two unknown children were presented, the information about these children was varied. In Vignette 2, no information about the children was given except their names, thereby making the equality principle salient. In Vignette 3, information regarding the children’s effort that day was given, thereby making the merit principle salient (“You know that Richard has worked hard on his homework today. Justus preferred to rest.”). In Vignette 4, information regarding children’s possessions was given, thereby making the need principle salient (“You know that Jana does not have any candy at home. Melanie has a lot of candy at home.”). In Vignette 5, information implying a dilemma between merit and need was given (“You know that Michael has a lot of sweets at home and has worked hard on his homework today. Tom has no candy at home and preferred to rest today.”). Children indicated the distribution of sweets by drawing lines between the sweets and two boxes that represented one of the children in the vignettes, indicated by the respective names on the boxes.

Sharing behavior in Vignette 1 was indicated by the number of sweets the child allocated to the unknown child. Equal distributions between two unknown children without further information given (Vignette 2) were indicated by a binary outcome with 1 = *equal distribution* and 0 = *unequal distribution*. Distributions in line with the merit principle (Vignette 3) or the need principle (Vignette 4) were indicated by the amount of sweets allocated to the diligent child and the deprived child, respectively. For additional exploratory analyses, we also computed binary outcomes for merit and need: *distribution following*

*merit/need* = 1 (>3 sweets to the diligent/deprived child), *distribution not following merit/need* = 0 ( $\leq$ 3 sweets to the diligent/deprived child). The preference for the equality, merit, or need principle when forced to choose (Vignette 5) was indicated by three categorical variables that were linearly dependent: (a) *preference for equality* = 1 (3 sweets to both children), *no preference for equality* = 0 (unequal distribution); (b) *preference for merit* = 1 (4–6 sweets to the diligent child), *no preference for merit* = 0 ( $\leq$ 3 sweets to the diligent child); (c) *preference for need* = 1 (4–6 sweets to the deprived child), *no preference for need* = 0 ( $\leq$ 3 sweets to the deprived child). This proceeding allowed us to examine relations between JS and, first, distributions following the equality, merit, and need principles irrespective of potentially competing principles (see Fig. 2 in Results) and, second, a preference for one of these principles over the other two (see Figs. 3 and 4 in Results).

**Theory of Mind and Empathy.** We measured cognitive ToM with 10 translated and adapted items (e.g., “My child understands the difference between lies and jokes.”) from the Theory of Mind Inventory (Hutchins et al., 2010) (response options: 0 = *not at all true* to 4 = *exactly true*), and we measured affective empathy with 11 translated items adapted to parent-reports (e.g., “My child gets caught up in other people’s feelings easily.”) from the Basic Empathy Scale (Jolliffe & Farrington, 2006) (response options: 0 = *not at all true* to 3 = *exactly true*). We calculated mean scores for both scales. Evidence for the reliability and validity of the scales was provided (Hutchins et al., 2012; Sánchez-Pérez et al., 2014).

Internal consistencies for the current research are shown in Table 1 in Results.

### ***Procedure***

For recruitment, we contacted school principals and asked whether their schools would participate in a questionnaire study on children’s justice perceptions and related behavior. When principals and school assemblies agreed, class teachers received information and could decide whether to participate with their classes. When teachers agreed to



participate, they handed out information to parents and children asking for their participation. Children were informed that their participation was voluntary and could be terminated at any time without consequences. The current study was part of a larger-scale study (other collected data were not relevant for the current research question). We collected data from children in sessions of about 45–60 min. Instructions and items were read aloud by trained research assistants. Children marked their answers on the questionnaire. Children in first/second grade (before/after summer holidays) were questioned in groups of 1–3, children in second/third grade were questioned in groups of 7–10, and children in third/fourth grade were questioned with all attending children from the class to make sure that instructions were understood and to reduce disturbances to a minimum. Participants were asked not to look at others' questionnaires or to read aloud their answers and were asked to install sight protection with the help of a book. Written informed consent was obtained from all primary caregivers. All children attended voluntarily, were guaranteed privacy, and received small gifts. Parents answered the questionnaires via paper/pencil or online. The local ethics committees of two universities and the Ministry/Senate of both federal states approved of the questionnaires and proceedings. We preregistered the rationale, hypotheses, coding scheme, and analyses plan (<https://osf.io/7x8h5>). Deviations from the preregistration are outlined in Supplementary Material S7.

### *Analysis*

We used IBM SPSS Statistics 27 (IBM Corp., Armonk, NY, USA) for descriptive and correlation analyses and used Mplus 8 (Muthén & Muthén, 1998–2012) for latent analyses. In latent models, we used the full maximum likelihood procedure to account for missing data. Missing values ranged from 1.1 % to 2.4 % for vignettes and from 0.9 % to 2.0 % for JS. We used the default estimators (MLR [multiple linear regression] for continuous outcomes, WLSMV [mean and variance adjusted weighted least squares] for categorical outcomes).

Because the  $\chi^2$ -test is sensitive to sample size, model fits were considered acceptable if absolute fit indices met the criteria suggested by Hu and Bentler (1999): comparative fit index (CFI)  $\geq .95$ , root mean square error of approximation (RMSEA)  $\leq .06$ , and standardized root mean square residual (SRMR)  $\leq .08$ . The JS subscales were indicated by test halves. All parcels loaded significantly onto their latent factors. The JS perspectives and (where applicable) control variables were allowed to correlate. Predictors, control variables, and outcomes were regressed on age and gender. Age was included as a continuous variable in all models. We accounted for children's clustering in classes by using the complex command and class as the cluster variable. Variables that represented distributive behavior were entered as manifest variables.

We tested four latent models to examine the prediction of sharing behavior and the adherence to the principles of distributive justice. To test Hypothesis 1—sharing, Model 1 investigated the prediction of sharing behavior as measured by Vignette 1. To test Hypothesis 2—equality, Hypothesis 3—merit, and Hypothesis 4—need, Model 2 investigated the prediction of equality-, merit-, and need-based distributions as separately measured by Vignettes 2–4. For exploratory purposes, we reran Model 2 with binary outcomes for all three vignettes (Supplementary Material S3). To test Hypothesis 5—preference, Models 3 and 4 investigated the prediction of a preference for one of the three principles when forced to choose. We specified two models to account for the linear dependency of the three dichotomous outcome variables. Model 3 examined the prediction of the preference for the equality principle, and Model 4 examined the prediction of the preference for the merit and need principles. For each of the four models, the outcomes were predicted by (a) victim and altruistic JS, (b) the three separate JS perspectives (Supplementary Materials S2–S4), and (c) when adding ToM and empathy as control variables. We contrasted findings with and without social skills in the models to highlight the separate effects of JS. We also explored moderating effects of ToM

and empathy (Supplementary Material S5) and predictions by victim and altruistic JS and all variables when using JS parent-ratings (Supplementary Material S6). Finally, we computed multi-group models to explore the potential moderating role of gender (TGNC group omitted due to low number of children).

#### 4.2.2 Results

**Descriptive Statistics.** Table 1 shows ranges, internal consistencies, means, and standard deviations of all variables. The majority of children (84 %) preferred equal sharing between themselves and an unknown child (Vignette 1), 13 % allocated more sweets to themselves, and 3 % allocated more sweets to the other child. Similarly, when no further information about two unknown recipients was given (Vignette 2), 90 % of the participants split equally between these children. When principles were made salient and separately measured, children showed strong preferences for distributions in line with the merit principle (Vignette 3; >3 sweets to the diligent child: 78 %) and the need principle (Vignette 4; >3 sweets to the deprived child: 84 %). When contrasting the principles of distributive justice in a dilemma (Vignette 5), 63 % of the children split equally (advocating the equality principle), 24 % allocated more sweets to the diligent and well-resourced child (advocating the merit principle), and 13 % allocated more sweets to the deprived and lazy child (advocating the need principle).

A multivariate analysis of covariance (MANCOVA) including all child-reported variables and using age as a covariate showed a significant main effect of gender,  $F(9, 1071) = 5.504, p < .001, \eta^2_p = .044$  (Table 1). On the subscale level, girls reported higher levels of all JS perspectives (parent-reported JS: higher levels of observer, perpetrator, and altruistic JS in girls), more equal distributions, and less need-based distributions than boys. A MANCOVA including parent-reported ToM and empathy and using age as covariate showed a significant main effect of gender,  $F(2, 724) = 12.376, p < .001, \eta^2_p = .033$  (Table 1). Parents reported

higher empathy in girls. Due to the small number of children who self-identified as TGNC ( $n = 17$ ), potential differences from children who self-identified as girls and boys could not be meaningfully interpreted. A MANCOVA including all child-reported variables and using gender as a covariate showed a main effect of the age group,  $F(9, 1071) = 4.610, p < .001, \eta^2_p = .037$ . Children aged 9 years and older reported higher JS on all subscales than children younger than 9 years (parent-reported JS: higher levels of observer JS in children aged 9 years onward). A MANCOVA including parent-reported ToM and empathy and using gender as a covariate showed a main effect of the age group,  $F(2, 724) = 6.892, p = .001, \eta^2_p = .019$ . Parents reported higher empathy in older children.

Victim JS was positively correlated with equality- and merit-based distributions and a preference for equal distributions. Altruistic JS was positively correlated with equal distributions and a preference for equal distributions and was negatively correlated with a preference for merit- and need-based distributions. ToM was positively correlated with need-based distributions and a preference for equal distributions and was negatively correlated with a preference for merit-based distributions. Age was positively correlated with equal distributions (Table 2). All JS scales were positively related to each other and with ToM and age; perpetrator and altruistic JS were positively related to empathy. Parent-rated altruistic JS was positively correlated with the amount of sharing; parent-rated observer and altruistic JS were positively correlated with a preference for equal distributions; parent-rated observer, perpetrator, and altruistic JS were negatively correlated with a preference for need-based distributions (Supplementary Material S6 and Table S1).

**Prediction of Intended Sharing Behavior.** First, we predicted sharing behavior (testing Hypothesis 1–sharing) from self-reported victim and altruistic JS while controlling for gender and age ( $\chi^2 = 28.767, df = 9, p < .001$ ; RMSEA = .041 [.025,.058], CFI = .980, SRMR = .018;  $N = 1305$ ) (Fig. 1). Contrasting Hypothesis 1a that predicted negative relations

between victim JS and the intended number of shared sweets, victim JS was not associated with sharing ( $\beta = -.156$ ). Supporting Hypothesis 1b, altruistic JS was positively related to the intended number of shared sweets ( $\beta = .189$ ). When separately considering victim, observer, and perpetrator JS as predictors, none of the JS perspectives predicted the intended number of shared sweets (see Supplementary Material S2 for details). When including ToM and empathy as control variables, none of the variables predicted the number of shared sweets ( $\beta_{\text{JS-V}} = -.160$ ,  $\beta_{\text{JS-A}} = .181$ ,  $\beta_{\text{ToM}} = -.002$ ,  $\beta_{\text{Emp}} = .081$ ;  $\chi^2 = 66.775$ ,  $df = 30$ ,  $p < .001$ ; RMSEA = .031 [.021, .041], CFI = .983, SRMR = .019;  $N = 1305$ ) (Fig. 1). When using parent-reported JS, altruistic JS was positively related with the intended number of shared sweets in the model excluding covariates ( $\beta = .145$ ) (Supplementary Material S6).

**Prediction of Intended Distributive Behavior.** Second, we tested Hypotheses 2–equality, Hypothesis 3–merit, and Hypothesis 4–need by examining the prediction of distributions in line with these independently assessed principles. First, when using self-reported victim and altruistic JS as predictors while controlling for gender and age ( $\chi^2 = 29.650$ ,  $df = 13$ ,  $p = .005$ ; RMSEA = .031 [.016, .046], CFI = .967, SRMR = .092;  $N = 1305$ ) (Fig. 2), contrasting Hypothesis 2a, victim JS did not predict distributions in line with the equality principle ( $\beta = -.137$ ). Supporting Hypothesis 3a, victim JS was positively associated with merit-based distributions indicated by a higher number of sweets allocated to the diligent child than to the lazy child in Vignette 3 ( $\beta = .219$ ). Contrasting Hypothesis 4a, there was no association with distributions in line with the need principle ( $\beta = .100$ ). Supporting Hypothesis 2b, altruistic JS was positively associated with equal splits between two not further described children ( $\beta = .332$ ). Contrasting Hypothesis 3b, it was negatively associated instead of positively associated with merit-based distributions as indicated by a lower number of sweets allocated to the diligent child than to the lazy child in Vignette 3 ( $\beta = -.119$ ). Contrasting Hypothesis 4b, there was no association with distributions in line with the need

principle ( $\beta = -.090$ ). Results were similar when using binary-coded outcomes instead of the continuous outcomes for equality, merit, and need, but in this case altruistic JS did not predict merit (Supplementary Material S3). When separately considering victim, observer, and perpetrator JS as predictors (see Supplementary Material S3 for all details), victim and perpetrator JS were positively associated and observer JS was negatively associated with merit-based distributions. Again, results were similar when using binary coded outcomes, but then observer JS was unrelated to merit-based distributions (Supplementary Material S3).

Finally, when adding ToM and empathy as control variables to the model using self-reported victim and altruistic JS as predictors ( $\chi^2 = 59.083$ ,  $df = 38$ ,  $p = .016$ ; RMSEA = .021 [.009, .030], CFI = .978, SRMR = .079;  $N = 1305$ ), the pattern of results remained largely the same. Supporting Hypothesis 3a, victim JS was positively associated with merit ( $\beta = .225$ ). Supporting Hypothesis 2b, altruistic JS was positively associated with equality ( $\beta = .356$ ). Contrasting hypothesis 3b, altruistic JS was negatively associated with merit in this model ( $\beta = -.140$ ). ToM ( $\beta = .125$ ) and male gender ( $\beta = .078$ ) were positively associated with need. The association pattern was similar when using binary coded outcomes except for altruistic JS that did not predict merit and some additional associations of ToM and empathy (Supplementary Material S3). When using parent-reported JS, only ToM ( $\beta = .095$ ) and empathy ( $\beta = .106$ ) were positively associated with need (Supplementary Material S6).

**Prediction of the Preference for a Principle of Distributive Justice.** To test the preference for the equality, merit, or need principle of distributive justice when forced to choose (Hypothesis 5–preference), Model 3 examined the preferences for the equality and Model 4 examined the preferences for the merit and need principles. When considering self-reported victim and altruistic JS as predictors (Model 3:  $\chi^2 = 29.165$ ,  $df = 9$ ,  $p < .001$ ; RMSEA = .041 [.025, .059], CFI = .952, SRMR = .111;  $N = 1,305$ ; [Fig. 3]; Model 4:  $\chi^2 = 31.458$ ,  $df = 11$ ,  $p < .001$ ; RMSEA = .038 [.023, .054], CFI = .954, SRMR = .098;  $N = 1305$  [Fig. 4]), victim

JS was negatively associated with distributions following the equality principle ( $\beta = -.271$ ), unrelated to the merit principle (contrasting Hypothesis 5a), and positively associated with the need principle ( $\beta = .251$ ). Supporting Hypothesis 5b, altruistic JS was positively associated with distributions following the equality principle ( $\beta = .472$ ) and was negatively associated with the merit principle ( $\beta = -.306$ ) and the need principle ( $\beta = -.384$ ). Male gender ( $\beta = .202$ ) and TGNC ( $\beta = .090$ ) were positively associated with the need principle. When separately considering victim, observer, and perpetrator JS as predictors (see Supplementary Material S4 for all details), both observer and perpetrator JS showed positive associations with a preference for the equality principle, but only perpetrator JS was negatively associated with preferences for the merit and need principles. When adding ToM and empathy as control variables into the models using victim and altruistic JS as predictors (Model 3:  $\chi^2 = 51.880$ ,  $df = 30$ ,  $p = .008$ ; RMSEA = .024 [.012,.034], CFI = .977, SRMR = .091;  $N = 1305$  [Fig. 3]; Model 4:  $\chi^2 = 55.510$ ,  $df = 34$ ,  $p = .011$ ; RMSEA = .022 [.011,.032], CFI = .977, SRMR = .084;  $N = 1305$  [Fig. 4]), both did not show associations with a preference for any of the three outcomes, whereas the pattern of associations for victim and altruistic JS remained the same. Male gender was negatively associated with a preference for merit ( $\beta = -.072$ ), whereas male gender ( $\beta = .202$ ) and TGNC ( $\beta = .092$ ) were positively associated with a preference for the need principle. Age did not add to the predictions in any model. When using parent-rated JS, none of the variables was associated with a preference for a distributive principle (Supplementary Material S6).

**Potential Moderating Effects of Gender and Social Skills.** To examine potential moderating effects of gender, we computed two multi-group models with paths constrained to be equal and allowed to vary between groups.  $\chi^2$ -difference tests did not suggest better fits of the models with paths allowed to vary than those with paths constrained to be equal, indicating no differences in the links between victim and altruistic JS and distributive

behavior between children identifying as girls and those identifying as boys (example for Model 2: paths allowed to vary:  $\chi^2 = 36.540$ ,  $df = 22$ ,  $p = .027$ ; RMSEA = .032 [.011,.050], CFI = .976, SRMR = .141;  $N = 1288$ ; paths constrained to be equal:  $\chi^2 = 34.125$ ,  $df = 31$ ,  $p = .320$ ; RMSEA = .013 [.000,.033], CFI = .995, SRMR = .142;  $N = 1288$ ;  $\Delta\chi^2 = 4.084$ ,  $\Delta df = 9$ ,  $\Delta p = .906$ ). When exploring the potential moderating roles of ToM and empathy in the models including victim and altruistic JS as predictors, the association patterns between JS and the outcome variables mostly remained stable, whereas ToM, empathy, and their moderation terms with altruistic JS did not add to the predictions (Supplementary Material S5).

### 4.3 Discussion

The current study examined the relations between JS and sharing and distributive behavior in middle childhood while considering the principles of distributive justice (equality, merit, and need) and controlling for ToM, empathy, age, and gender. It used vignettes for a behavior-prone, large-scale quasi-experimental design. In line with previous research in this age range, children showed a preference for equal distributions but considered the merit and need principles when made salient. Significant associations between self-rated JS and distributive decisions confirmed the assumption that justice- and moral-related traits are associated with this behavior at least from middle childhood onward. Partly confirming our hypotheses, victim JS was positively associated with distributions following the merit principle but also with a preference for the need principle. Expectedly, altruistic JS was positively associated with sharing, equal distributions and a preference for equal distributions. Differential associations of victim and altruistic JS with distributive decisions indicate diverging trait-related considerations of what is considered as just and differences in the motivation for these decisions. The effects for parent-rated JS were generally smaller but tended to confirm the pattern of results. The control variables, including ToM and empathy, mostly did not add to the prediction of distributive behavior, further underscoring the



potential relevance of moral- and justice-related traits, such as JS, for prosocial behavior in this age range.

### ***Distributive Behavior in Middle Childhood***

Unlike most previous research on sharing and distributive behavior, the current study examined a large sample of children and considered both the principles of distributive justice separately and a preference for one of these principles. Both proceedings confirmed previous research that evidenced strong tendencies toward fair sharing, fair distributions, and preferences for equal distributions in middle childhood (Blake & McAuliffe, 2011; Elenbaas, 2019a; Keller et al, 2013; Kogut, 2012; McAuliffe et al., 2017). Supporting previous research as well, when made salient, the merit and need principles were also considered (Huppert et al., 2019; Noh, 2020; Paulus, 2014; Rizzo & Killen, 2016; Smith & Warneken, 2016), confirming an understanding of justified inequality in middle childhood. These overlaps with previous research speak to the validity of the current measures.

### ***JS and Sharing Behavior***

No relations between victim JS and intended sharing behavior contrasted Hypothesis 1a and previous research on JS and prosocial behavior in middle childhood (Strauß et al., 2021). This insignificant finding, however, was backed up by the same finding using parent-ratings, allowing us to draw some conclusions regarding life-span development of the relation between justice-related personality traits and prosocial resource allocations. The insignificant finding resembled no relations between victim JS and prosocial behavior in adolescents in the long run (Bondü & Elsner, 2015) or accepting and making offers or cooperating in distributive or public good games in adults (Baumert et al., 2014; Edele et al., 2013; Fetchenhauer & Huang, 2004; Schlösser et al., 2018). Victim JS appears to be less important for sharing behavior than altruistic JS (see also Strauß et al., 2021) and might not be purely egoistic. Rather, already children high in victim JS may prefer to avoid situations in which

they could be taken advantage of (Maltese et al., 2016). By that, however, children high in victim JS avoid experiencing others being happy after costly sharing, preventing long-term changes in behavior. Accordingly, this pattern seems to be stable across different age groups, indicating that associations between JS and social behavior in middle childhood may forecast later associations and warrant interventions already in this age range.

Supporting Hypothesis 1b and previous research in adults (Baumert et al., 2014; Edele et al., 2013; Fetchenhauer & Huang, 2004), high altruistic JS (but not the separate observer and perpetrator JS scales) was associated with higher intention to share. This finding was replicated with parent-reports of JS, indicating that what parents report as children's altruistic JS and what children report as their altruistic JS substantially overlap regarding predictive effects on distributive preferences. The dispositional concern for justice for the sake of others is accordingly related to prosocial allocations beyond the general preference for equal splits in middle childhood. Hence, personality traits related to justice perceptions may drive prosocial decisions and behavior reflecting moral rule-based understanding and a high level of moral stage development related to internalized prosocial norms (Abramson et al., 2018). Frequent feelings of guilt as a self-conscious emotion related to perpetrator JS may drive the willingness to follow others' interests and may foster internalizing salient social norms of sharing (House & Tomasello, 2018). This finding backs up the idea that sharing in childhood underlies not only the cognitive capacity to consider others but also dispositional prosocial motives (Eisenberg et al., 2016). In addition, altruistic JS is more relevant for these decisions than victim JS. That is, lower expressions of altruistic JS may rather predict low numbers of shared goods than higher victim JS. Thus, prosocial intent and motivation associated with altruistic JS emerges already in childhood and may drive sharing decisions more strongly than egoistic considerations. In addition, relations between altruistic JS and distributive behavior seem to be stable into adulthood, as indicated by similar findings in this age range

such as lower stockpiling intentions during the COVID-19 pandemic (Fischer et al., 2021) and more cooperation in public good games (Schlösser et al., 2018) associated with higher altruistic JS. Thus, the tendency to consider others' welfare may be stabilized by positive social reinforcement and/or by being integrated into a moral identity, underlining the idea of morality as the most relevant quality of the true self (Lefebvre & Krettenauer, 2020). Hence, the developmental interrelations of personality and morality and the relevance for the self and identity should receive more attention in developmental psychological research.

Note that associations between altruistic JS and sharing in the current study were less pronounced than with global prosocial behavior in previous research (Strauß et al., 2021). This indicates that sharing—that is, relinquishing one's own benefits—may be more challenging than other forms of prosocial behavior, such as helping and comforting (Imuta et al., 2016), even for children who generally care for justice for others. However, the findings also point to discriminant validity between trait JS and sharing preferences in childhood. Smaller effects may also be explained by the study design: Children reported sharing anonymously and were asked to picture unknown children. Thus, there was no real social pressure involved. Previous research showed that children were more likely to reject advantageous allocations when their disadvantaged partners would know about the unfairness (McAuliffe et al., 2020). Future research may investigate whether altruistic JS shows even stronger relations with sharing when the receiving party would know about the result. This would point to reputation concerns as a motivator for prosocial behavior among individuals high in altruistic JS.

Finally, in the model including ToM and empathy as control variables, no effect of altruistic JS remained. This finding may be explained by inflated residual error terms resulting from the increased number of estimated parameters or by altruistic JS not adding to the prediction of sharing beyond these skills. Previous studies on JS and prosocial behavior

outcomes did not test effects beyond social skills (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Strauß et al., 2021). Future research may continue to investigate whether skills or traits with underlying motives are more relevant for prosocial behavior or how their interrelations bring about prosocial behavior in childhood. Nonetheless, the current findings generally support the notion that altruistic JS may promote a broad range of prosocial behavior, including sharing from middle childhood onward, most probably via prosocial motives that are reinforced across situations, generating a self-enhancing circle whereby positive social feedback following sharing may strengthen altruistic behavior. The findings show that personality traits add to variables underlying moral decisions, behavior, and development as, for example, context effects of the sharing situation. Altruistic JS may be a stronger protective factor for prosocial behavior than victim JS may be a risk factor (Strauß et al., 2021). Thus, interventions should primarily aim to promote altruistic justice considerations by positive reinforcement rather than to prevent egoism in order to potentially foster sharing.

### ***Victim JS and Distributive Behavior***

Positive zero-order correlations of all JS scales and equal distributions underline the common concern for justice underlying all JS subscales, including victim JS. Contrasting Hypothesis 2a, however, latent analyses showed no relations with equal distributions, but did with merit-based distributions, supporting Hypothesis 3a. This finding showed that children (like adults) high in victim JS defined injustice mainly by violations of the merit principle (Faccenda & Pantaléon, 2011). Children high in victim JS might enforce rule-based allocations following efforts because they may fear that personal input and effort are not adequately rewarded and try to protect themselves from free riders, serving self-protective aims (Bondü, 2018; Gollwitzer et al, 2015; Strauß et al., 2021). That is, the tendency to use strategies to protect from exploitation may already be established in childhood and stay stable

into adulthood. This tendency may contribute to explain how children develop from following equality toward following more sophisticated rules in middle childhood with particular preferences for equity based on self-protective motives underlying high levels of victim JS.

However, contrasting Hypothesis 4a, victim JS was unrelated to need when separately measured, but it predicted a preference for need instead of merit as predicted by Hypothesis 5a. This pattern of findings suggests that children high in victim JS were particularly willing to deviate from the equality norm in favor of both merit and need. That is, they may be more willing to consider the situational aspects of a distributive decision and to prevent or level out potential injustice for themselves and for others. This finding may again indicate that the moral motivation underlying victim JS is not purely egoistic (Eisenberg et al., 2016).

However, it may also be argued that advocating the need principle may be beneficial for the self in the long run when one is needy or when one is in concurrence with someone who has worked harder. Taken together, children high in victim JS tend to have a less universalistic, more flexible context-dependent understanding of distributive justice that may involve prosocial tendencies at least in an environment with no exploitation (Wagstaff, 1994) but also considers self-interest. This inconsistent association pattern of victim JS may also show in its negative relations with moral emotions but positive relations with moral identity (Strauß & Bondü, 2022). Hence, victim JS may drive the development of distributive preferences beyond equality through repeated learning experiences of how to preserve or reestablish justice via rule-based norms that focus situation specifics across situations and may be most beneficial for the self in the long run. Parent-rated victim JS was uncorrelated with distributive decisions, indicating that what parents observe as victim JS in their children and report in the current assessment does not predict how children would distribute resources as a disinterested judge.

*Altruistic JS and Distributive Behavior*

Supporting Hypothesis 2b that expected altruistic JS to predict equal distributions, altruistic, observer, and perpetrator JS were positively related to equal distributions beyond the general preference for equality (Keller et al, 2013). This supports the notion that altruistic JS reflects moral motivation oriented toward others' well-being (Eisenberg et al., 2016) and may foster altruistic morality in general (Faccenda & Pantaléon, 2011). Findings were in line with previous research in adults (Faccenda & Pantaléon, 2011; Schlösser, Steiniger, Ehlebracht, & Fetchenhauer, 2017; Schmitt, Maes, & Schmal, 1997), indicating that the importance of justice-related personality traits for persistent equality preferences may be stable into adulthood. Adding to previous research and in line with Hypothesis 5b, children high in altruistic JS also showed a preference for equality when merit and need were conflicting. Conflicting considerations of merit and need (Huppert et al., 2019; Rizzo et al., 2016; Schmidt et al., 2016) may be particularly challenging for children high in altruistic JS. They may hesitate to deviate from the equality principle because they may fear (unjustifiably) (dis)advantaging—and thereby unfairly treating—someone. Particularly children high in perpetrator JS should anticipate feelings of guilt, reflecting a strong motive to focus on others' expectations or well-being (Eisenberg et al., 2016), generalizing toward a pronounced prosocial focus in allocation situations. Hence, the current findings indicate a stable preference for equality among individuals high in altruistic JS over the life span (Schlösser et al., 2017) and complex moral conflicts rather than a delayed understanding of more sophisticated distribution considerations that also consider merit and need.

Negative relations between altruistic JS and the merit principle contrasted the prediction of a positive relation in Hypothesis 3b. Future research may examine whether individuals high in altruistic JS consider merit to be egoistically oriented (Faccenda & Pantaléon, 2011), do not consider merit as an important decision criterion, are uncomfortable

with deviating from the equality principle, are reluctant to judge and punish others for their lack of effort, feel that they may miss important further information (e.g., on privileges or resources) to do so, and/or more readily excuse norm violations. These reasons may also help to explain no relations or even negative relations between altruistic JS and the need principle and point to the fact that individuals high in altruistic JS do not follow any salient rule or norm but instead may decide based on specific dispositions and experiences that generalize toward justice motives. These results contrasted our expectations (Hypothesis 4b) and previous research (Faccenda & Pantaléon, 2011; Schmitt, Maes, & Schmal, 1997) and emerged despite positive relations with empathy and social responsibility (Schmitt et al., 2005; Strauß et al., 2021). Previous findings, however, showed that 6- to 8-year-olds tended to distribute luxury resources, such as the sweets in the current study, more merit based than necessary resources (Rizzo et al., 2016), making need-based distributions the least likely choice also in the current study. Considering need as an indicator of a prosocial justice motive may also only emerge later in development because children high in altruistic JS may consider particularly equality as reflecting fairness and show an even stricter inequality aversion in middle childhood than later on. Furthermore, children were asked to distribute an even number of sweets. Previous studies have shown that in early and beginning middle childhood, even if children mostly follow different salient principles if they need to prioritize a receiver, they are reluctant to follow merit or need if equality is an option (Baumard et al., 2012; Elenbaas, 2019a; Rizzo et al., 2016; Schmidt et al., 2016). Particularly for children high in altruistic JS, this tendency may continue into middle childhood.

Positive correlations of parent-reported observer and altruistic JS with a preference for distributions in line with the equality principle of distributive justice and negative correlations of parent-reported observer, perpetrator, and altruistic JS with a preference for distributions in line with the need principle mirrored the findings for self-reported JS even when these effects

did not hold stable in the structural equation models (but pointed toward the same direction; see, e.g., the negative link between parent-rated altruistic JS and the preference for distributions in line with the need principle). They further backed up the finding that children high in altruistic JS preferred equality particularly in dilemma situations but also point to the fact that parents' and children's reports of children's JS may be partly incongruent by focusing on different aspects or relying on diverging indicators (Bondü & Kleinfeldt, 2021; Strauß et al., 2021).

To sum up, the current findings underline the idea that distributive preferences are partly driven by justice-related traits such as JS that guide the perception of justice-related situations and according behavior, generating motives that may be reinforced across situations. They signify the relevance of JS for distributive behavior as an indicator of moral behavior and prosocial motivation beyond important social skills. These relations were not sufficiently considered by previous research that has hardly examined potential influences of (moral-related) traits. The findings of the current study extend knowledge about the motivation underlying the JS perspectives. Victim JS may reflect a situation-dependent understanding of justice with egoistic and altruistic intentions, whereas altruistic JS may reflect a universal egalitarian understanding of justice, reflecting a clear prosocial motivation. In line with expectations of JS being a powerful trait over the life course, particularly altruistic JS may inform distributive decisions by promoting moral motivation across development through a self-enhancing circle. Similar findings as in adult samples indicate persisting effects of JS on moral behavior and show that individuals high in victim or altruistic JS hold specific ideas, rather stable ideas, of how justice is acquired or preserved in allocation contexts. JS and other moral- and justice-related traits should, therefore, receive more attention in moral development research.



### ***Potential Covariates***

The described findings of the relations between JS and distributive decisions were fairly independent of other variables. Age did not add to any prediction, male gender and TGNC only showed single associations with merit and need, and gender had no moderating effects. ToM and/or empathy showed inconsistent main effects and no moderating effects, adding to previous research that did not find relations with distributive behavior (Baumert et al., 2014; Imuta et al. 2016; Paulus & Leitherer, 2017). Of note, self-rated JS predicted distributive behavior beyond these skills. Considering that parents' assessment of children's ToM and empathy was positively related to need when only parent-rated JS was included, indicating that social skills are important and findings do not only underlie rater congruency, self-rated JS showed stronger predictive value than parent-rated social skills regarding distributive decisions. This underpins moral identity theory, suggesting that moral norms, such as justice norms, need to be considered as relevant and mandatory for the self in order to be acted on (Dahl & Paulus, 2019; Hardy & Carlo, 2005). It further supports the notion that particularly altruistic JS may motivate prosocial behavior.

### ***Limitations and Outlook***

The strengths of the current study include economically and age-appropriately examining the links between JS and sharing and distributive behavior according to the principles of equality, merit, and need via experimental vignettes in a large sample of children. Significant relations despite limited variance and single-item measures, as well as similar results when presenting the three principles of distributive justice separately and when contrasted against each other, support the validity of our results despite sometimes high but insignificant path coefficients (Fig. 2).

Limitations include cross-sectional data that do not allow for causal inferences. Single-item outcome measures may have limited the reliability and generalizability of our

findings. Children did not need to really share and relinquish their own benefits. Thus, they may have overestimated the number of sweets they would share in real-life settings (Dalbert & Umlauft, 2009). Distributive decisions in the current sample resembled previous research in this age range (Blake & McAuliffe, 2011; Elenbaas, 2019a; Huppert et al., 2019; Keller et al., 2013; Kogut, 2012; McAuliffe et al., 2017; Paulus, 2014; Rizzo & Killen, 2016; Smith & Warneken, 2016), mainly following the principle of justice that was made salient. That is, vignette wordings may have drawn children's attention to what should be considered as relevant and may be socially desirable. This is a common difficulty of studies investigating distributive behavior that we aimed to address by the current study design. The forced-choice format of Vignette 5 made the principles of merit and need salient but did not suggest any of the three principles of distributive justice to be more relevant. Two thirds of the children in our sample preferred an equal distribution in this situation, giving little indication of a preference only for distributive principles that had been made salient before. This reasoning is further underscored by strong overlaps in the findings for Vignette 5 that contrasted the three principles simultaneously as compared with findings for Vignettes 2–4 that made each of these principles separately salient. Finally, the current results not only resembled those of previous research but were mostly in line with theoretically expected directions of effects, with specific relations between each JS perspective and preferences for distributive justice principles. This indicated that children high in JS do not arbitrarily follow any salient rule but rather react on the implied content of the respective vignette. However, future research should strive to make the relevant information less obvious, include more items for improved scale reliability, and/or include an open field asking for the reason why children chose this receiver. Gender was varied between (but not within) vignettes, which may have affected the results. Note, however, that boys and TGNC children favored need-based distributions in Vignette 3 with female-named children and in Vignette 5 with male-named children. Nonetheless, future

research should counterbalance gender within vignettes. In Vignette 3 (need), the lack of resources was related to the resource to distribute (sweets), which was not the case for Vignette 4 (merit; homework). Further studies should pay attention to a parallel construction of vignettes. Small or no effects of ToM and empathy may be due to inconsistencies between self- and parent-reports. We conducted a large number of analyses that could have inflated alpha error. However, most of our effects were significant at  $p < .01$  or  $p < .001$ . Future research should replicate the current findings using longitudinal data, multi-item measures, and settings for the distributions that are closer to real life and consider relevant context factors (e.g., level of social privilege, relationship with the recipient; Elenbaas, 2019b; Lu & Chang, 2016) and additional social skills (e.g., self-regulation). Future research may also examine whether JS may also be considered a motive beyond its trait structure.

The current findings add to the growing body of research on prosocial motivation, moral behavior, and distributive justice in childhood and highlight the potential importance of moral-related traits for moral development. The current effects were small, indicating discriminant validity between children's distributive preferences and their JS, and were consistent irrespective of participants' social skills, age, and gender. Hence, social skills may be necessary but not sufficient for prosocial motivation. Moral-related traits that reflect a justice motive and the personal relevance of norms may be even more important. Our study indicates that particularly altruistic JS may promote important prerequisites for moral motivation and, therefore, prosocial behavior. Altruistic JS seems to be more malleable across development. Thus, caregivers, teachers, and other educational staff should promote altruistic JS in children, reinforce sharing and fair behavior, and encourage active reflections on principles of distributive justice. They should also strive to behave fairly themselves, work as role models, and establish good relationships with students (Jiang et al., 2019). Furthermore, teachers may discuss experiences of injustice in school to allow students to restore justice and

to regulate emotions (Pretsch et al., 2016). This seems to be important because helplessness in the light of authoritarian rule makers may decrease JS (Faccenda & Pantaléon, 2011).

From a research perspective, JS is associated with social behavior at least from middle childhood onward and, therefore, deserves more consideration by research on social, moral, and justice development already in childhood.

#### 4.4 References

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### **Data availability**

Data will be made available on request.

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### **Appendix A. Supplementary material**

Supplementary data to this article can be found online at

<https://doi.org/10.1016/j.jecp.2022.105561>.

4.5 Appendix

**Table 1**

*Descriptive Statistics of all Variables in the Study*

Scale	N	Range	$\alpha$	Total	<9 years	$\geq 9$ years	F <sub>Age</sub>	Partial $\eta^2$	Girls	Boys	F <sub>Gender</sub>	Partial $\eta^2$
				M (SD)	M (SD)	M (SD)			M (SD)	M (SD)		
Victim JS	1250	0-3	.63 (.79)	1.74 (0.73) [3.28 (1.02)]	1.71 (0.75)	1.87 (0.69)	9.938**	.009	1.84 (0.71)	1.68 (0.75)	13.092***	.012
Observer JS	1261	0-3	.67 (.90)	1.78 (0.74) [3.08 (1.12)]	1.74 (0.80)	1.86 (0.65)	5.808*	.005	1.86 (0.73)	1.68 (0.76)	16.609***	.015
Perpetrator JS	1263	0-3	.77 (.91)	1.90 (0.86) [2.85 (1.23)]	1.81 (0.90)	2.14 (0.76)	33.876***	.030	1.98 (0.83)	1.85 (0.91)	5.392*	.005
Altruistic JS	1222	0-3	.80 (.92)	1.85 (0.70) [2.96 (1.06)]	1.77 (0.73)	1.99 (0.63)	23.866***	.022	1.92 (0.68)	1.76 (0.72)	13.213***	.012
Sharing (Vignette 1)	1300	0-6	n.a.	2.84 (0.73)	2.84 (0.71)	2.84 (0.84)	0.008	.000	2.84 (0.58)	2.83 (0.91)	0.066	.000
Equality (Vignette 2)	1283	0/1	n.a.	0.89 (0.31)	0.88 (0.32)	0.91 (0.28)	1.899	.002	0.92 (0.28)	0.87 (0.34)	6.807**	.006
Merit (Vignette 3)	1287	0-6	n.a.	4.14 (1.06)	4.18 (1.05)	4.10 (1.04)	1.392	.001	4.16 (.87)	4.16 (1.22)	0.008	.000
Need (Vignette 4)	1292	0-6	n.a.	4.48 (1.32)	4.54 (1.32)	4.45 (1.28)	1.128	.001	4.43 (1.16)	4.60 (1.45)	4.441*	.004
Dilemma Equality	1295	0-1	n.a.	0.63 (0.48)	0.62 (0.49)	0.67 (0.47)	1.877	.002	0.67 (0.47)	0.59 (0.49)	6.734*	.006
Dilemma Merit	1295	0-1	n.a.	0.24 (0.43)	0.25 (0.43)	0.24 (.43)	0.147	.000	0.25 (0.44)	0.23 (0.42)	0.925	.001
Dilemma Need	1295	0-1	n.a.	0.13 (0.33)	0.14 (.34)	0.10 (0.30)	2.315	.002	0.08 (0.26)	0.18 (0.38)	26.166***	.024
Theory of Mind	789	0-4	.89	2.88 (0.65)	2.88 (0.62)	2.90 (0.68)	0.132	.000	2.92 (0.63)	2.84 (0.65)	2.469	.003
Empathy	780	0-3	.78	1.95 (0.44)	2.00 (0.41)	1.89 (0.47)	12.261***	.017	2.04 (0.44)	1.88 (0.41)	24.639***	.033

*Note.* Justice sensitivity (JS): Parent-reports in brackets. Gender and age differences: Two separate multivariate analyses of covariance (MANCOVAs) each for differences between girls and boys and for children younger than 9 years and from 9 years onward for self-report and parent-report measures due to large differences in sample sizes of self- and parent-reports. Data from 1082 children included in the MANCOVA for child-reports; data from 728 children included in the MANCOVA for parent-reports. Abbreviation: n.a., not applicable. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table 2**

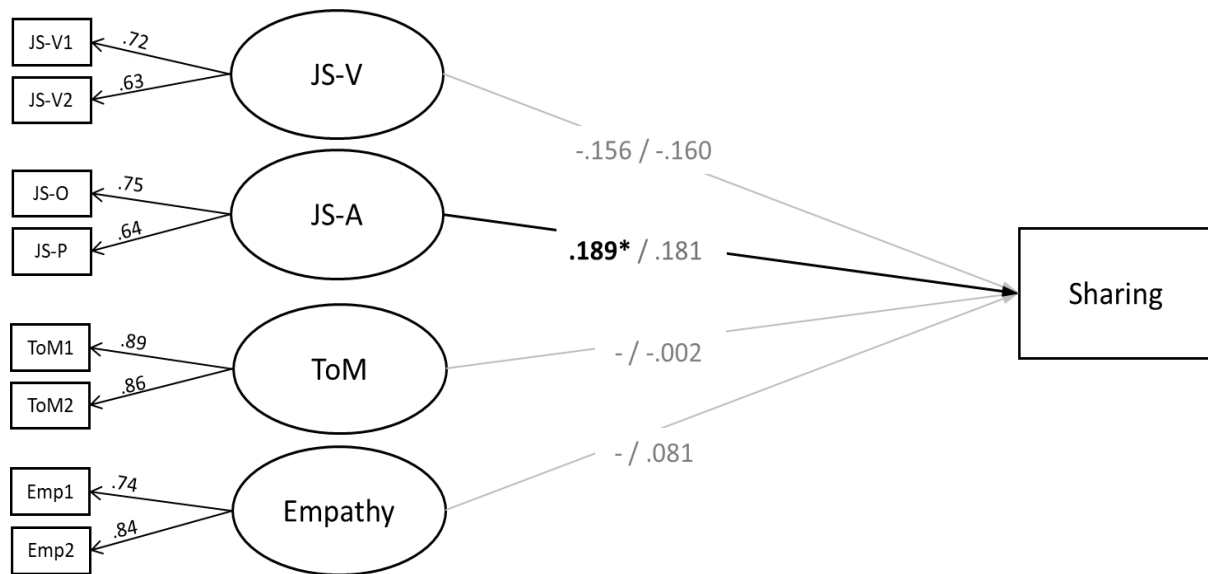
*Correlations of Resource Allocations with JS Ratings, Social Skills, and Age*

	Observer		Perpetrator		Altruistic		ToM	Empathy	Age	Sharing	Equality	Merit	Need	Preference		
	JS	JS	JS	JS	JS	JS								equality	merit	need
Victim JS	.471***	.363***	.486***	.098**	.070	.127***	.066*	.110***	.023	.060*	-.046	-.028				
Observer JS		.492***	.841***	.210***	.070	.089**	.112***	.013	-.007	.133***	-.077**	-.093**				
Perpetrator JS			.885***	.236***	.086*	.189***	.101***	.062*	-.029	.158***	-.090**	-.114***				
Altruistic JS				.255***	.087*	.168***	.129***	.037	-.027	.175***	-.103***	-.121***				
ToM					.251***	.048	.013	.039	.119**	.100**	-.085*	-.036				
Empathy						-.093*	.022	.041	.058	.051	-.040	-.024				
Age							.074**	-.004	.008	.052	-.021	-.049				
Sharing							.207***	-.057*	-.006	.093**	-.040	-.084**				
Equality								-.108***	-.049	.182***	-.094**	-.143***				
Merit									.259***	-.105***	.179***	-.077**				
Need										-.072*	.022	.076**				
Preference equality											-.738***	-.500***				
Preference merit																-.215***

*Note:* JS, justice sensitivity; ToM, theory of mind. Distributive decisions in Vignettes 1–5 according to the coding pattern stated in the “Measures” section. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

**Figure 1**

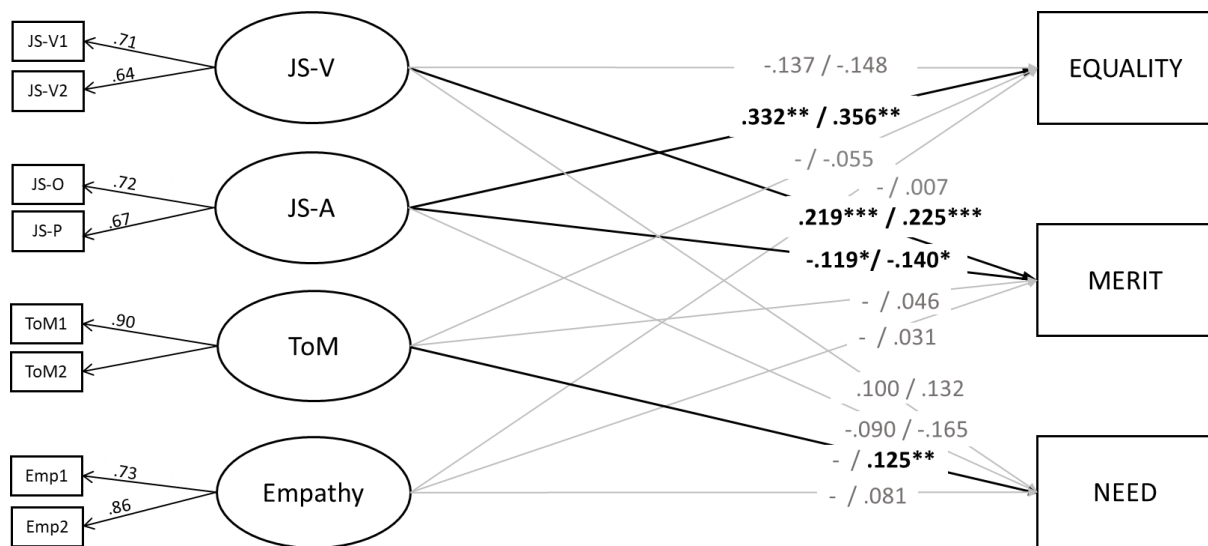
*Predicting Sharing Behavior from Victim (V) and Altruistic (A) Justice Sensitivity (JS)*



*Note:* Predicting sharing behavior from victim (V) and altruistic (A) justice sensitivity (JS) (first regression weights:  $\chi^2 = 28.767$ ,  $df = 9$ ,  $p < .001$ ; RMSEA = .041 [.025, .058], CFI = .980, SRMR = .018;  $N = 1305$ ;  $R^2 = .017$ ) as well as from victim and altruistic JS, theory of mind (ToM), and empathy (second regression weights:  $\chi^2 = 66.775$ ,  $df = 30$ ,  $p < .001$ ; RMSEA = .031 [.021, .041], CFI = .983, SRMR = .019;  $N = 1305$ ;  $R^2 = .023$ ). Controlled for age and gender. Standardized path coefficients displayed. *Abbreviation:* O-observer; P-perpetrator.

**Figure 2**

*Predicting Equality, Merit, and Need from Victim (V) and Altruistic (A) Justice Sensitivity (JS)*

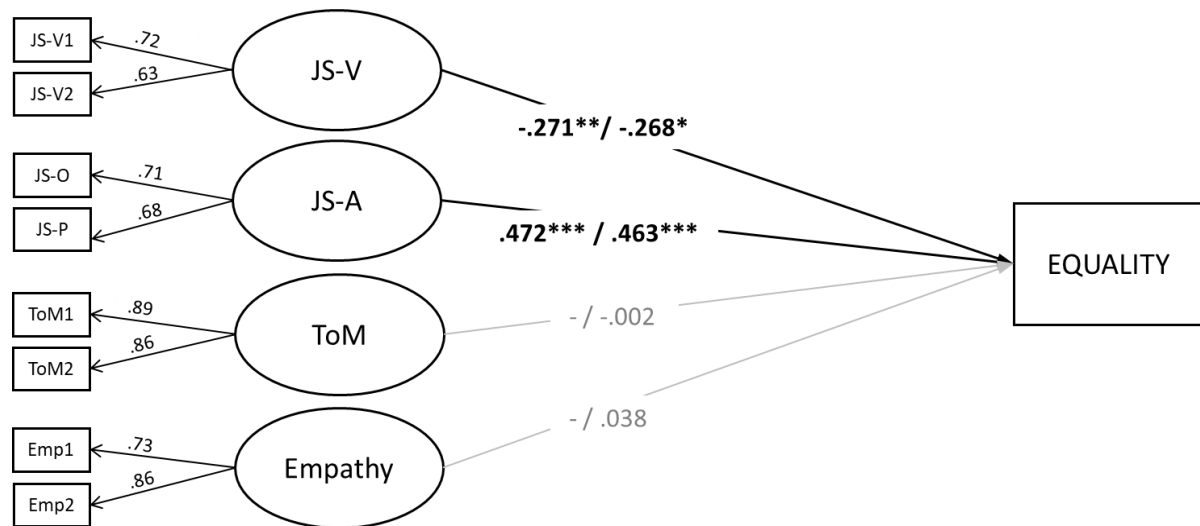


*Note:* Predicting equality, merit, and need from victim (V) and altruistic (A) justice sensitivity (JS) (first regression weights:  $\chi^2 = 29.650$ ,  $df = 13$ ,  $p = .005$ ; RMSEA =.031 [.016,.046]; CFI =.967, SRMR =.092,  $N = 1,305$ ;  $R^2_{equality} = .090^*$ ,  $R^2_{merit} = .024^*$ ,  $R^2_{need} = .009$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2 = 59.083$ ,  $df = 38$ ,  $p = .016$ ; RMSEA =.021 [.009,.030], CFI =.978, SRMR =.079;  $N = 1305$ ;  $R^2_{equality} = .093^*$ ,  $R^2_{merit} = .027^*$ ,  $R^2_{need} = .033^*$ ). Controlled for age and gender. Standardized path coefficients displayed.

\* $p < .05$ . Abbreviation: O-observer; P-perpetrator.

**Figure 3**

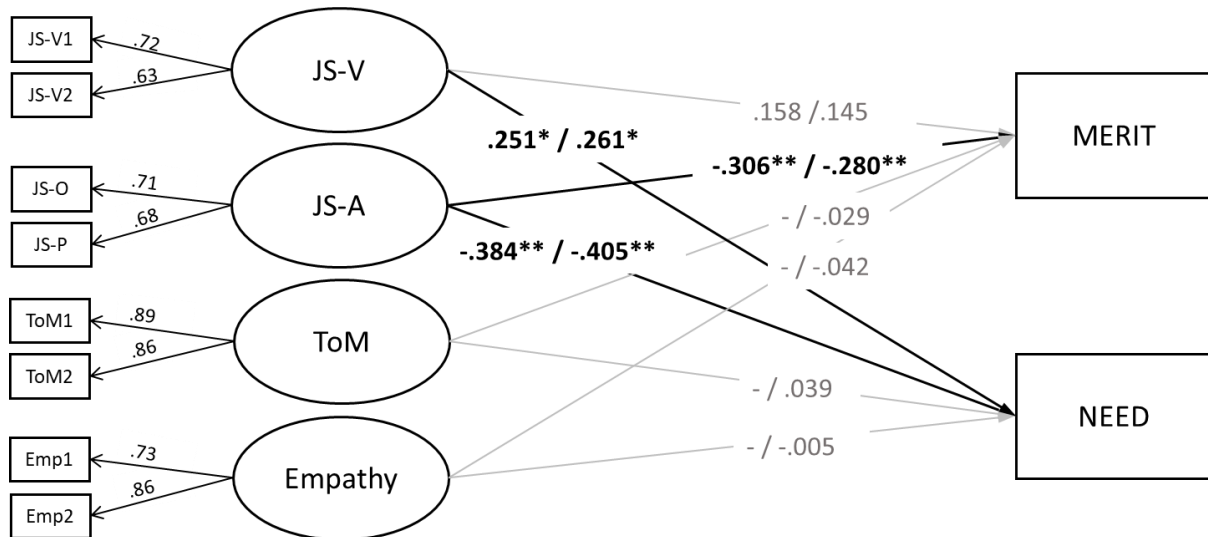
*Predicting Equality (Dilemma Situation) from Victim (V) and Altruistic (A) Justice Sensitivity*



*Note:* Predicting equality (dilemma situation) from victim (V) and altruistic (A) justice sensitivity (JS) (first regression weights:  $\chi^2 = 29.165$ ,  $df = 9$ ,  $p < .001$ ; RMSEA = .041 [.025, .059], CFI = .952, SRMR = .111;  $N = 1305$ ;  $R^2 = .117^{**}$ ) as well as from victim and altruistic JS, theory of mind (ToM), and empathy (second regression weights:  $\chi^2 = 51.880$ ,  $df = 30$ ,  $p = .008$ ; RMSEA = .024 [.012, .034], CFI = .977, SRMR = .091;  $N = 1305$ ;  $R^2 = .117^{**}$ ). Controlled for age and gender. Standardized path coefficients displayed.  $^{**}p < .01$ . *Abbreviation:* O-observer; P-perpetrator.

**Figure 4**

*Predicting Merit and Need (Dilemma Situation) from Victim (V) and Altruistic (A) Justice Sensitivity (JS)*



*Note:* Predicting merit and need (dilemma situation) from victim (V) and altruistic (A) justice sensitivity (JS) (first regression weights:  $\chi^2 = 31.458$ ,  $df = 11$ ,  $p < .001$ ; RMSEA = .038 [.023,.054], CFI = .954, SRMR = .098;  $N = 1305$ ;  $R^2_{merit} = .051^*$ ,  $R^2_{need} = .126^{**}$ ) as well as from victim and altruistic JS, theory of mind (ToM), and empathy (second regression weights:  $\chi^2 = 55.510$ ,  $df = 34$ ,  $p = .011$ ; RMSEA = .022 [.011,.032], CFI = .977, SRMR = .084;  $N = 1305$ ;  $R^2_{merit} = .053^*$ ,  $R^2_{need} = .129^{**}$ ). Controlled for age and gender. Standardized path coefficients displayed.

\*  $p < .05$ , \*\*  $p < .01$ . Abbreviation: O-observer; P-perpetrator.

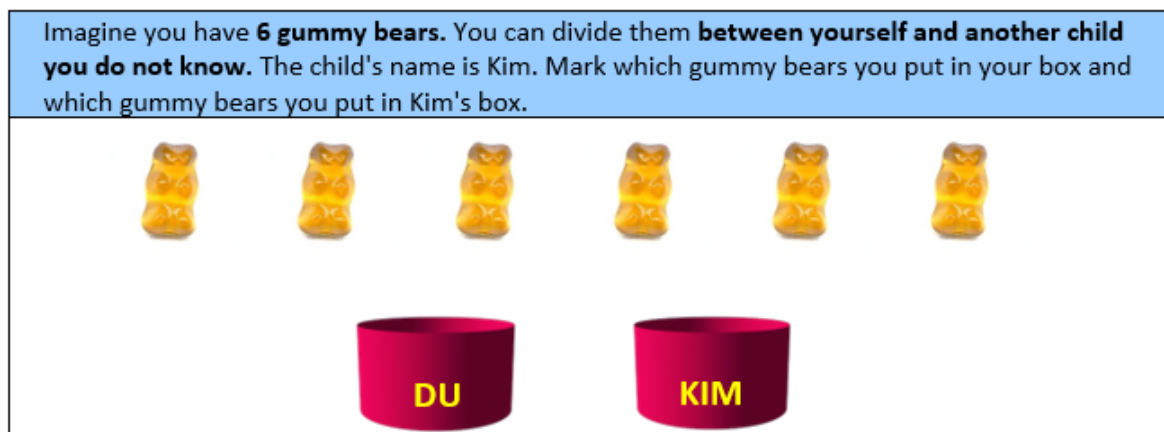
## 4.6 Supplementary Material

### Supplementary Material S1

#### Vignettes Measuring Distributive Decisions

We presented children with five vignettes similar to proceedings described by Rochat et al. (2009).

#### *Sharing behavior*



#### *Equality Principle*

Imagine you have **6 pieces of chewy candy**. You have to divide **them between 2 children you do not know**. One child is called **Marie** and the other one is called **Lena**. Mark which pieces of chewy candy you put in Marie's box and which pieces of chewy candy you put in Lena's box.

#### *Merit Principle*

Imagine you have **6 Smarties**. You have to divide them **between two children you do not know**. One child is called **Richard** and the other one is called **Justus**. You know that Richard has worked hard on his homework today. Justus preferred to rest. Mark which smarties you put in Richard's box and which smarties you put in Justus' box.



*Need Principle*

Imagine you have **6 pieces of chewy candy**. You have to divide them **between two children you do not know**. The children are called **Jana** and **Melanie**. You know that Jana does not have any candy at home. Melanie has a lot of candy at home. Mark which pieces of chewy candy you put in Jana's box and which pieces of chewy candy you put in Melanie's box.

*Dilemma between Principles of Merit and Need (and Equality)*

Imagine you have **6 gummy bears**. You can divide them **between two children you do not know**. One child is called **Michael** and the other one is called **Tom**. You know that Michael has a lot of sweets at home and has worked hard on his homework today. Tom has no candy at home and preferred to rest today. Mark which gummy bears you put in Michael's box and which gummy bears you put in Tom's box.

**Supplementary Material S2: Predicting Sharing Behavior from Victim, Observer, and Perpetrator JS**

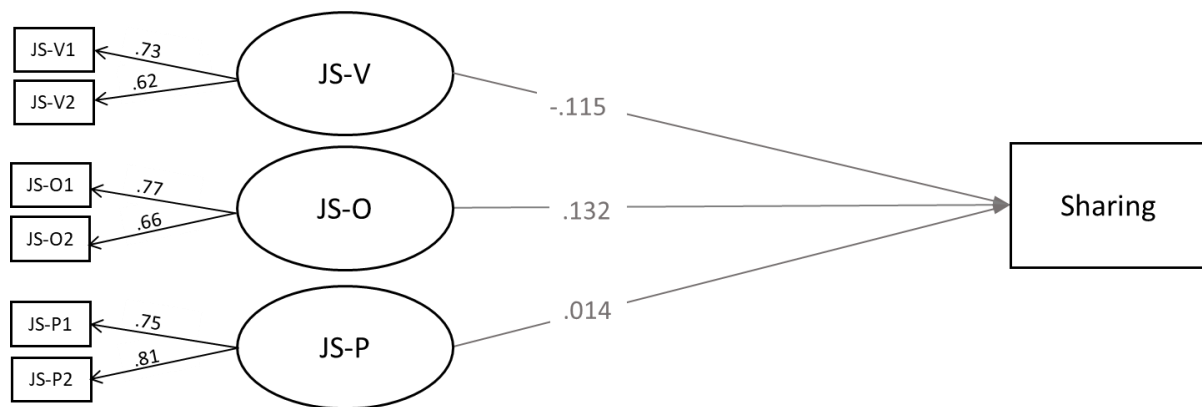


Figure S1a. Predicting sharing behavior from victim, observer, and perpetrator justice sensitivity (JS;  $\chi^2=23.481$ ,  $df=12$ ,  $p=.024$ ; RMSEA=.027 [.010; .043]; CFI=.994; SRMR=.013;  $N=1,305$ ;  $R^2=.012$ ). Congruent indicators of the three JS scales were allowed to correlate. Controlled for age and gender. Standardized values displayed.

**Supplementary Material S3: Predicting Distributive Behavior from Victim, Observer, and Perpetrator JS and with Binary-coded Outcomes**

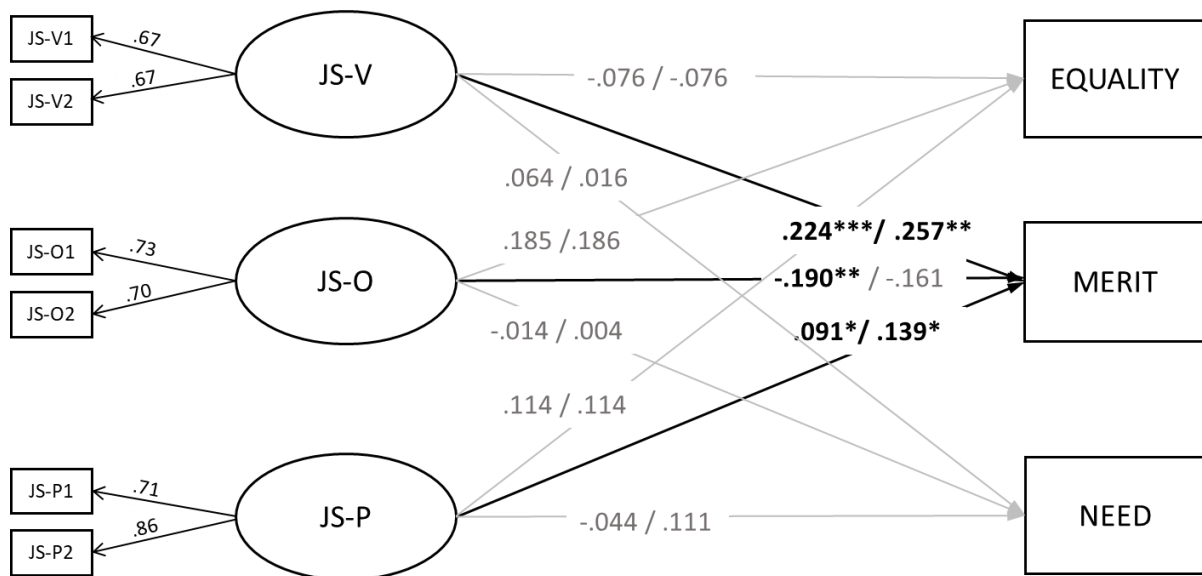


Figure S2a. Predicting equality, merit, and need from victim, observer, and perpetrator justice sensitivity (merit and need as continuous variables: first regression weights;  $\chi^2=26.008$ ,  $df=18$ ,  $p=.099$ ; RMSEA=.018 [.000; .033]; CFI=.990; SRMR=.052;  $N=1,305$ ;  $R^2_{equality}=.081^*$ ,  $R^2_{merit}=.033^*$ ;  $R^2_{need}=.007$ / merit and need as binary variables: second regression weights;  $\chi^2=23.546$ ,  $df=18$ ,  $p=.171$ ; RMSEA=.015 [.000; .031]; CFI=.993; SRMR=.053;  $N=1,305$ ;  $R^2_{equality}=.081^*$ ,  $R^2_{merit}=.060^*$ ;  $R^2_{need}=.021$ ). Congruent indicators of the three JS scales were allowed to correlate. Controlled for age and gender. Standardized values displayed.

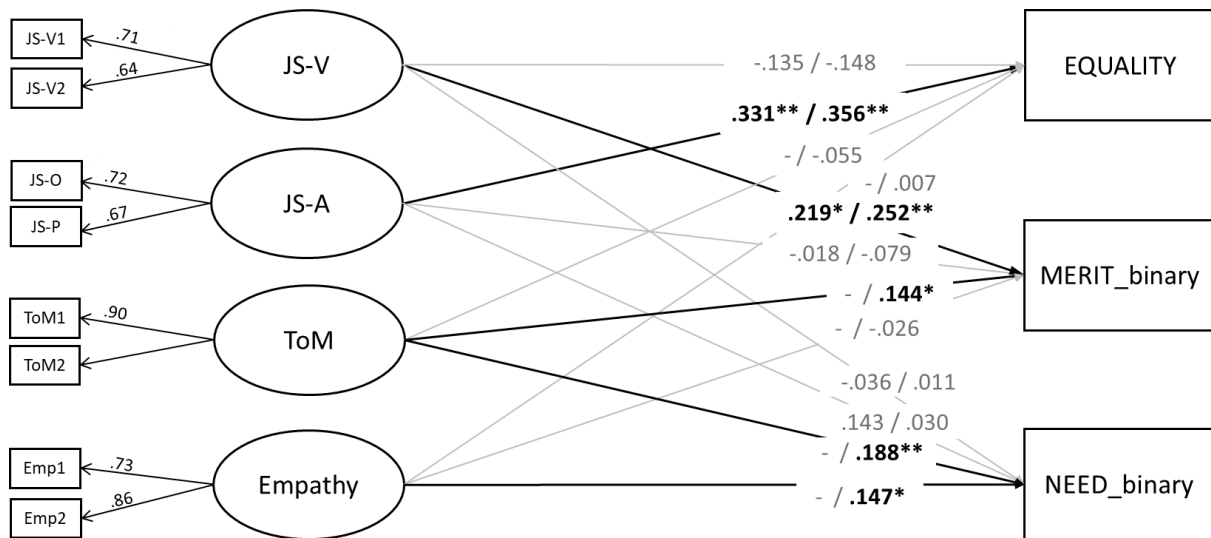


Figure S2b. Predicting binary coded equality, merit, and need from victim and altruistic JS (first regression weights;  $\chi^2=26.959$ ,  $df=13$ ,  $p=.013$ ; RMSEA=.029 [.013; .044]; CFI=.976; SRMR=.089;  $N=1,305$ ;  $R^2_{equality}=.090^*$ ;  $R^2_{merit}=.043^*$ ;  $R^2_{need}=.020$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2=56.432$ ,  $df=38$ ,  $p=.028$ ; RMSEA=.019 [.007; .029]; CFI=.982; SRMR=.079;  $N=1,305$ ;  $R^2_{equality}=.093^*$ ;  $R^2_{merit}=.060^*$ ;  $R^2_{need}=.084^*$ ). Controlled for age and gender. Standardized path coefficients displayed.

**Supplementary Material S4: Predicting Preferences for Distributive Principles from Victim, Observer, and Perpetrator JS**

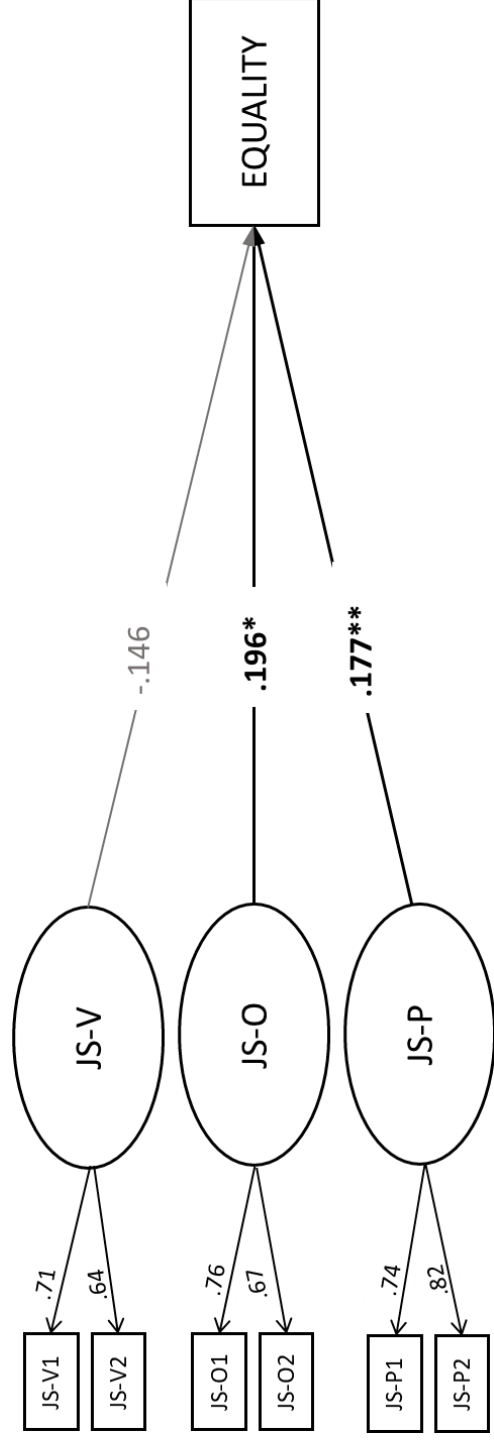


Figure S3a. Predicting equality (dilemma situation) from victim, observer, and perpetrator justice sensitivity (JS;  $\chi^2=19.304$ ,  $df=12$ ,  $p=.081$ ; RMSEA=.022 [.000; .039]; CFI=.989; SRMR=.054;  $N=1,305$ ;  $R^2=.081^{**}$ ). Congruent indicators of the three JS scales were allowed to correlate. Controlled for age and gender. Standardized values displayed.

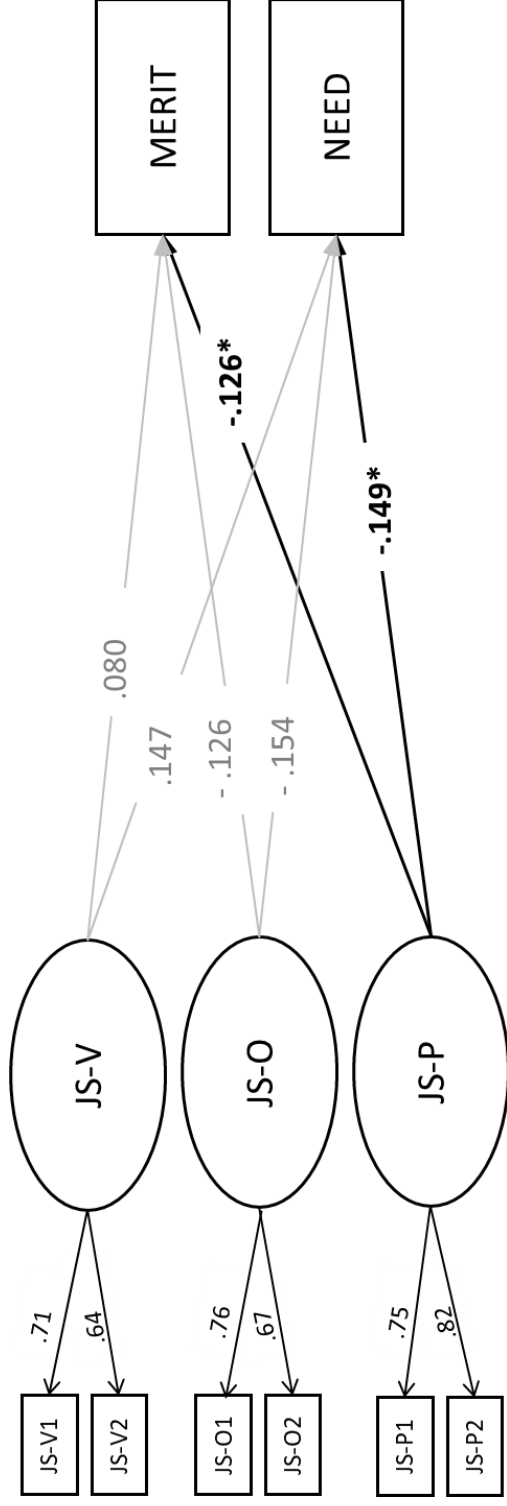
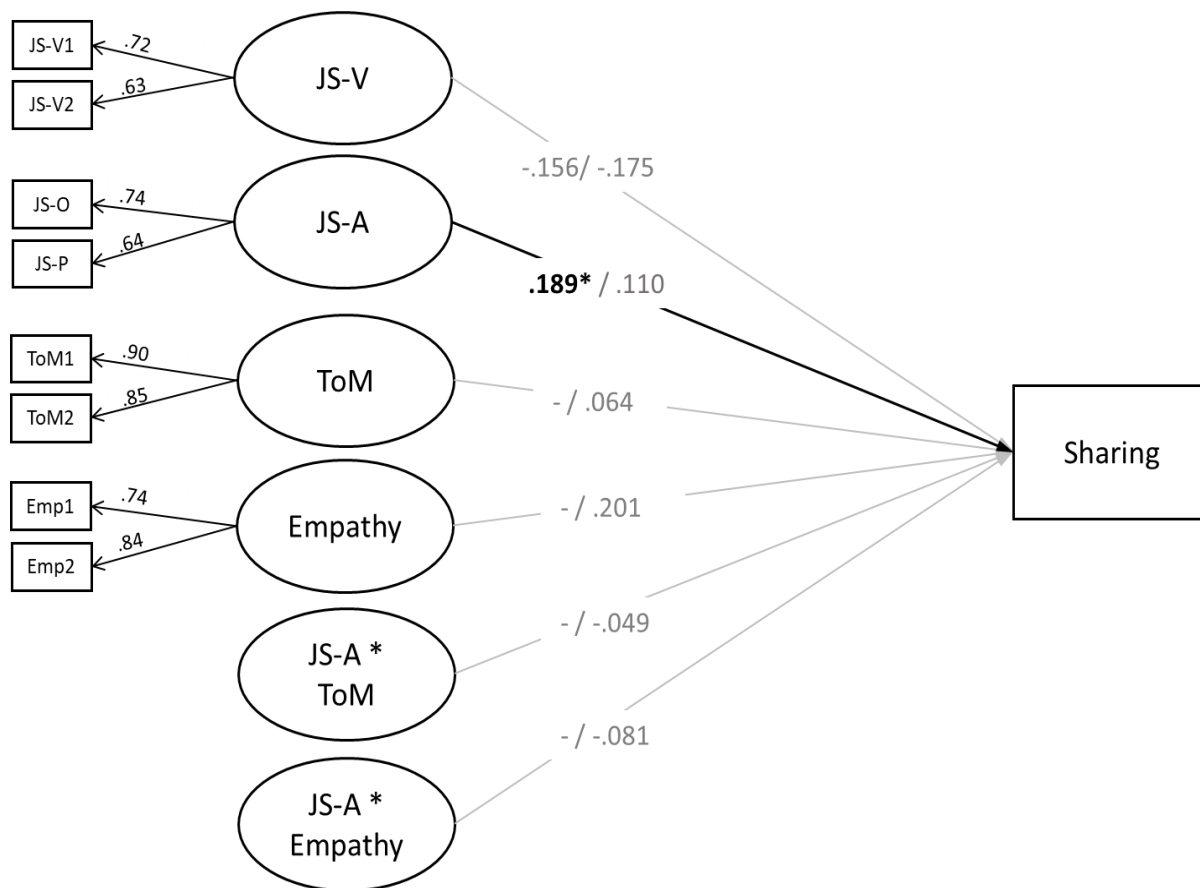


Figure S4a. Predicting merit and need (dilemma situation) from victim, observer, and perpetrator justice sensitivity (JS;  $\chi^2=26.366$ ,  $df=15$ ,  $p=.034$ ; RMSEA=.024 [.007; .039]; CFI=.984; SRMR=.050;  $N=1,305$ ;  $R^2_{merit}=.039^*$ ;  $R^2_{need}=.102^{***}$ ). Congruent indicators of the three JS scales were allowed to correlate. Controlled for age and gender. Standardized values displayed.

**Supplementary Material S5: Moderation Effects of ToM and Empathy with Altruistic JS**



*Figure S5.* Predicting sharing behavior from victim and altruistic JS (first regression weights;  $\chi^2=28.767$ ,  $df=9$ ,  $p<.001$ ; RMSEA=.041 [.025; .058]; CFI=.980; SRMR=.018;  $N=1,305$ ;  $R^2=.017$ ) as well as from victim and altruistic JS, ToM, empathy, and the interaction effects between altruistic JS and ToM and empathy, respectively (second regression weights; BIC=19,658.631, AIC=19,384.411;  $N=1,305$ ;  $R^2=.041$ ). Controlled for age and gender. Standardized path coefficients displayed.

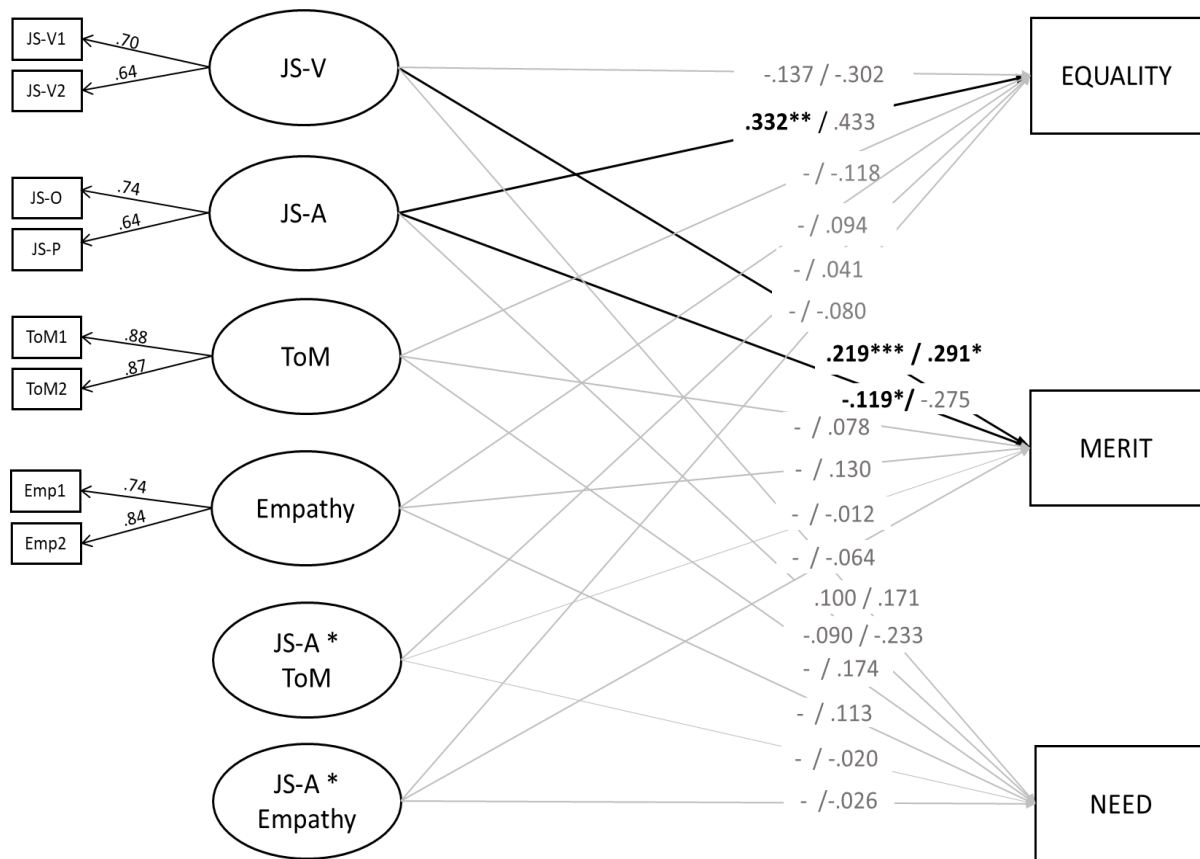


Figure S6. Predicting equality, merit, and need from victim and altruistic JS (first regression weights;  $\chi^2=29.650$ ,  $df=13$ ,  $p=.005$ ;  $RMSEA=.031$  [.016; .046];  $CFI=.967$ ;  $SRMR=.092$ ;  $N=1,305$ ;  $R^2_{equality}=.090^*$ ,  $R^2_{merit}=.024^*$ ;  $R^2_{need}=.009$ ) as well as from victim and altruistic JS, ToM, empathy, and the interaction effects between altruistic JS and ToM and empathy, respectively (second regression weights;  $BIC=25,804.221$ ,  $AIC=25,416.174$ ;  $N=1,305$ ;  $R^2_{equality}=.139^*$ ,  $R^2_{merit}=.044$ ;  $R^2_{need}=.043$ ). Controlled for age and gender. Standardized path coefficients displayed.

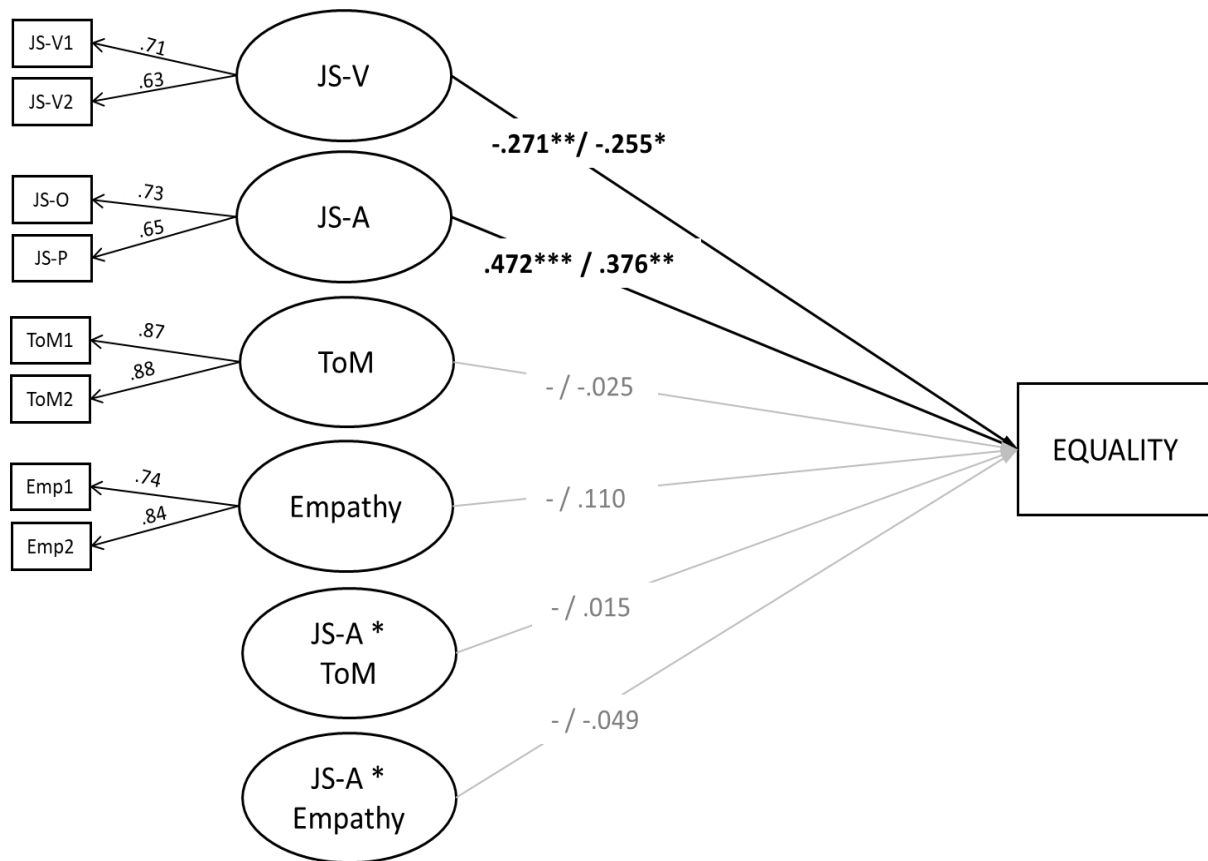


Figure S7. Predicting equality (dilemma situation) from victim and altruistic JS (first regression weights;  $\chi^2=29.165$ ,  $df=9$ ,  $p<.001$ ; RMSEA=.041 [.025; .059]; CFI=.952; SRMR=.111;  $N=1,305$ ;  $R^2=.117^{**}$ ) as well as from victim and altruistic JS, ToM, empathy, and the interaction effects between altruistic JS and ToM and empathy, respectively (second regression weights; BIC=18,451.796, AIC=18,182.750;  $N=1,305$ ;  $R^2=.096^*$ ). Controlled for age and gender. Standardized path coefficients displayed.



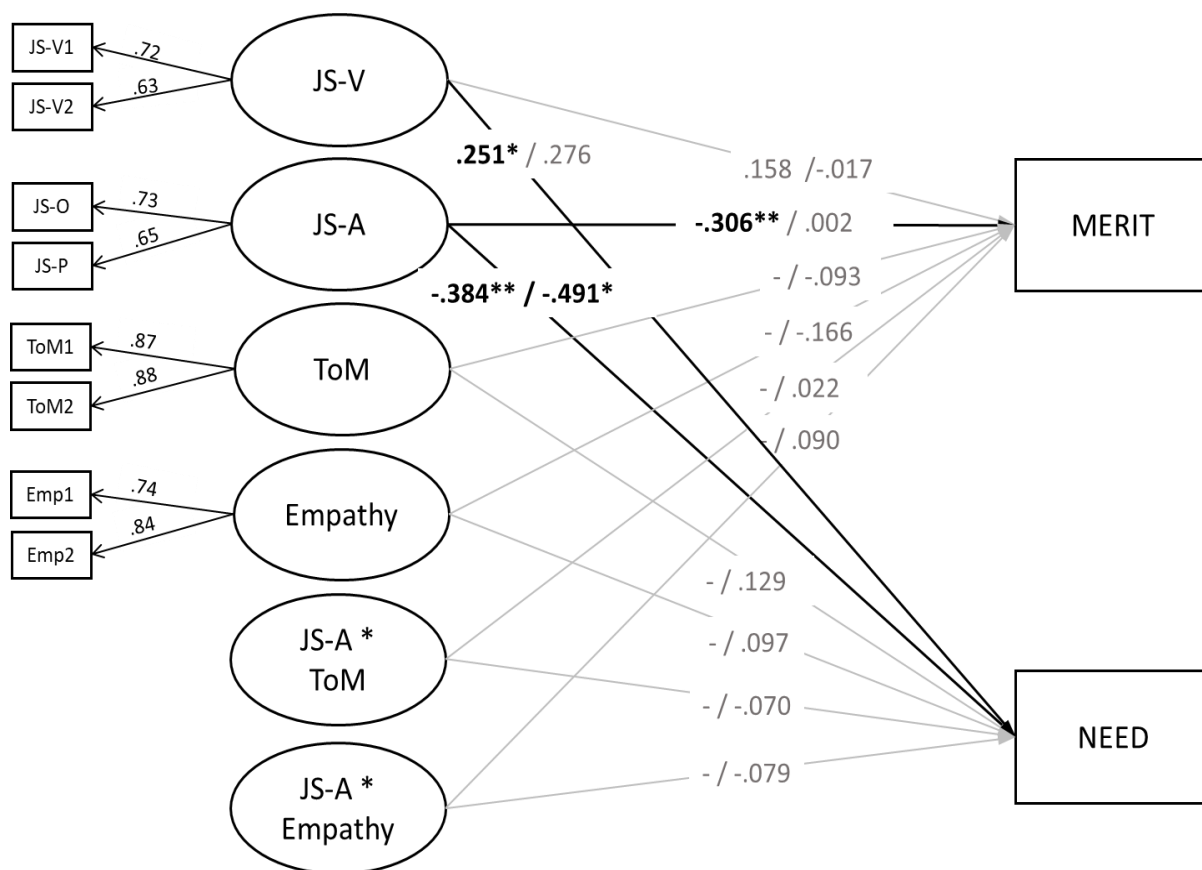


Figure S8. Predicting merit and need (dilemma situation) from victim and altruistic JS (first regression weights;  $\chi^2=31.458$ ,  $df=11$ ,  $p<.001$ ; RMSEA=.038 [.023; .054]; CFI=.954; SRMR=.098;  $N=1,305$   $R^2_{merit}=.051^*$ ;  $R^2_{need}=.126^{***}$ ) as well as from victim and altruistic JS, ToM, empathy, and the interaction effects between altruistic JS and ToM and empathy, respectively (second regression weights; BIC=19,211.049, AIC=18,890.264;  $N=1,305$ ;  $R^2_{merit}=.037$ ;  $R^2_{need}=.149^*$ ). Controlled for age and gender. Standardized path coefficients displayed.

**Supplementary Material S6: Parent-ratings of JS**

Table S1

*Correlations of JS Parent Ratings with Resource Allocations, Social Skills, and Age*

	Victim JS (p)	Observer JS (p)	Perpetrator JS (p)	Altruistic JS (p)
Observer JS (p)	.379***			
Perpetrator JS (p)	.161***	.606***		
Altruistic JS (p)	.292***	.886***	.905***	
ToM	.089*	.240***	.275***	.288***
Empathy	.169***	.355***	.357***	.401***
Age	.042	.114**	.097**	.113**
Sharing	-.028	.062	.064	.078*
Equality	.049	.043	.003	.036
Merit	-.001	.048	.031	.038
Need	.000	.025	-.022	-.002
Preference Equality	.055	.104**	.061	.100**
Preference Merit	-.030	-.043	-.013	-.037
Preference Need	-.041	-.099**	-.074*	-.101**

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; JS parent-ratings. ToM=Theory of Mind.

Distributive decisions in vignettes 1-5 according to the coding pattern stated in the Measures section.

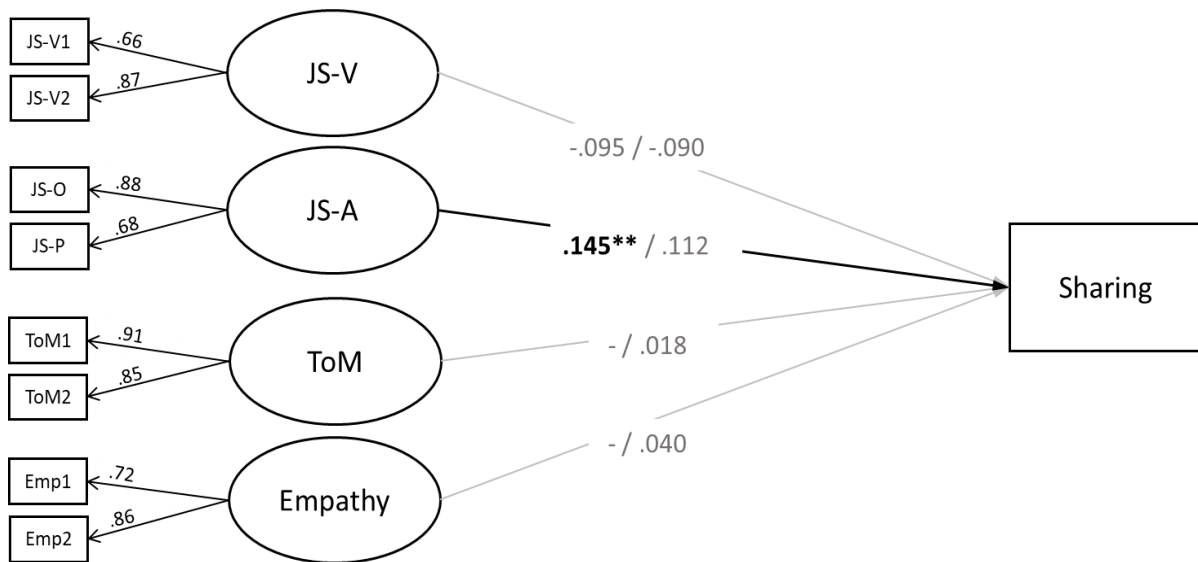


Figure S9. Predicting sharing behavior from victim and altruistic JS (first regression weights;  $\chi^2=55.711$ ,  $df=10$ ,  $p<.001$ ; RMSEA=.059 [.045; .075]; CFI=.947; SRMR=.041;  $N=1,300$ ;  $R^2=.017$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2=124.955$ ,  $df=31$ ,  $p<.001$ ; RMSEA=.048 [.040; .057]; CFI=.956; SRMR=.032;  $N=1,300$ ;  $R^2=.018$ ). Controlled for age and gender. Standardized path coefficients displayed.

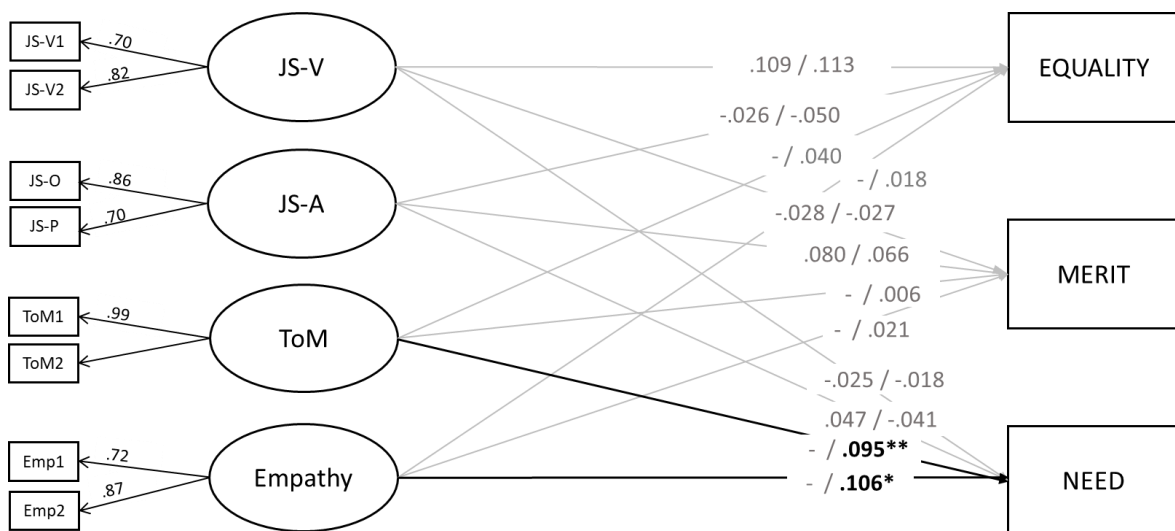


Figure S10. Predicting equality, merit, and need from victim and altruistic JS (first regression weights;  $\chi^2=66.221$ ,  $df=14$ ,  $p<.001$ ; RMSEA=.054 [.041; .067]; CFI=.903; SRMR=.052;  $N=1,302$ ;  $R^2_{equality}=.041$ ;  $R^2_{merit}=.005$ ;  $R^2_{need}=.006$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2=123.718$ ,  $df=38$ ,  $p<.001$ ; RMSEA=.042 [.034; .050]; CFI=.927; SRMR=.066;  $N=1,302$ ;  $R^2_{equality}=.043$ ;  $R^2_{merit}=.006$ ;  $R^2_{need}=.024^*$ ). Controlled for age and gender. Standardized path coefficients displayed.

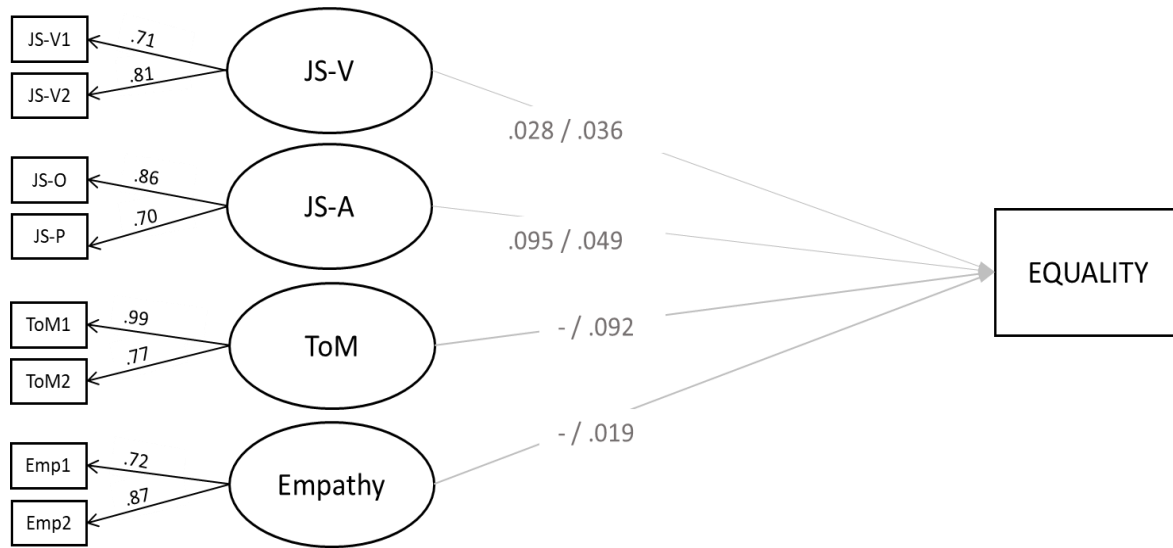


Figure S11. Predicting equality (dilemma situation) from victim and altruistic JS (first regression weights;  $\chi^2=67.403$ ,  $df=10$ ,  $p<.001$ ; RMSEA=.067 [.052; .082]; CFI=.875; SRMR=.066;  $N=1,291$ ;  $R^2=.023$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2=122.187$ ,  $df=30$ ,  $p<.001$ ; RMSEA=.049 [.040; .058]; CFI=.918; SRMR=.077;  $N=1,291$ ;  $R^2=.031^*$ ). Controlled for age and gender. Standardized path coefficients displayed.

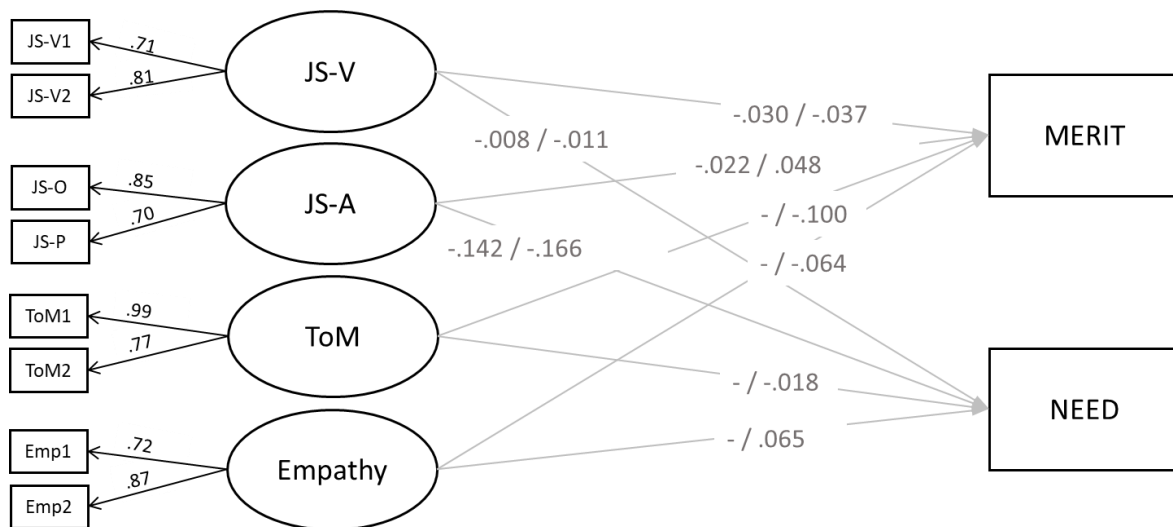


Figure S12. Predicting merit and need (dilemma situation) from victim and altruistic JS (first regression weights;  $\chi^2=65.272$ ,  $df=12$ ,  $p<.001$ ; RMSEA=.059 [.045; .073]; CFI=.890; SRMR=.058;  $N=1,291$ ;  $R^2_{merit}=.007$ ;  $R^2_{need}=.078^{**}$ ) as well as from victim and altruistic JS, ToM, and empathy (second regression weights;  $\chi^2=118.216$ ,  $df=34$ ,  $p<.001$ ; RMSEA=.044 [.035; .053]; CFI=.927; SRMR=.070;  $N=1,291$ ;  $R^2_{merit}=.021$ ;  $R^2_{need}=.081^{**}$ ). Controlled for age and gender. Standardized path coefficients displayed.

## Supplementary Material S7

### Deviations from the Pre-Registration

- We adapted the wording of some Hypotheses in order to fit a regression analytic approach. Furthermore, we separated them by victim and altruistic JS instead of victim, observer, and perpetrator JS in order to make them easier to understand. The contents of the Hypotheses remained otherwise unchanged.
- We planned to use a binary outcome for sharing behavior (applying a 65% rule with 0-4 considered fair and 5-6 unfair). The majority of children, however, decided for an equal split. Thus, the variance of the dichotomous variable was severely limited. As suggested in the Exploratory Analysis section of the pre-registration, we, therefore, used the continuous variable.
- We assessed ToM and empathy by children, parents, and teachers, and empathy by parents and teachers. The ToM-child measure turned out to be invalid. Parent and teacher rating showed only low correlations (ToM  $r=.27^{***}$ , empathy  $r=.13^{**}$ ) and serious problems of loading patterns of teacher-ratings when specifying multiple-rater empathy scores. We, therefore, continued by only considering parent-ratings for both constructs.
- We pre-registered two latent path models. In the first model, the three JS scales, ToM, empathy, and the moderation terms of ToM and empathy with observer- and perpetrator JS should predict sharing behavior and equal distributions. In the second model, only the JS scales should predict distributions in Vignette 3 to 5. These models turned out to have serious problems due to 4 interaction terms in the first model and linear dependencies of overlapping outcomes within Vignette 5 in the second model. We, therefore, adjusted the models and used a combined altruistic-JS factor in all respective analyses.
- We expected ToM and empathy to moderate the association between altruistic JS and sharing and equality and preregistered this hypothesis. According to the reviewer comments,

we moved the accordant models to Supplementary Material S5. In order to avoid overly complex models, we used the altruistic JS factor instead of the separate observer and perpetrator factors for analyses including ToM and empathy as moderators.

- The pre-registration comprised further research questions concerning relations of JS and moral reasoning, emotions, and identity in middle childhood. Due to space limitations and complex models, we reported the findings for relations between JS and sharing and distributive behavior and the other moral variables separately (<https://osf.io/7x8h5>). Both articles refer to the present pre-registration, sample, and data acquisition setting.

**5. Study 3: “Links between Justice Sensitivity and Moral Reasoning, Moral Emotions, and Moral Identity in Middle Childhood”**

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**Abbreviations:** ANCOVAs, analyses of covariance; CFI, comparative fit index; JS, justice sensitivity; MANCOVA, multivariate analysis of covariance; RMSEA, root mean square error of approximation; SEM, structural equation modelling; SRMR, standardized root mean square residual; TGNC, transgender and gender- nonconforming; ToM, theory of mind.

### 5.1 Abstract

Associations between moral-related traits, such as justice sensitivity (JS), the tendency to negatively respond to injustice, and moral development are largely unknown. From May to December 2018, 1329 5- to 12-year-olds ( $M = 8.05$ ,  $SD = 1.02$ ; 51.2% girls, 1.3% transgender and gender-nonconforming) from Germany rated their JS, moral reasoning, emotions, and identity; parents and teachers rated children's theory of mind (ToM) and empathy. Victim JS (caring for own justice) predicted more attributions of positive emotions to norm transgressors in structural equation models ( $\beta = .295$ ). Altruistic JS (caring for other's justice) predicted less attributions of positive emotions ( $\beta = -.343$ ) and a stronger moral identity ( $\beta = .392$ ) unless ToM was considered. Particularly altruistic JS showed associations with advanced moral development. Hence, moral-related traits deserve more attention by moral-development research.

*Keywords:* justice sensitivity, moral reasoning, moral emotion attribution, moral identity, middle childhood



### **Links between Justice Sensitivity and Moral Reasoning, Moral Emotions, and Moral Identity in Middle Childhood**

Middle childhood is a critical phase for moral development with marked changes in moral reasoning (i.e., the level of justification for moral conduct) and moral emotions (i.e., affective responses to moral-related situations), and early indicators of moral identity (i.e., the consolidation of self-concept and moral traits; Hardy & Carlo, 2011; Malti & Ongley, 2014). Recent research indicated that individual differences in the tendency to frequently perceive and intensively respond to injustice, that is, in justice sensitivity (JS), also manifest in this age range (Strauß et al., 2020). Because JS was considered a moral trait (Baumert et al., 2013) and consistently related to prosocial behavior in older age groups (Bondü & Elsner, 2015; Edele et al., 2013; Strauß et al., 2020), it may also add to explain moral development. However, the potential role of moral-related traits for different dimensions of moral development in general was hardly considered and potential differential associations between JS in particular and moral cognitions, moral emotions, as well as moral identity have never been examined up to now. This, however, seems particularly interesting in childhood as a sensitive phase for both moral and JS development and because relations may be complex, as JS comprises concerns for justice for the self and for others. Therefore, the present study examined potential relations between JS and common measures of morality in middle childhood while controlling for theory of mind (ToM) and empathy as relevant social skills.

#### **Justice Sensitivity**

Justice is an important aspect of what is generally considered as moral (Kohlberg, 1976; Rawls, 1971). Individuals high in dispositional JS frequently perceive, ruminate about, feel stressed by, and strive to counteract injustice (Schmitt et al., 2005, 2010). Hence, JS captures individual differences in the personal importance of justice. Because justice norms are an important aspect of what is considered morally right or wrong, JS is considered a

moral-related trait (Baumert et al., 2013). However, JS further subdivides into one self-oriented and three other-oriented perspectives that can be expected to show differential associations with measures of moral cognitions, emotions, and identity. The perspectives from which individuals are sensitive toward injustice also differ by the primary emotional and behavioral responses. Individuals high in self-oriented victim JS tend to feel unjustly treated and respond to perceived injustice to their disadvantage with anger and the urge to punish the alleged perpetrator. Observer, perpetrator, and beneficiary JS all reflect other-oriented concerns for injustice. Individuals high in observer JS tend to perceive injustice to the disadvantage of others and respond with moral indignation. Individuals high in perpetrator JS tend to dislike causing injustice and respond with guilt. Individuals high in observer and perpetrator JS both aim to compensate the victim and/or punish the perpetrator to level out injustice. The fourth perspective—beneficiary JS, that is, sensitivity toward injustice to one's own advantage and to the disadvantage of others—was omitted by research in children due to high cognitive demands required to understand this perspective and is also not considered in the present study. Due to the shared underlying interest in justice, all JS perspectives were positively correlated, but correlations between observer and perpetrator JS were more pronounced. In addition, they also showed similar association patterns with third variables. Thus, some previous research has collapsed observer and perpetrator JS into a single factor of the so-called other-oriented or altruistic JS. Importantly, victim JS and observer/ perpetrator JS showed opposing association patterns with prosocial and antisocial behavior, with positive associations between a range of antisocial outcomes and victim JS and positive associations between a range of prosocial outcomes and observer/perpetrator JS (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Strauß et al., 2020). However, although moral behavior is an integral component of prosocial behavior, the relations between JS and classic measures of moral development were not yet examined.

### **Moral Reasoning, Moral Emotions, and Moral Identity**

Moral development is a comprehensive and pivotal developmental task starting in childhood and continuing throughout adolescence and even into adulthood. It comprises the acquisition of a number of intertwined competencies and structures that enable moral behavior and include cognitive, affective, and trait-like aspects (Hertz & Krettenauer, 2016; Hoffman, 2000; Kohlberg, 1976). Moral reasoning describes the cognitive processes underlying the justification of why an act is considered as morally right or wrong and captures the cognitive skills and requirements thought to underlie moral behavior (Malti et al., 2009). Moral emotions and moral emotion attribution are the actual or anticipated affective responses to moral and immoral situations by the self or that are ascribed to others (Keller et al., 2003). They capture the affective skills and requirements thought to underlie moral behavior (Hardy, 2006; Tangney et al., 2007). Moral identity describes the individual subjective importance of being a moral person and captures the trait-like personality structures and requirements that are thought to promote moral behavior (Hardy, 2006; Hardy & Carlo, 2011). Indeed, all three measures predicted moral behavior and added to this prediction roughly equally (Hertz & Krettenauer, 2016). Therefore, it is important to understand what may promote these skills and structures themselves. Accordingly, abundant research has devoted attention to this question particularly in childhood.

In this research, moral reasoning was typically assessed via the reasoning for decisions in moral dilemma situations (irrespective of the decision itself; Carlo et al., 1992; Kohlberg, 1976). During middle childhood, moral reasoning was shown to shift from being rather egoistic and hedonistic (e.g., avoid punishment) toward being more other-oriented and empathic (e.g., prevent adverse emotions in others) and referring to general moral principles (e.g., do not break a promise; Daniel et al., 2014; Malti & Keller, 2009). More evolved moral reasoning was associated with increasingly elaborate considerations of justice norms, less

adverse behavior, more adequate anticipations of others' (affective) responses, and more complex own moral emotions (Carlo et al., 2010; Malti & Ongley, 2014; Malti et al., 2010).

As outlined above, these moral emotions are a further important benchmark for moral behavior. They were consistently associated with more prosocial and less antisocial behavior (Malti & Krettenauer, 2013, for a meta-analysis). Moral emotions motivate toward moral behavior by providing internalized moral rules with meaning for the self (Tangney et al., 2007) through the anticipation of subsequent negative emotions after norm transgression (e.g., guilt) and of positive emotions after norm adherence (e.g., pride). Hence, moral emotions are considered as an indicator of moral motivation (Nunner-Winkler, 2007). The happy-victimizer paradigm is commonly used to examine the anticipated affective consequences of moral-related actions: Participants are presented with the story of a child norm transgressor and asked to name the emotions they think this child experiences. Participants who attribute negative emotions to the norm transgressor (e.g., guilt, shame) are thought to show more evolved moral emotions that reflect the internalization of moral norms than those who attribute positive emotions (e.g., happiness). The shift from positive to negative emotion attribution usually occurs around 6 years of age, but some individuals continue to ascribe positive emotions to norm transgressors beyond this age (Nunner-Winkler, 2013).

Moral identity is considered a further important motivator toward moral behavior, because it reflects the personal relevance of and commitment to moral virtues (Hardy, 2006). Hence, individuals with a strong moral identity should consistently feel obliged to follow moral norms (Hardy & Carlo, 2011). Moral identity may be assessed via ratings of the personal importance of moral traits (e.g., being kind, honest), sometimes in contrast to other positive traits (e.g., being popular, smart; Aquino & Reed, 2002; Arnold, 1993). A rudimentary sense of a moral self is present from early childhood onwards (Kochanska et al.,

2010) and manifests in self-representations of preferences for prosocial and avoidance of antisocial behavior in middle childhood (Krettenauer et al., 2013). In this age range, the adherence to moral norms becomes more internally motivated and increasing cognitive skills allow for inferring one's trait-like moral identity through more complex self-reflection (Kingsford et al., 2018; Krettenauer & Hertz, 2015).

Up to now, moral identity and its relations with moral reasoning and moral emotions were hardly examined in middle childhood (Kingsford et al., 2018; Krettenauer & Hertz, 2015; Lefebvre & Krettenauer, 2019). Furthermore, research vastly neglected the potential role of moral-related traits, such as JS, as potential motivators for and correlates of moral reasoning, moral emotions, and moral identity.

### **Potential Relations Between JS and Moral Constructs**

Despite this gap in research, abundant previous research on the links between JS and prosocial and antisocial behavior as well as theoretical considerations on JS as a moral-related trait support the notion that JS should show associations with and even predict measures of moral development in middle childhood. Differential relations between JS and the three moral-related outcome measures can be expected. Because previous research attributed the effects of JS mainly to its emotional aspects and showed overlaps between moral emotions and JS and because both JS and moral identity reflect moral-related, trait-like personality aspects, more pronounced relations between JS and moral emotions and identity than with moral cognition should occur.

Regarding the relations between the outcome measures and the JS subscales, differential relations can be expected as well. In previous research, victim JS predicted more aggressive behavior in children, adolescents, and adults (Bondü, 2018; Bondü & Richter, 2016; Strauß et al., 2020), adults' uncooperative behavior in experimental games (Fetchenhauer & Huang, 2004; Gollwitzer et al., 2009), less prosocial behavior in children

(Bondü & Kleinfeldt, 2021; Strauß et al., 2020), less solidarity with unlucky others or countries in need (Stavrova & Schlösser, 2015), and less moral courage (Niesta Kayser et al., 2010) in adults. Individuals high in victim JS even tended to justify own norm transgressions (Gollwitzer et al., 2012). Finally, victim JS showed positive associations with negatively evaluated traits, such as jealousy or Macchiavellism in adults (Schmitt et al., 2005).

The negative effects of victim JS were explained by exaggerated perceptions of others' untrustworthiness, concerns about being taken advantage of, and/or generalized expectations of unfair treatment (Bondü, 2018; Fetchenhauer & Huang, 2004; Gollwitzer et al., 2015). In addition, despite positive relations with ToM and empathy (Edele et al., 2013; Schmitt et al., 2005; Strauß et al., 2020), victim JS showed negative relations with affective and behavioral self-regulation that may hamper the adequate execution of prosocial behavior (Bondü & Kleinfeldt, 2021). Given the negative relations with prosocial behavior and positive relations with aggression, the interest in justice for one's own sake, justifications of own norm transgressions, and general expectations of norm transgression in others, victim JS should positively relate to more egoistic and hedonistic reasoning (indicating less advanced moral reasoning) in moral dilemma situations and positive emotion attribution in norm transgressors (happy victimizer). Given the underlying concern for justice, that being fair and honest are important aspects of both JS and moral identity, and that both (victim) JS and moral identity can be considered as moral related traits, there should be a positive association between victim JS and moral identity.

In contrast, observer and/or perpetrator JS were positively related with less self-serving and more altruistic behavior in experimental games among adults (Baumert et al., 2014; Edele et al., 2013; Fetchenhauer & Huang, 2004), more prosocial behavior in children and adolescents (Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021; Strauß et al., 2020), more sharing and equal distributions among children (Strauß & Bondü, 2021), and less aggressive

behavior in various age groups (Bondü, 2018; Bondü & Kleinfeldt, 2021; Bondü & Richter, 2016; Strauß et al., 2020). Observer JS was positively related to disobeying an authority in order to be honest—particularly when the participants' moral identity was also high—and to intervening despite physical danger in hypothetical scenarios (Sonntag et al., 2018). Altruistic JS mediated the relation between recalling unfair events and lower willingness to behave dishonestly (Giovannelli et al., 2018).

Little is known about explanations for the positive effects of altruistic JS. Observer and perpetrator JS were negatively related with moral disengagement (Maltese & Baumert, 2019), suggesting that individuals high in these JS perspectives refrain from using psychological strategies that would allow them to violate moral norms. Positive associations with social skills, such as ToM and empathy, and affective and behavioral self-regulation (Bondü & Kleinfeldt, 2021; Schmitt et al., 2005; Strauß et al., 2020) may facilitate to act in accordance with moral norms. Furthermore, altruistic JS may be enhanced by positive social interactions resulting from behavior in line with these traits so that JS may be a predecessor or part of moral identity (Bondü et al., 2016; also see Gollwitzer et al., 2009). Finally, the moral emotion of guilt that is closely related with perpetrator JS was shown to inform moral self-regulation and children's prosocial moral norm development (Maltese & Baumert, 2019; Malti et al., 2016; Thomas et al., 2012). Given the positive associations with prosocial behavior, social skills, and moral identity, close connections with guilt, and the general concern for justice for the sake of others, observer and particularly perpetrator JS should show positive associations with empathic/moral reasoning, the attribution of negative emotions (i.e., guilt) to norm transgressors (unhappy victimizer), and considering it more important to be fair, honest, and kind than to have other positive traits (moral identity). Taken together, testing the aforementioned assumptions may add to a better understanding of moral development and its prerequisites and highlight the potential role of moral-related trait

measures in middle childhood as a developmentally relevant period.

### **Potential Control Variables**

Social skills are also considered important prerequisites for moral development, particularly ToM (Kohlberg, 1976; Malti & Ongley, 2014) and empathy (Eisenberg, 2000; Hoffman, 2000). Therefore, it seems important to consider these skills as control variables and to examine whether the expected relations between JS and the measures of moral development persist beyond the potential positive effects of ToM and empathy. According to stage models of moral development, higher stages (and, consequently, moral behavior) require (social) perspective-taking (Kohlberg, 1976; Selman, 1984). In line with this reasoning, ToM, the ability to attribute and infer other's thoughts, intentions, and emotions showed positive associations with moral reasoning and moral behavior in numerous studies (Lagattuta & Weller, 2014, for an overview; Lane et al., 2010; Tan et al., 2020). ToM skills also enable the understanding of rule-desire conflicts and thereby support the attribution of negative moral emotions to norm transgressors (Lagattuta & Weller, 2014). However, other research found only modest relations between ToM and prosocial behavior in different age groups, suggesting that other variables may better explain prosocial behavior (Imuta et al., 2016, for a meta-analysis). For example, the emotional reaction of empathizing with others was considered as particularly important to motivate toward moral behavior (Hoffman, 2000). Accordingly, empathy, the ability to understand and feel others' feelings, was positively related with prosocial behavior in preschoolers (Paulus & Leitherer, 2017; Tan et al., 2020) and adults (Edele et al., 2013; Hardy, 2006) as well as with moral reasoning (Malti & Ongley, 2014). Behavior in dictator games, however, was not related with empathic concerns (and perspective-taking) in adults (Baumert et al., 2014) and a recent meta-analysis showed only weak relations between empathy and aggression (Vachon et al., 2014). Because empathy is considered "an emotional process with substantial implications for moral behavior" (Tangney



et al., 2007, p. 362) rather than a discrete moral emotion as for example guilt, moral emotions and empathy can be discriminated despite phenotypical similarities. Taken together, ToM and empathy should show positive associations with the moral-related outcomes and, therefore, be controlled for when examining the links between JS and these outcomes.

Furthermore, gender- and age-related mean-level differences in JS in childhood and adolescence are well documented, with higher levels for girls compared to boys (most consistent for observer and perpetrator JS) and age-related increases in JS (most consistent for victim and observer JS; Bondü & Elsner, 2015; Bondü & Kleinfeldt, 2021). Gender- and age-related moderating effects were shown for associations between JS and depressive symptoms or eating behavior pathology (Bondü et al., 2017, 2020), but less so for aggressive behavior (Bondü & Krahé, 2015). In addition, research indicated girls' earlier advanced moral reasoning and emotion attribution as compared to boys' (Daniel et al., 2014; Malti & Keller, 2009), and general shifts in complex cognitive and trait-related moral dimensions around 9 years of age (Daniel et al., 2014; Kingsford et al., 2018). Hence, it seems important to explore the potential moderating effects of gender and age for the links between JS and the measures of moral development.

## **5.2 The Present Study**

The present study examined the associations between JS and moral reasoning, moral emotions, and moral identity while considering ToM and empathy as control variables in a large sample of children in middle childhood. In doing so, it aimed to add to the present state of research by (1) considering the moral-related trait JS as a potential correlate and predictor of moral reasoning, moral emotions, and moral identity, (2) investigating these three moral outcomes simultaneously, (3) using a combination of well-established and newly developed vignette and self-report measures as an alternative approach to assess the moral outcomes in a large sample of children (previous studies often used experimental designs in small samples),

(4) intertwining research on moral development and personality psychology, thereby adding to the ongoing discussion about the relevance of traits already in childhood, and (5) exploring potential explanations for links between JS and moral behavior. Based on previous findings and our theoretical considerations outlined above, we expected (i) higher victim JS to predict lower moral reasoning, (ii) higher observer and perpetrator JS to predict higher moral reasoning, (iii) lower perpetrator JS and higher victim JS to predict less attributions of negative emotions to norm transgressors, and (iv) all JS perspectives to predict higher moral identity, that is, the relative self-importance of moral traits over other positive traits. (v) We expected these relations to remain stable when ToM and empathy were considered as control variables. Finally, we explored gender and age as moderating variables.

### 5.2.1 Method

**Sample.** The present sample included 1329 children between 5 and 12 years of age ( $M = 8.05$ ,  $SD = 1.02$ ; 89.2% between 7 and 9 years of age; 51.2% girls, 1.3% transgender and gender-nonconforming [TGNC]). Data collection took place between May 14 and December 19, 2018. Child questionnaires were available for  $N = 1315$  children, parent questionnaires for  $N = 846$  children, and teacher questionnaires for 1098 children (parent and/or teacher-reports only:  $N = 14$ ). Children visited 25 primary schools in Berlin and Brandenburg: 12.9% attended first, 31.9% second, 28.8% third, and 18.4% fourth grade (cross-year learning: 7.9%). Out of the mothers ( $N = 839$ ), 59.1% had an A-Level or university degree (37.9% secondary education, 3% no graduation or others) as had 49.8% of the fathers ( $N = 774$ ; 46.8% secondary education, 3.5% no graduation or others). We did not request ethnicity, but expect the sample to reflect the ethnic diversity of the area (Berlin: 35.5% of all inhabitants have a migration background, the largest minority groups come from Turkey, Arabic countries, the former Soviet Union, and Poland; Statistik Berlin Brandenburg, 2020. Brandenburg: 5.3% of all inhabitants have a migration background, the largest

minority groups come from Poland, Syria, the Russian Federation, and Romania; Ministerium für Soziales, Gesundheit, Integration und Verbraucherschutz, 2020). All children had sufficient German language skills. Further information regarding the recruitment procedures and sample size rationale can be found at the Open Science Framework: [osf.io/7x8h5](https://osf.io/7x8h5).

### *Measures*

**Justice Sensitivity.** To measure JS, we used an adapted version of the self-report Justice Sensitivity Inventory for children and adolescents (JSI-CA5; Bondü & Elsner, 2015; Schmitt et al., 1995, 2005; Strauß et al., 2020) with response options from 0 = not at all true to 3 = exactly true. Victim (“It makes me angry when I am treated worse than others”), observer (“I get angry when someone is treated worse than others”), and perpetrator JS (“I feel bad when I treat someone worse than others”) were measured with five content-equivalent items each (i.e., 15 items in total). Mean scores for each of the three subscales as well as a composite score for altruistic JS from observer and perpetrator JS were computed. Previous research indicated the measure to be reliable and valid (Strauß et al., 2020). Cronbach's  $\alpha$  in the present study was .63 for victim, .67 for observer, .77 for perpetrator, and .80 for altruistic JS.

**Moral Reasoning.** We presented children with two vignettes that described moral dilemma situations, in which (a) two norms (saving an animal vs. breaking a promise; Nunner-Winkler, 2007) and (b) a moral norm and personal interests conflicted (keeping a promise and listening to a good friend vs. helping a child without friends and having fun; Malti & Keller, 2009). We asked the children to choose the most important reason out of four reasons for a given decision that were designed to reflect the levels of moral judgment according to Kohlberg (1976). Following similar proceedings in previous research (Keller et al., 2003; Malti & Keller, 2009), children could choose between (a) authority-oriented reasons aiming at preventing punishment (coding: 0), (b) hedonistic reasons aiming at

personal gain and self-interest (coding: 1), (c) empathic concerns aiming at promoting important personal relationships (coding: 2), and (d) norm-oriented reasons aiming at acting according to general moral norms and rules (coding: 3). We explored the relations between JS and the single vignettes (Table S2) and computed an average from both dilemmas. The higher the score, the higher the level of moral reasoning. We also explored relations between JS and three levels of moral reasoning: children with high levels, low levels, and inconclusive scores (see Table S1 for the score definition). Cronbach's  $\alpha$  in the present study was low at .29 (see below for a discussion).

**Moral Emotions/Happy Victimizer.** We presented children with two vignettes describing norm transgressions of children, namely taking away a toy from another child (Keller et al., 2003; Malti & Keller, 2009) and not sharing sweets with another child although told to do so (Nunner-Winkler, 2007; Ongley et al., 2014). Emotion attribution to the victimizer was measured via the question: “How does the victimizer feel after ... [the moral transgression in question]?”. Children indicated the direction of the expected emotion by marking a happy- (1) or sad-faced (0) smiley. We explored the relations between JS with the single vignettes (Table S2) and computed a sum score: The higher the score, the more positive the emotion attributions after norm transgressions, indicating being a happy victimizer. Cronbach's  $\alpha$  in the present study was .57.

**Moral Identity.** We measured the relative self-relevance of moral traits by asking children to rate the importance of six socially desirable traits (e.g., “It is important to me to be a ... child.”; 0 = *not at all* to 2 = *very*; Aquino & Reed, 2002; Arnold, 1993). Three items covered moral traits (“honest,” “just,” “kind”;  $\alpha$  .63) and three items covered positive, non-moral traits (“funny,” “smart,” “sporty”). An exploratory factor analysis with oblimin rotation suggested a two-factor solution with eigenvalues  $>1$  and explaining 55.1% of the variance. The first factor comprised the moral traits (Eigenvalue = 2.081), the second factor the non-

moral traits (Eigenvalue = 1.228). We computed a difference score between the moral and non-moral traits (range: -2 to 2) for manifest analyses (Hardy, 2006; Hardy & Carlo, 2011) and three difference scores as indicators of the latent moral-identity factor (moral-trait item with the highest mean score minus the positive-trait item with the highest mean score etc.). Cronbach's  $\alpha$  was .42 for the three-item and .36 for the two-item difference-score scale.

**Theory of Mind.** We measured affective and cognitive ToM via teacher-reports with 20 translated items (“The child understands the difference between lies and jokes”) from the Theory of Mind Inventory (Hutchins et al., 2010). Response options ranged from 0 = *not at all true* to 4 = *exactly true*. We calculated a total mean score for manifest analyses. Means of affective and cognitive ToM were used as indicators for the latent ToM variable. Evidence for reliability and validity of the measure was provided (Hutchins et al., 2012). Cronbach's  $\alpha$  in the present study was .96.

**Empathy.** We measured affective and cognitive empathy via parent-reports with 20 items (“My child gets caught up in other people's feelings easily”) from the translated and adapted version of the Basic Empathy Scale (Jolliffe & Farrington, 2006). Response options ranged from 0 = *not at all true* to 3 = *exactly true*. We calculated a total mean score for manifest analyses. Means of affective and cognitive empathy were used as indicators for the latent empathy variable. Evidence for reliability and validity of the measure was provided (Sánchez-Pérez et al., 2014). Cronbach's  $\alpha$  in the present study was .87.

### ***Procedure***

For recruiting, we inquired with school principals whether they would participate in a study on justice perceptions and related behavior. If principals and the school assemblies consented, teachers decided whether they wanted to participate. Consenting teachers then received information letters for the parents and children asking for their participation. Trained research assistants collected data from children in sessions of around 45–60 min. Items and

instructions were read aloud and the children marked down their answers in the questionnaire. In order to ensure the understanding of instructions and minimize disturbances, students in first/second grade (before/after summer holidays) were questioned in groups of 1–3, students in second/third grade in groups of 7–10, and students in third/fourth grade with all attending children from the class. The participants were asked neither to look at others' questionnaires nor to read out their answers. Signed written informed consent was obtained from all primary care givers. All children attended voluntarily, were guaranteed privacy, and given little presents. Parents and teachers answered their questionnaires via paper-pencil or online. The Ethics Committees of two universities and the responsible education authorities approved all questionnaires and proceedings. We pre-registered the rationale, hypotheses, coding scheme, and analyses plan at the Open Science Framework: [osf.io/7x8h5](https://osf.io/7x8h5).

### *Analysis*

We used IBM SPSS Statistics 27 (SPSS) for descriptive and correlation analyses and *Mplus8* (Muthén & Muthén, 1998–2012) for analyses of latent data. In latent models, we used the full maximum likelihood procedure to replace missing data. Missing data rates were 0.9%–2.0% for JS items, 1.9%–2.7% for moral reasoning items, 1.1%–1.9% for moral emotion items, and 37.6%–39.2% for moral identity items (because instructors could skip these items in case of lack of time). For confirmatory, pre-registered analyses, we computed latent structural equation models to examine the prediction of moral reasoning, moral emotions, and moral identity: first, by all three JS perspectives separately (i.e., victim, observer, and perpetrator JS), second, by victim and altruistic JS, and, third, when considering all three JS scales or victim and altruistic JS as well as ToM and empathy as control variables (additional exploratory analyses including interaction terms between the JS subscales and ToM and empathy can be found in Supporting Information S3). We controlled for age and gender in all these models. Finally, for exploratory purpose, we computed two

multi-group models in order to examine the potential moderating role of gender (controlled for age and omitting the TGNC group) and age (younger than 9 years and from 9 years onwards; controlled for gender and omitting the TGNC group; Supporting Information S2). Because the moral-emotion factor was indicated by binary variables, these indicators were defined as categorical in Mplus. We used the complex command and class as a cluster variable in order to account for children's clustering in classes and the default estimators in all models (WLSMV/MLR for moderated models, Supporting Information S3). The JS subscales were indicated by parcels: the first parcel contained the first three items and the second parcel contained the last two items, respectively. Because parallel item wordings across the JS scales may generate common method variance which may inflate the correlation between the latent JS factors, we modeled a latent indicator factor with loadings of second parcels of victim, observer, and perpetrator JS to account for the shared variance of the parcels for the model containing all three subscales. We constrained the indicator factor and all other latent factors in the model to be uncorrelated. JS and outcomes were regressed on age and gender. In models 2 and 3 (Figures 1b and 2b), observer and perpetrator JS were collapsed into a single scale of altruistic JS with the observer and perpetrator JS mean scores as indicators. ToM and empathy were indicated by their affective and cognitive subscales, respectively. Moral reasoning and moral emotions were indicated by the two accordant items, respectively. Moral identity was indicated by two out of the three differences scores, because one score showed factor loadings  $<0.4$  (two-item scale:  $M = 0.27$ ,  $SD = 0.67$ ). In order to reduce model complexity, the loadings of all second indicators of all latent variables were fixed to 1, only the loading of the second ToM indicator was fixed to 0.9 in model 2 (a/b) for the model to converge without error notification. These more restricted models with factor loadings constrained to be equal were favored over the less restricted model by the chi-squared difference test. We also explored effects with a less restrictive, alternative model

specification: Here, all loadings of the first indicators were set free and all variances of the latent factors were fixed to 1. The loading of the second moral emotions/happy victimizer indicator was fixed to 0.9 to overcome problems of model specification. All parcels loaded significantly on their latent factors in all models. Because the chi-square test is sensitive to sample size, model fits were considered acceptable if absolute fit indices met the criteria proposed by Hu and Bentler (1999: comparative fit index [CFI]  $\geq .95$ , root mean square error of approximation [RMSEA]  $\leq .06$ , standardized root mean square residual [SRMR]  $\leq .08$ ).

### 5.2.2 Results

**Descriptive Statistics.** Table 1 shows the ranges, internal consistencies, means, and standard deviations of all measures. Children rated norm-oriented moral concerns as most important reasons for the dilemma decision (Vignette 1: 53.3%, Vignette 2: 80%). Supporting previous research in this age range, they showed a low tendency to attribute happy feelings to a victimizer (Vignette 1: 17.3%, Vignette 2: 30.4%). Children reported the personal importance of moral traits ( $M = 1.76$ ,  $SD = 0.40$ ) to be significantly higher than that of other positive traits ( $M = 1.51$ ,  $SD = 0.46$ ;  $t(792) = 13.064$ ,  $p < .001$ ).

A multivariate analysis of covariance (MANCOVA) including all child-reported variables and using age as a covariate showed a significant main effect of gender ( $F(6, 659) = 6.694$ ,  $p < .001$ ,  $\eta^2_p = .057$ ; Table 1). On subscale level, girls reported higher victim, observer, and altruistic JS, moral reasoning, and moral identity than boys. Two separate analyses of covariance (ANCOVAs) including teacher-reported ToM and parent-reported empathy and using age as a covariate also showed significant main effects of gender (teacher:  $F(1, 1027) = 13.832$ ,  $p < .001$ ,  $\eta^2_p = .013$ ; parent:  $F(1, 741) = 30.956$ ,  $p < .001$ ,  $\eta^2_p = .040$ ; Table 1). Teachers reported higher ToM and parents reported higher empathy in girls than in boys. Due to the small number of children identifying as TGNC ( $N = 17$ ), potential differences from children identifying as girls and boys could not meaningfully be examined.



A MANCOVA including all child-reported variables and using gender as a covariate showed a significant main effect of the age group ( $F(6, 659) = 6.644, p < .001, \eta^2_p = .057$ ; Table 1). Children 9 years and older reported higher JS on all subscales and higher levels of moral identity than children younger than 9 years (note that when subdividing age into three groups [young: 5–7 years, middle: 8–9 years, old: 10–12 years], children in the middle group also showed higher moral reasoning than children in the young group). Two separate ANCOVAs including teacher-reported ToM and parent-reported empathy and using gender as a covariate showed significantly higher empathy in older than in younger children ( $F(1, 741) = 5.096, p = .024, \eta^2_p = .007$ ), but no differences in ToM (Table 1).

All JS perspectives were positively correlated with each other and with age. Victim JS was positively correlated with moral identity and empathy. Observer, perpetrator, and altruistic JS were positively correlated with ToM and empathy. Observer JS was positively correlated with moral reasoning and negatively correlated with moral emotion attribution, indicating a lower tendency to attribute positive feelings to a victimizer. Perpetrator and altruistic JS were positively correlated with moral reasoning and moral identity and negatively correlated with moral emotion attribution. ToM and age were positively correlated with moral reasoning; ToM, empathy, and age were positively correlated with moral identity (Table 2). Inspections of correlations separately for age groups (Supporting Information S6) did not reveal age-specific patterns.

Additional exploratory analyses showed positive correlations between observer, perpetrator, and altruistic JS and moral reasoning in the subgroup of children scoring high on moral reasoning, but negative correlations between perpetrator and altruistic JS and moral reasoning in the subgroup with inconclusive scores (see Table S1, for detailed correlations and correlations with the other moral-related outcomes per subgroup). Correlations between the JS subscales and the two moral-reasoning and moral-emotions vignettes showed the same

correlation patterns, respectively, but were somewhat more pronounced for each second vignette (Table S2).

**Prediction of Moral Reasoning, Moral Emotions, and Moral Identity.** In the model separately considering all three JS perspectives as predictors of moral reasoning, moral emotions, and moral identity ( $\chi^2 = 79.918$ ,  $df = 62$ ,  $p = .063$ ; RMSEA = .015 [.000; .024]; CFI = .982; SRMR = .055;  $N = 1305$ ;  $R^2_{MR} = .072^*$ ;  $R^2_{HV} = .047$ ;  $R^2_{MI} = .277^{***}$ ;  $N = 1305$ ), none of the JS perspectives was associated with moral reasoning. Higher victim JS was associated with more attributions of positive emotions to a norm transgressor ( $\beta = .213^*$ ). Higher perpetrator JS was positively ( $\beta = .504^{***}$ ) associated with moral identity, that is, the relative self-importance of moral traits over other positive traits (Figure 1a). We found almost identical result patterns but for one additional significant effect (see below) when using the exploratory alternative model specification. Neither gender nor age moderated the relations of JS and moral outcomes in the present or in any of the following models (see Supporting Information S2).

In the model considering victim and altruistic JS as predictors ( $\chi^2 = 82.950$ ,  $df = 45$ ,  $p < .001$ ; RMSEA = .025 [.017; .034]; CFI = .949; SRMR = .083;  $R^2_{MR} = .079^*$ ;  $R^2_{HV} = .064$ ;  $R^2_{MI} = .207^{**}$ ;  $N = 1305$ ), none of the JS scales was associated with moral reasoning (note, however, a positive relation between altruistic JS and moral reasoning using the exploratory alternative model specification). Higher victim JS was positively ( $\beta = .295^*$ ) and higher altruistic JS was negatively ( $\beta = -.343^{**}$ ) associated with the attribution of positive feelings to a norm transgressor. Higher altruistic JS was positively associated with moral identity ( $\beta = .392^*$ ; Figure 1b). Again, the result patterns were almost identical when using the alternative model specification.

In the model that included the three JS scales as predictors and considered ToM and empathy as control variables ( $\chi^2 = 128.876$ ,  $df = 107$ ,  $p = .074$ ; RMSEA = .013 [.000; .020];

CFI = .982; SRMR = .064;  $R^2_{MR} = .102^{**}$ ;  $R^2_{HV} = .050$ ;  $R^2_{MI} = .383^{***}$ ;  $N = 1305$ ), higher victim JS ( $\beta = .216^*$ ) was associated with more attributions of positive emotions to a norm transgressor. Higher perpetrator JS ( $\beta = .430^{***}$ ) and higher ToM ( $\beta = .301^{***}$ ) were positively associated with moral identity. Higher ToM also showed positive associations with higher moral reasoning ( $\beta = .173^{**}$ ; Figure 2a).

In the model that considered victim and altruistic JS as predictors and ToM and empathy as control variables ( $\chi^2 = 132.527$ ,  $df = 84$ ,  $p < .001$ ; RMSEA = .021 [.014; .028]; CFI = .950; SRMR = .083;  $R^2_{MR} = .106^{**}$ ;  $R^2_{HV} = .070$ ;  $R^2_{MI} = .316^{***}$ ;  $N = 1305$ ), higher victim JS ( $\beta = .306^*$ ) and lower altruistic JS ( $\beta = -.366^{**}$ ) were associated with more attributions of positive emotions to a norm transgressor. Higher ToM showed positive associations with moral reasoning ( $\beta = .166^*$ ) and moral identity ( $\beta = .302^{***}$ ; Figure 2b; see Supporting Information S3 for results of the exploratory analyses also including interaction terms between JS and ToM as well as JS and empathy as predictors).

### 5.3 Discussion

The present research was the first to examine the relations between the moral-related trait JS and moral reasoning, moral emotions, and moral identity as fundamental indicators of moral development while controlling for ToM and empathy in middle childhood. Thus, the present study added to the growing body of research on moral development in this age range and extended the knowledge about JS in childhood by examining its differential associations with cognitive, emotional, and identity-related dimensions of moral development. By using vignettes in combination with questionnaires to assess the moral-related outcomes, the study was able to include a large sample of children and to cover three dimensions of moral development. There were no relations between JS and moral reasoning in the total sample, but only in subgroups of children scoring high or inconclusive on moral reasoning. Victim JS, the tendency to adversely respond to perceived own unjust treatment, was positively and

altruistic JS, the tendency to adversely respond to perceived unjust treatment of others, was negatively associated with the tendency to attribute positive emotions to norm transgressors (happy victimizer), even beyond ToM and empathy. Perpetrator JS was positively associated with the relative self-importance of moral traits (moral identity). Hence, JS may be an important correlate of moral development in middle childhood, particularly its affective and identity-related dimensions.

### ***Moral Reasoning, Moral Emotions, and Moral Identity***

The present study applied parsimonious, ecologic vignette, and questionnaire measures in order to assess moral-related outcomes in a large sample as early as in middle childhood. Our findings are in line with previous research: The majority of children justified decisions in moral dilemma situations with empathic or norm-oriented reasons, confirming that children in elementary-school age and particularly girls already consider others' concerns as well as abstract moral principles in moral decisions (Daniel et al., 2014; Malti & Keller, 2009; Malti et al., 2010). Also in line with previous research (Daniel et al., 2014; Krettenauer et al., 2013), children were generally reluctant to attribute positive feelings to norm transgressors (happy victimizer), indicating advanced moral emotions and moral motivation. Importantly, the present study also supports previous findings of precursors and notions of a rudimentary moral identity well before adolescence (Kingsford et al., 2018; Kochanska et al., 2010; Krettenauer & Hertz, 2015): Children tended to rate moral traits as more important for themselves than other positive traits, indicating that moral traits may affect behavior early on and that the roots of moral identity development lie in middle childhood. Taken together, these findings indicate the validity of the measures and speak for the generalizability of our findings.

However, the internal consistencies of two of the moral-related outcome measures were limited and require a careful interpretation of the associated findings. The low internal

consistency of the moral-reasoning measure may reflect inconsistent ratings by children, but may also be due to ceiling effects of the measure that limited the variance of and thereby the magnitude of the correlations between items. It may also reflect differences in content and difficulty between the two dilemma situations (the first one reflecting conflicts between two competing moral norms, the second one reflecting conflicts between two competing moral norms and self-interests, making the second one more elaborate and variable). Reflecting the correlation of only two items, the internal consistency of the moral-emotion measure can be considered adequate. The moral-identity measure showed an acceptable internal consistency for the three moral-related items, but lower values for the measure including the three difference scores. This may indicate that the difference scores are not equivalent, because they included non-comparable non-moral-related characteristics that cover different areas of competence (i.e., sporty–physical, smart–cognitive, funny–social). In addition, reliabilities of difference variables are generally lower compared to original variables, particularly if the original variables are highly correlated. Finally, correlations between and, thus, internal consistencies of only two items generally tend to be lower than for measures including more items, that internal consistencies are typically lower in children than in older age-groups, and that low reliabilities may cause the underestimation of effects rather than the opposite. Finally, correlations between the JS subscales and the single vignettes showed similar patterns, suggesting more overlaps than differences.

### ***Relations between Victim JS and Moral Reasoning, Emotions, and Identity***

No associations between victim JS and moral reasoning in the correlation and the structural equation modeling (SEM) analyses suggest either that cognitive justifications for moral-related behavior are unrelated to negatively responding to being unfairly treated (i.e., being victim sensitive) or that the low reliability of the scale did not allow for detecting a significant negative effect. If insignificant findings were replicated by future research, this

would indicate that negative relations between victim JS and prosocial behavior and positive relations with aggressive behavior (Bondü & Kleinfeldt, 2021; Strauß et al., 2020) in this age range cannot be explained by impaired moral cognitions. This would support the notion that children high in victim JS may lack self-regulatory, rather than social and moral skills (Strauß et al., 2020).

Positive associations between victim JS and happy victimizer tendencies or less moral emotion attributions in the face of norm transgressions in SEM analyses indicated less advanced moral emotions or moral motivation beyond the common age range in children that tend to negatively respond to own unjust treatment. Hence, children high in victim JS may expect a lack of moral emotions, such as guilt or shame, after norm transgressions in others and/or show a lack of moral emotions themselves. This finding can help to explain positive associations between victim JS and the justification of own norm transgressions, (proactive) aggression, uncooperative and egoistic behavior, expectations of other's untrustworthiness, and general expectations of injustice (Baumert et al., 2014; Bondü, 2018; Fetchenhauer & Huang, 2004; Gollwitzer et al., 2012, 2015). A lack of moral emotion attribution to others, however, must not necessarily reflect a lack of own moral emotions (Keller et al., 2003; Nunner-Winkler, 2013). Hence, future research should examine whether the present findings reflect a misrepresentation of other's emotions (i.e., impairment of moral emotion attribution/recognition) and/or a lack of own moral emotions (i.e., impairment of moral motivation) in individuals high in victim JS.

The positive correlation between victim JS and moral identity, that is, a higher subjective relative importance of moral traits than of other positive traits, presumably reflects the concern for justice underlying victim JS. It also indicates that there is no general deficit in the moral development of children high in victim JS and that these children actually care about being moral (i.e., should not lack moral motivation). However, this interest in being a

moral person may either not transfer into actual behavior or conflict with similarly high concerns for own outcomes and self-protection. This may also explain why altruistic JS was the better predictor of moral identity than victim JS in the SEM.

To conclude, antisocial behavior in individuals high in victim JS is most likely linked with early moral emotion and/or motivation impairment (Nunner-Winkler, 2013). This supports previous research that also suggested that particularly the affective components of JS explain its relations with moral-related behavior (Bondü & Richter, 2016).

### ***Relations between Altruistic JS and Moral Reasoning, Emotions, and Identity***

Positive correlations between observer, perpetrator, and altruistic JS and moral reasoning suggested somewhat more evolved moral reasoning in children that tend to care for justice for others than those low in altruistic JS. In addition, these positive relations were more pronounced among children high in moral reasoning; children with inconclusive scores even showed negative relations (indicating inconsistent and potentially arbitrary answering patterns and, therefore, rather low levels of moral reasoning), thus, presumably leveling out existing relations in the total group. In line with this reasoning, there were non-significant relations in the SEM. These, however, may also suggest that altruistic JS does not add to the explanation of moral reasoning beyond the control variables or that low reliabilities of the indicators impeded finding true effects in the SEM. Also note that the alternative model specification of the model considering victim and altruistic JS as predictors showed a positive relation between altruistic JS and moral reasoning. However, taken together, JS generally seems to show only small or instable associations with cognitive moral development.

Consistent positive relations between altruistic JS and the attribution of negative moral emotions after norm transgressions indicated less happy victimizer tendencies and underscore the prominent role of affective reactions in individuals high in altruistic JS. Frequent own experiences of moral outrage and guilt in children high in altruistic JS

particularly in combination with high empathy and perspective-taking skills (Bondü & Kleinfeldt, 2021; Strauß et al., 2020) may promote the attribution of negative affect after norm transgressions to others as well. Note that altruistic JS predicted moral emotions beyond empathy and ToM in the present study, supporting similar findings in adults (Rothschild & Keefer, 2018). Strong moral motivation as indicated by low happy victimizer tendencies may explain positive relations between altruistic JS and prosocial behavior (Baumert et al., 2014; Bondü & Elsner, 2015; Edele et al., 2013; Strauß et al., 2020). They may be further promoted by high self-regulatory skills (Strauß et al., 2020) and may create a self-enforcing circle of caring for justice for others, positive social interactions, and trustful social relationships (Bondü et al., 2016).

Positive associations between altruistic JS and a higher self-importance of moral traits than of other positive traits confirmed the notion that altruistic JS is positively associated with moral identity (Bondü et al., 2016). This association was mainly due to perpetrator JS, because there were no such relations with observer JS. Future research should, therefore, more closely investigate the role of observer JS, because it was described as being similar to moral identity in adults in previous research that did not control for perpetrator JS (Gollwitzer et al., 2009). Furthermore, previous research showed moral outrage in individuals high in observer JS to be truly event-related and not motivated through enhancing own moral status (Rothschild & Keefer, 2018). The differential association patterns between observer and perpetrator JS and moral identity are also reflected in the SEM results. Whereas higher altruistic JS significantly predicted higher moral identity only until teacher-rated ToM was entered into the model, perpetrator JS continued to predict moral identity beyond all other variables as the strongest predictor when separately considered. This supports the notion that particularly perpetrator JS may be a precursor or correlate of moral-identity development (Bondü et al., 2016) and that concerns about causing injustice (perpetrator JS) are closer



related to moral identity than concerns about others causing injustice (observer JS).

To conclude, prosocial behavior among children high in altruistic JS may be driven by strong moral motivation that arises from strong moral emotions, particularly guilt (Cohen et al., 2012), and an early formation of a moral identity. Supporting the notion that JS should have stronger conceptual overlaps with moral emotions and identity than with moral reasoning, the present findings indicate the relevance of children's JS for moral development particularly regarding moral emotions and moral identity, underlining the characteristics of JS being an early moral-related trait associated with pronounced affective reactivity.

### ***The Role of Empathy and ToM, Gender and Age***

In line with previous research (Lagattuta & Weller, 2014) and theoretical assumptions (Kohlberg, 1976; Selman, 1984), ToM predicted moral reasoning, but it was unrelated to moral emotions when controlling for empathy and JS (and also did not show interaction effects with JS, see Supporting Information S3). Positive associations between ToM and moral identity may stimulate closer investigations of perspective-taking skills and moral identity formation. Empathy did not add to the prediction of the moral outcomes (and did not show interaction effects with JS), supporting previous research that did not find pronounced associations between social skills and moral behavior (Baumert et al., 2014; Imuta et al., 2016; Vachon et al., 2014). The present findings point to a substantial amount of incremental validity explained by JS—a moral trait—beyond social skills. They suggest that the associations of JS and indicators of moral development, particularly moral emotions, are independent of relevant social skills and that trait-like guilt proneness as associated with altruistic JS may be particularly important (Cohen et al., 2012).

Exploratory analyses also did not show age-specific correlation patterns or moderating effects of gender or age, indicating universal relations between JS and the moral outcomes. However, concerning the age groups, a cutoff at 9 years of age may not be sensitive enough

to detect age differences, because developmental shifts in moral emotion attribution are more likely at the beginning of middle childhood. However, a low number of participants beyond the age of 6 in the present study prevented us from further examining this age group. Future research may further investigate relevant age-related cutoffs.

### ***Limitations and Outlook***

The strengths of the present study include investigating the relations between a moral-related trait and the different dimensions of moral development, namely moral reasoning, emotions, and identity simultaneously with newly introduced measures in a large sample in middle childhood while considering the role of social skills. Its limitations include a ceiling effect and the low reliability of the moral reasoning measure that may limit the generalizability of our findings and may explain non-significant relations between this measure and the moral-emotion and moral-identity measures (note, however, significant relations when dividing the sample into subgroups of moral reasoning level). However, a stronger integration of these moral variables may only develop in early adolescence.

Although mean levels and SEM results resembled previous research and indicated that vignettes may appropriately complement the existing measures of moral development, future research should advance the present measures. Most importantly, cross-sectional data prevent from drawing causal inferences. Moral reasoning, emotions, and identity could also predict JS in the long run. Hence, future research should use longitudinal data in order to examine bi-directional associations. It may show whether JS may be considered a predecessor or rather a correlate particularly of moral identity in middle childhood. The potential role of triggering events should be considered in order to highlight potential person–environment transactions in forming JS and moral correlates. Finally, cross-cultural studies including JS that showed similar associations with cooperative behavior in different cultures among adults (Baumert et al., 2020) may contribute to the debate of cultural universalistic versus specific moral

development (Killen & Smetana, 2015).

The present study underlines the potential importance of moral-related traits for moral development, particularly that of dispositional sensitivity toward injustice. Findings underline the importance of justice for moral behavior; however, the associations between JS and measures of moral development were most pronounced with regard to the dimension of moral emotions, followed by moral identity, and instable for moral cognitions. Particularly the moral emotions associated with JS may, therefore, work to further motivate toward moral behavior, even beyond social skills. Hence, moral-related traits may be important in moral development and should receive more attention by future research. Particularly perpetrator JS shows close associations with or may even inform moral identity. Hence, encouraging children to approach, discuss, and reflect on moral questions by educational staff and caregivers, to reinforce children's other-oriented justice concerns and foster taking responsibility for others' detriments seem important to promote moral development. In addition, interventions should target altruistic attitudes and perspective-taking.

**Conflicts of Interest:**

Authors declare no conflicts of interest.

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5.5 Appendix

Table 1

*Descriptive Statistics of all Measures for the Total Group, Separately for Girls and Boys, and Separately for Age Groups*

Scale	Range	$\alpha$	Total	Girls	Boys	F	< 9 years	$\geq 9$ years	F
			M (SD)	M (SD)	M (SD)		M (SD)	M (SD)	
<b>Child-Reported</b>									
Victim JS	0-3	.63	1.74 (0.73)	1.86 (0.71)	1.67 (0.72)	11.348**	1.70 (0.73)	1.92 (0.66)	14.429***
Observer JS	0-3	.67	1.78 (0.74)	1.85 (0.74)	1.71 (0.77)	5.507*	1.73 (0.82)	1.89 (0.62)	6.598*
Perpetrator JS	0-3	.77	1.90 (0.86)	1.98 (0.85)	1.85 (0.93)	3.592	1.78 (0.93)	2.18 (0.74)	31.829***
Altruistic JS	0-3	.80	1.85 (0.70)	1.92 (0.69)	1.78 (0.73)	6.065*	1.76 (0.75)	2.04 (0.59)	24.177***
Moral Reasoning	0-3	.29	2.35 (.80)	2.48 (0.67)	2.30 (0.83)	9.956**	2.38 (0.78)	2.43 (0.69)	0.353
MEA	0-2	.57	0.48 (.71)	0.43 (.69)	0.49 (0.71)	1.144	0.46 (0.70)	0.45 (0.70)	0.011
Moral Identity <sup>a</sup>	-2-2	.42/.36 <sup>b</sup>	0.25 (.53)	0.36 (.52)	0.17 (.51)	22.007***	0.23 (0.50)	0.36 (0.56)	9.431**
<b>Other Measures</b>									
ToM (teacher-rated)	0-4	.96	2.90 (0.63)	2.98 (0.62)	2.83 (0.63)	13.832***	2.90 (0.63)	2.93 (0.63)	0.499
Empathy (parent-rated)	0-3	.87	2.11 (0.39)	2.19 (0.39)	2.03 (0.38)	30.956***	2.13 (0.39)	2.07 (0.40)	5.096*

*Note:* Differences between girls and boys: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . MEA—moral emotion attribution, reversely coded: higher levels reflect less attribution of moral (negative) emotions, but more attribution of positive emotions (happy victimizer). Abbreviations: JS, justice sensitivity; ToM, theory of mind. <sup>a</sup>Difference score between moral traits and other socially desirable traits. <sup>b</sup>Internal consistency for the three-item/two-item difference scale.

**Table 2**

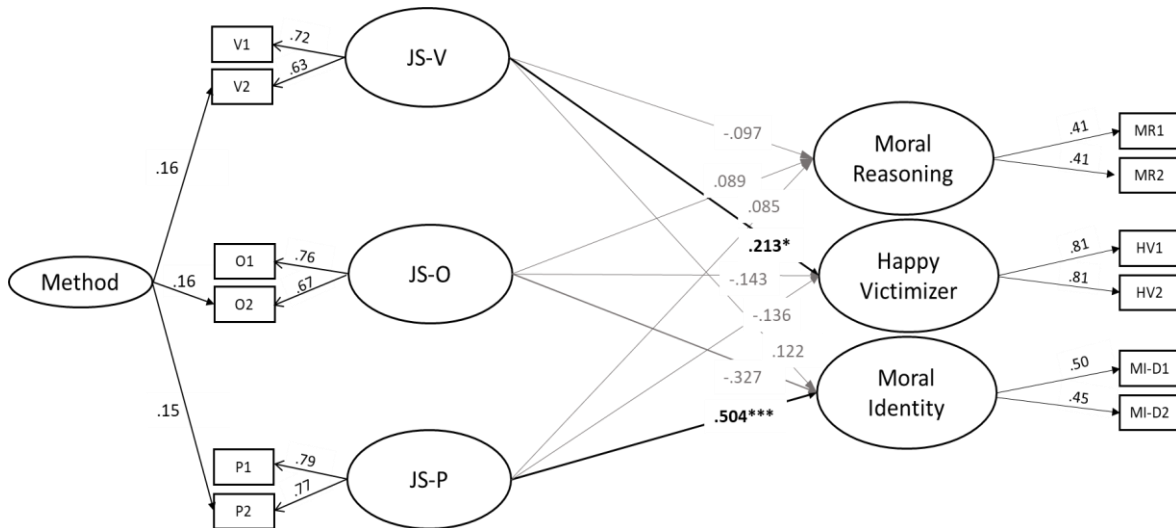
*Correlations Between all Variables*

	Observer JS	Perpetrator JS	Altruistic JS	Moral Reasoning	MEA	Moral Identity	Theory of Mind	Empathy	Age	Gender
Victim JS	.471***	.363***	.486***	.019	.003	.088*	.037	.121**	.127***	-.112***
Observer JS		.492***	.841***	.057*	-.068*	.042	.072*	.106**	.089**	-.113***
Perpetrator JS			.885***	.061*	-.094**	.222***	.138***	.148***	.189***	-.084**
Altruistic JS				.067*	-.103***	.152***	.121***	.142***	.168***	-.113***
Moral Reasoning					-.041	.137***	.102**	.029	.056*	-.110***
MEA						-.051	.002	-.021	-.026	.055
Moral Identity							.228***	.157***	.131***	-.145***
Theory of Mind								.145***	.030	-.117***
Empathy									-.046	-.198***
Age										.004

*Note:* Gender: 0 = girls ( $N = 670$ ), 1 = boys ( $N = 622$ ), TGNC group omitted. MEA—moral emotion attribution, reversely coded: higher levels reflect less attribution of moral (negative) emotions, but more attribution of positive emotions (happy victimizer). Abbreviation: JS, justice sensitivity. \*  $p < .05$ .; \*\*  $p < .01$ .; \*\*\*  $p < .001$ .

**Figure 1a**

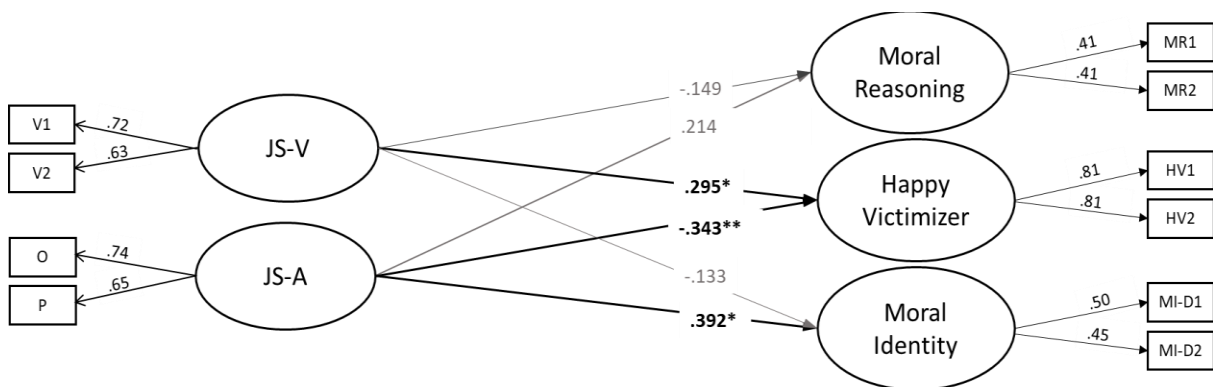
*Predicting Moral Reasoning, Moral Emotions (Happy Victimizer), and Moral Identity from Victim, Observer, and Perpetrator Justice Sensitivity*



*Note:* Predicting moral reasoning, moral emotions (happy victimizer), and moral identity from victim, observer, and perpetrator justice sensitivity (JS;  $\chi^2 = 79.918, df = 62, p = .063$ ; RMSEA=.015 [.000; .024]; CFI=.982; SRMR=.055;  $R^2_{MR} = .072^*$ ;  $R^2_{HV} = .047$ ;  $R^2_{MI} = .277^{***}$ ;  $N = 1305$ ). Controlled for age and gender. Standardized values displayed. CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual.

**Figure 1b**

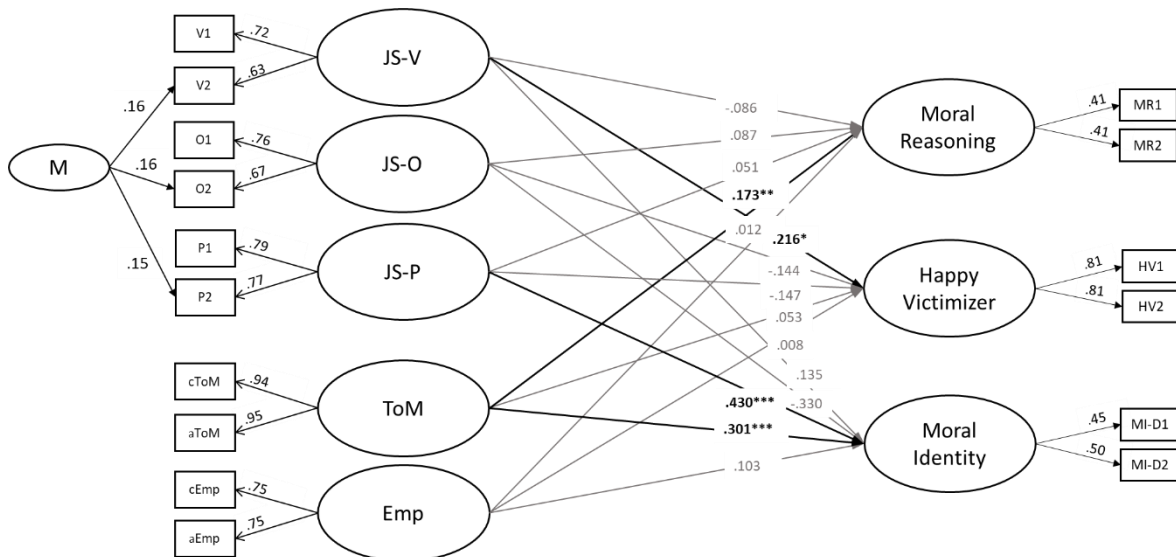
*Predicting Moral Reasoning, Moral Emotions (Happy Victimizer), and Moral Identity from Victim and Altruistic JS*



*Note:* Predicting moral reasoning, moral emotions (happy victimizer), and moral identity from victim and altruistic JS ( $\chi^2 = 82.950, df = 45, p < .001$ ; RMSEA = .025 [.017; .034]; CFI = .949; SRMR = .083;  $R^2_{MR} = .079^*$ ;  $R^2_{HV} = .064$ ;  $R^2_{MI} = .207^{**}$ ;  $N = 1305$ ). Controlled for age and gender. Standardized values displayed. CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual.

**Figure 2a**

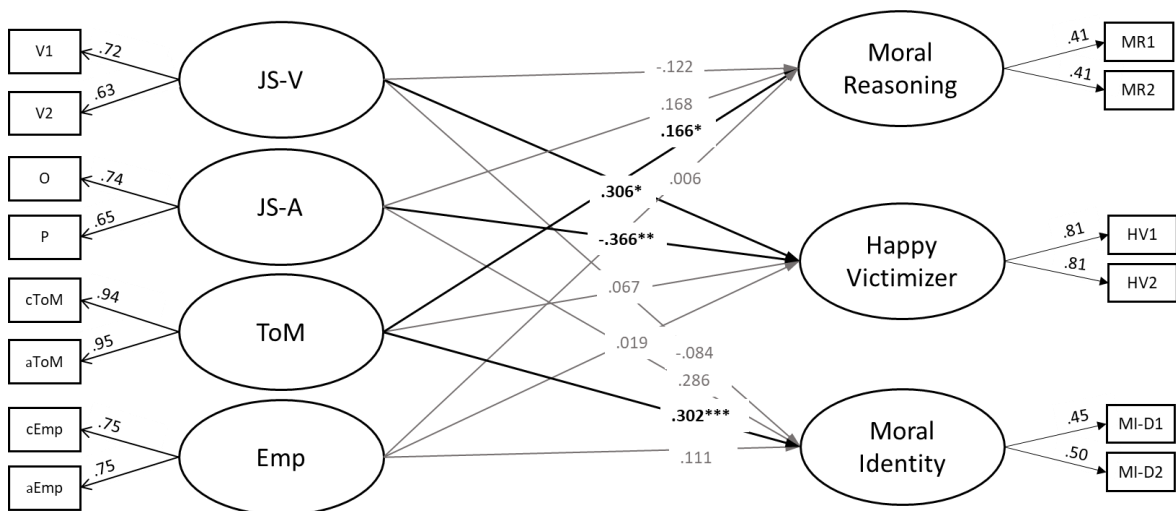
*Moral Reasoning, Moral Emotions (Happy Victimizer), and Moral Identity from Victim, Observer, Perpetrator JS, Empathy, and ToM*



*Note:* Predicting moral reasoning, moral emotions (happy victimizer), and moral identity from victim, observer, perpetrator JS, empathy, and ToM ( $\chi^2 = 128.876$ ,  $df = 107$ ,  $p = .074$ ; RMSEA = .013 [.000; .020]; CFI = .982; SRMR = .064;  $R^2_{MR} = .102^{**}$ ;  $R^2_{HV} = .050$ ;  $R^2_{MI} = .383^{***}$ ;  $N = 1305$ ). Controlled for age and gender. Standardized values displayed.

**Figure 2b**

*Moral Reasoning, Moral Emotions (Happy Victimizer), and Moral Identity from Victim and Altruistic JS, Empathy, and ToM*



*Note:* Predicting moral reasoning, moral emotions (happy victimizer), and moral identity from victim and altruistic JS, empathy, and ToM ( $\chi^2 = 132.527$ ,  $df = 84$ ,  $p < .001$ ; RMSEA = .021 [.014; .028]; CFI = .950; SRMR = .083;  $R^2_{MR} = .106^{**}$ ;  $R^2_{HV} = .070$ ;  $R^2_{MI} = .316^{***}$ ;  $N = 1305$ ). Controlled for age and gender. Standardized values displayed. CFI, comparative fit index; JS, justice sensitivity; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual; ToM, theory of mind



## 5.6 Supplementary Material

### S 1 Deviations from the Pre-registration

- We added an explorative hypothesis (i) higher victim JS to predict lower moral reasoning due to theoretical considerations suggesting this prediction.
- We hypothesized moderation effects of altruistic JS with ToM and empathy to predict moral reasoning, and of victim JS and altruistic JS with ToM and empathy to predict moral emotions. Following the suggestions of the reviewers, we dropped these analyses from the main document and continued by reporting these models in the Supplementary Material S 3.
- We adapted the wording of some hypotheses for them to be more comprehensible and precise. The contents of the hypotheses remained unchanged except for hypothesis iv: Contrasting the initial hypothesis, we did not separate affective and cognitive ToM due to high zero-order correlations ( $r=.89$ ), but collapsed the two subscales into a total ToM score.
- Model fit indices are not available for models with categorical outcomes and latent interaction effects, we report BIC and AIC in these cases.
- We measured JS via self- and parent-ratings. Because correlations between parent-reported JS and moral outcome measures were low, we report findings for self-reported JS.
- We assessed ToM and empathy via child, parent, and teacher ratings, and empathy via parent and teacher ratings. The child measure was invalid. Parent- and teacher-ratings showed only small correlations (ToM  $r=.27^{***}$ , empathy  $r=.13^{**}$ ) and serious problems in loading patterns of teacher-ratings when specifying multiple-rater empathy scores. We, therefore, indicated the total empathy score by parent-rated affective and cognitive

empathy and the total ToM score by teacher-rated affective and cognitive ToM (also because both affective and cognitive subscales were only available from the respective rating source).

- The pre-registration comprised of further research questions concerning relations of JS and distributive decisions in middle childhood. Due to space limitations and complex models, we decided to report the findings for the present research questions and JS relations with distributive decisions in separated articles. Both articles refer to the present pre-registration, sample and data acquisition setting.

## S 2 Potential Moderating Effects of Gender and Age

We computed multi-group models in order to examine the potential moderating role of gender (controlled for age) and age (younger than 9 years and from 9 years onwards; controlled for gender; TGNC group omitted). We examined the potential moderating effects of gender and age for the model with three separate JS perspectives as predictors for moral reasoning, emotions, and identity. To overcome problems of model specification, the variance of the latent moral emotions factor was additionally fixed to 1 among older children when examining moderating effects of age. The model fit estimation terminated normally without error notification only when fixing all loadings of the indicators to 1 and fixing the variance of the latent happy victimizer factor to 1 in the older group. We also tested an alternative structure model identical for both groups while considering problems of model specification: for the alternative structure model tested across both groups, the loading parameter of the first happy victimizer indicator was set free, the variance of the latent happy victimizer factor was fixed to 1, and the loading parameter of the second happy victimizer indicator was fixed to .9. Estimations terminated normally without error notification. We also reported the model fit for this alternative model specification below.  $\chi^2$ -difference tests did not suggest a better fit of the models with paths allowed to vary between groups as compared to the models with paths constrained to be equal, indicating that there are no significant differences in the links between victim, observer, and perpetrator/ altruistic JS and moral reasoning, emotions, and identity between girls and boys or children younger than nine years and from nine years onwards (Gender: paths allowed to vary:  $\chi^2=112.916$ ,  $df=103$ ,  $p=.237$ ; RMSEA=.012 [.000; .025]; CFI=.991; SRMR=.117;  $N=1,288$ ; paths constrained equal:  $\chi^2=121.390$ ,  $df=115$ ,  $p=.324$ ; RMSEA=.009 [.000; .022]; CFI=.994; SRMR=.138;  $N=1,288$ ;  $\Delta\chi^2=10.444$ ,  $\Delta df=12$ ,  $\Delta p=.577$ . Age groups: paths allowed to vary:  $\chi^2=116.967$ ,  $df=104$ ,  $p=.181$ ; RMSEA=.014 [.000; .026]; CFI=.988; SRMR=.034;  $N=1,288$ ; paths constrained equal:  $\chi^2=128.946$ ,

$df=116$ ,  $p=.194$ ; RMSEA=.013 [.000; .025]; CFI=.988; SRMR=.039;  $N=1,288$ ;  $\Delta\chi^2=13.392$ ,  $\Delta df=12$ ,  $\Delta p=.341$ ./ Alternative model specification for age groups: paths allowed to vary:  $\chi^2=115.012$ ,  $df=104$ ,  $p=.217$ ; RMSEA=.013 [.000; .025]; CFI=.990; SRMR=.034;  $N=1,288$ ; paths constrained equal:  $\chi^2=125.750$ ,  $df=116$ ,  $p=.253$ ; RMSEA=.011 [.000; .023]; CFI=.991; SRMR=.038;  $N=1,288$ ;  $\Delta\chi^2=12.327$ ,  $\Delta df=12$ ,  $\Delta p=.420$ .)  $\chi^2$ -difference tests did not suggest a better fit of the models with paths allowed to vary between groups as compared to the models with paths constrained to be equal for all other models, indicating no moderating effects of age and gender on the relation between JS, ToM, empathy, and moral outcomes.

### S 3 Exploring Moderation Effects of Empathy and ToM

In the model that considered ToM and empathy as additional covariates and potential moderators (BIC=30.189.859; AIC=29.828.600;  $R^2_{MR}=.103^*$ ;  $R^2_{HV}=.113$ ;  $R^2_{MI}=.280^{***}$ ;  $N=1,288$ ), higher victim JS ( $\beta=.391^{**}$ ) and lower altruistic JS ( $\beta=-.447^{**}$ ) were associated with more attributions of positive emotions to a norm transgressor. Higher ToM positively predicted moral identity ( $\beta=.347^{***}$ ) (Figure 3). No significant moderation effects were shown.

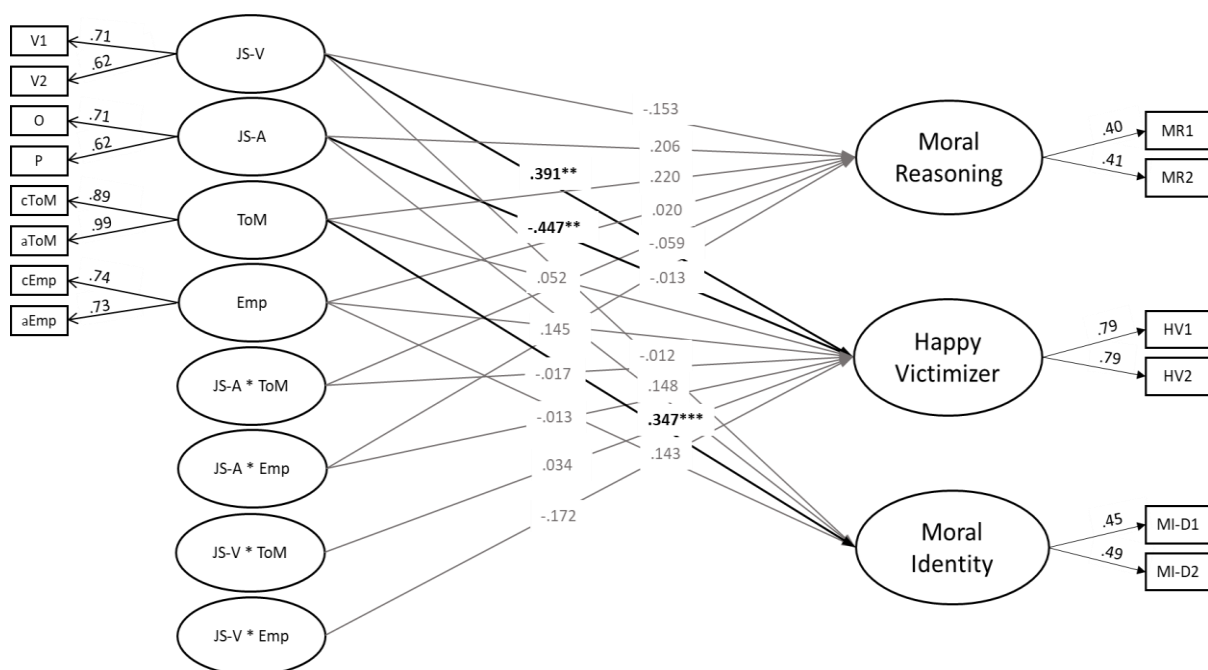


Figure S1. Predicting moral reasoning, moral emotions (happy victimizer), and moral identity from victim and altruistic JS, empathy, ToM, and the interaction effects between victim and altruistic JS and ToM and empathy, respectively (BIC=30.189.859; AIC=29.828.600,  $R^2_{MR}=.103^*$ ;  $R^2_{HV}=.113$ ;  $R^2_{MI}=.280^{***}$ ;  $N=1,288$ ; TGNC group omitted). Controlled for age and gender. Standardized values displayed.

## S 4

Table S3

*Correlations of all Variables with Moral Reasoning Level Subgroups*

	Moral Reasoning - low	Moral Reasoning - high	Moral Reasoning – inconclusive
Victim JS	.001	.026	-.028
Observer JS	-.024	.060*	-.051
Perpetrator JS	-.031	.117***	-.108***
Altruistic JS	-.030	.104***	-.094**
MEA	-.001	-.064*	.069*
Moral Identity	-.129***	.143***	-.086*
Theory of Mind	-.125***	.108**	-.050
Empathy	-.099**	.013	.036
Age	-.048	.093**	-.073**
Gender	.089**	-.083**	.041

*Note:* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ . Moral Reasoning - low (scoring 0 at both vignettes, or 1 on one of the vignettes and 0 on the respective other;  $N=72$ ); Moral Reasoning - high (scoring 3 on both vignettes, or 2 on one of the vignettes and 3 on the respective other;  $N=861$ ) or Moral Reasoning –inconclusive (all other combinations of scores;  $N=327$ ). MEA – Moral Emotion Attribution, reversely coded: higher levels reflect less attribution of moral (negative) emotions but more attribution of positive emotions (happy victimizer). Children with missing values on one or both of the vignettes were not included. Gender: 0=*girls*, 1=*boys*, TGNC group omitted.

**S 5**

Table S2

*Correlations of the different scenarios/ vignettes of Moral Reasoning and Moral Emotions with the JS Scales*

	Victim JS	Observer JS	Perpetrator JS	Altruistic JS
MR S1	.035	.049	.033	.044
MR S2	-.006	.045	.064*	.064*
MEA S1	.024	-.042	-.061*	-.068*
MEA S2	-.018	-.068*	-.094**	-.101***

*Note:* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; MR S1: Moral Reasoning Scenario 1 (Saving animal vs. breaking promise), MR S2: Moral Reasoning Scenario 2 (Keeping promise to old friend vs. helping kid without friends and having fun), ME S1: Moral Emotions Scenario 1 (Taking away a toy from another child), ME S2: Moral Emotions Scenario 2 (Not sharing sweets with another child).

**S 6 Correlation Analyses Split by Age**

We examined correlations between the JS subscales, ToM, empathy and the moral outcome measures separately for each age group in children between 6 and 10 years of age in order to find potential age-related tendencies (due to low numbers of children younger or older than this age range, we excluded the other age groups; Table S 3). Inspections of correlations separately for age groups did not reveal age-specific patterns.

Table S 3

*Correlation Analyses between JS, Social Skills, and Moral Outcome Measures Split by Age*

Age	JS Subscales	Moral Reasoning	MEA	Moral Identity
6	Victim JS	.025	-.196	.313
	Observer JS	.142	.100	-.040
	Perpetrator JS	.083	-.005	.042
	Altruistic JS	.139	.062	-.012
	Theory of Mind	.094	.029	.049
	Empathy	.114	-.196	.060
7	Victim JS	-.059	.006	-.097
	Observer JS	.005	-.014	-.082
	Perpetrator JS	.105*	-.010	.079
	Altruistic JS	.062	-.007	.007
	Theory of Mind	.158**	.003	.178*
	Empathy	.023	.022	.093
8	Victim JS	.060	.066	.158**
	Observer JS	.065	-.094	.133*
	Perpetrator JS	.015	-.120*	.257***
	Altruistic JS	.051	-.132**	.220***
	Theory of Mind	.074	-.067	.236***
	Empathy	.043	-.101	.171*
9	Victim JS	.047	-.040	.055
	Observer JS	.070	-.101	-.020
	Perpetrator JS	.019	-.158**	.241***
	Altruistic JS	.035	-.180**	.114
	Theory of Mind	.046	.025	.262**
	Empathy	-.006	.016	.242**



10	Victim JS	-.050	.023	.074
	Observer JS	.034	-.137	.131
	Perpetrator JS	-.032	-.151	.284
	Altruistic JS	.009	-.177	.228
	Theory of Mind	.123	.210	.267
	Empathy	.059	.014	.133

*Note:* \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; MEA – Moral Emotion Attribution, reversely coded:

higher levels reflect less attribution of moral (negative) emotions, but more attribution of positive emotions (happy victimizer).

**6. Study 4: “Who May Punish How? The Influence of Punisher Status, Transgression Type, and Justice Sensitivity on the Assessment of Punishment Motives in Middle Childhood”**

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## 6.1 Abstract

According to the intuitive retributivism hypothesis, individuals favor retributivist (getting even) over consequentialist (prevention of norm transgressions) motives when asked to rate the appropriateness of punishment responses representing these motives. This hypothesis has rarely been tested in children; restorative motives (norm clarification, settlement) and potentially influencing variables have rarely been considered. We had 170 elementary school children ( $M = 9.26$ ,  $SD = 1.01$ ) rate the appropriateness of six punishment responses by themselves and teachers for two types of norm transgression as well as their justice sensitivity. Children rated punishment responses thought to represent restorative motives as most appropriate, followed by special preventive and other retributive motives, revenge, general preventive motives, and doing nothing for both themselves and their teachers. Transgression type did not influence appropriateness ratings. Justice sensitivity was related to a stronger tendency to punish. Findings favor intuitive pacifism over intuitive retributivism, indicate children's preference for target-specific, communicative punishment, and show only small influences by other variables.

*Keywords:* punishment, revenge, restorative, justice sensitivity

### **Who May Punish How? The Influence of Punisher Status, Transgression Type, and Justice Sensitivity on the Assessment of Punishment Motives in Middle Childhood**

Experiencing norm transgressions as a victim (second party) or observer (third party) can motivate to punish the perpetrator. Research that measured the perceived appropriateness of different punishment motives with indirect measures coined the intuitive retributivism hypothesis: Individuals tend to favor retributive (primarily aiming to punish the perpetrator) over consequentialist motives (primarily aiming to prevent future norm transgressions by the current perpetrator [special preventive] or many individuals [general preventive]) (Carlsmith, 2008; Carlsmith et al., 2002; Darley et al., 2000). We aimed to replicate this finding in 7- to 12-year-olds because middle childhood is a sensitive phase for moral development that is related to punishment but was seldom considered by research on punishment motives. We also aimed to qualify previous findings by considering situational and personal aspects that may influence appropriateness ratings of punishment responses/motives: (1) characteristics of the norm transgression (personal/victim-specific vs. impersonal/ victim-unspecific), (2) characteristics of the punishing agent (children/second party/equal status vs. teachers/ third-party/higher status), and (3) individual characteristics (children's justice sensitivity). Finally, research often neglected the distinction between revenge and other retributive actions as well as restorative motives (aiming to clarify the norm, restore victim status, and reestablish positive relationships between victims and perpetrators). We expect a preference for these responses/motives and, thus, introduce the *intuitive pacifism hypothesis*.

#### **Punishment Motivation**

Punishment may moderate conflicts, prevent future norm transgressions, and restore justice or trust. Hence, it may be motivated by different aims: Retributive motives or goals, grounding in deontologist moral reasoning, generally aim to level out the harm that has been done, get even, and reduce stress in the victim. The punishment should be relative to the

harm, either by doing the same to the perpetrator (tit-for-tat, revenge) or by choosing a response that is considered equivalent (other retributive, just deserts; Gerber & Jackson, 2013). Consequentialist motives or goals, grounding in utilitarian moral reasoning, aim to prevent future norm transgressions by the perpetrator (special preventive) and deter transgressions by others (general preventive; Carlsmith & Darley, 2008).

Direct approaches openly asked individuals for their (preference of) punishment motives. In these studies, participants named consequentialist motives almost equally often as (Carlsmith, 2008) or more often than (Crockett et al., 2014) retributive motives but showed more retributive behavior. The appropriateness-capturing approach indirectly assessed (attitudes toward) punishment motives, for example, by providing participants with options of punishment responses that are considered to reflect specific punishment motives (Twardawski, Tang, et al., 2020). Participants then rated the subjective appropriateness of these responses, which is assumed to reflect their own underlying punishment motives. This approach allowed to compare the perceived appropriateness of different punishment responses and, thus, motives and showed that individuals rate the appropriateness of behavior presumably reflecting retributive motives higher than behavior presumably reflecting consequentialist motives (Twardawski, Hilbig, et al., 2020). To the best of our knowledge, however, it was hardly used with children to assess restorative motives or highlight the potential differences between revenge and other retributive responses/motives.

### **Punishment Motives in Children**

Recent research on the perceived appropriateness of punishment responses/motives paid little attention to child samples, although early research on moral development suggested that own (justifications of) punishment and motivation to avoid punishment are indicators of early moral development (Kohlberg, 1976; Piaget, 1965). Furthermore, children consider fairness as particularly important (Kogut, 2012) and expect rules to apply to everyone.

Individual differences in justice-related traits were already present and associated with moral behavior during middle childhood (Strauß et al., 2020). Already by the age of five, children engaged in costly second-party punishment (Bernhard et al., 2020; Robbins & Rochat, 2011). Third-party punishment increased with age and became more target-specific (Bernhard et al., 2020; Smith & Warneken, 2016). However, children's second- and third-party punishment often still focused on the outcome instead of the intent around 8 years of age (Bernhard et al., 2020; Gummerum & Chu, 2014). Furthermore, children tended to use resource-reducing (take away desirable goods) but not corporal third-party punishment (Marshall et al., 2019). Therefore, assessing children's third-party punitive preferences with varying types of punishing behavior/ motives seems important. Finally, 4-to 7-year-olds showed third-party punishment for retributive and consequentialist motives (Marshall et al., 2020), suggesting that already children this age punish for different reasons. Children between 9 and 12 years of age punished for retributive, special, and general preventive motives (Twardawski & Hilbig, 2020). Finally, school is an important context for the formation and internalization of moral concepts (Pretsch et al., 2016). Hence, understanding which punishment motives children consider appropriate may inform teachers about how to best implement, justify, and explain punishment behavior.

### **Potential Influencing Factors**

Research identified several factors that influence punishment responses/motives. Intentionality, controllability, and stability of the norm transgression were positively related with retributive and/or negatively or positively related with consequentialist responses/motives (Twardawski, Hilbig, et al., 2020; Weiner et al., 1997); the culpability of the transgressor, moral outrage, and the severity of the norm transgression was positively related with retributive responses/motives; the frequency of transgressions was positively related with consequentialist responses/motives (Carlsmith & Darley, 2008). The present

research investigated further potential influencing variables.

### ***Punishing Agent***

Norm transgressions in the school context are often witnessed by children and teachers. Most often, other children with a status equal to the perpetrator are the victims of these norm transgressions, making them the second party in these scenarios. Teachers are mostly unaffected, making them the third party in these scenarios, but due to their higher status should be considered responsible for norm communication and reinforcement. High-status individuals are expected to (successfully) punish, but general preventive punishment often leads individuals to feel distrusted and reduces the effectiveness of the punishment (Gordon & Lea, 2016; Mooijman et al., 2015). Hence, separating special and general preventive punishment responses/motives seems important: Teacher-induced collective punishment was rated as decreasingly and target-specific punishment as increasingly fair across early and middle childhood (Smith & Warneken, 2016). Given previous findings in adults, a stronger focus on own interests (Smith & Warneken, 2016), still evolving social skills (Berry & O'Connor, 2010), and more immediate effects, we expected children to rate retributive more appropriate than consequentialist responses/motives for themselves, but to rate consequentialist more appropriate than retributive responses/motives for teachers, who cannot get even themselves and should, therefore, put emphasis on and should be considered responsible for preventing future norm transgressions. However, we also assumed that children are aware that restorative punishment results in immediate compensation and has strong benefits for the victim, that the relationship between victim and perpetrator has the best chance to improve (Gollwitzer & van Prooijen, 2016; Gregory et al., 2016), and is the socially most desirable option and to, therefore, rate restorative responses/motives as the most appropriate for both themselves and teachers.

### ***Type of Norm Transgression***

Although children are often the victims of norm transgressions, in some cases they are directly and specifically affected and in other cases only indirectly as part of a group. We expected children to strive for punishment and retributive responses/motives, particularly if they were the single victim.

### ***Justice Sensitivity***

Justice sensitivity (JS) captures individual differences in responses toward perceived injustice (Schmitt et al., 2005, 2010). Victim-justice-sensitive individuals tend to perceive own unfair treatment and respond by anger. Observer-sensitive individuals often perceive others' unjust treatment and respond by indignation, whereas highly perpetrator-sensitive individuals frequently anticipate causing injustice and respond by guilt. Individuals high in JS generally perceive the urge to restore justice via victim compensation or via perpetrator punishment (Schmitt et al., 2010) and should, therefore, be inclined to advocate the punishment of norm transgressions. Relations with punishment motives, however, were not yet investigated, and research on JS in children is still sparse. In addition, trait variables were hardly related to punishing behavior/motives. Because all JS perspectives reflect an interest in justice and because victim compensation is an important goal (Schmitt et al., 2005), we expect all JS perspectives to be positively related with high appropriateness ratings of restorative actions. Due to a strong concern for own interests and close relations with anger, perpetrator punishment, and aggressive behavior (Bondü & Krahe, 2015), we expected victim JS to show the strongest relations with punishment in general and retributive punishment in particular. We also expected participants high in victim JS to disfavor general preventive interventions by teachers because these interventions might imply their own punishment.

Observer and perpetrator JS reflect a genuine altruistic interest in justice. They share positive relations with prosocial and negative relations with antisocial behavior in children



(Bondü & Elsner, 2015; Strauß et al., 2020). Observer JS was related to third-party punishment (Lotz et al., 2011). Perpetrator JS was related to self-punishment and third-party punishment (Fetchenhauer & Huang, 2004). Hence, these perspectives should show closest relations with consequentialist punishment despite potential negative outcomes for the self. Given the common dislike of injustice, both perspectives should be positively related to higher appropriateness ratings of punishment, but most closely to consequentialist punishment that avoids inflicting harm onto the perpetrator but works to prevent future injustice.

## **6.2 The Present Study**

The present study tested the intuitive retributivism hypothesis (reflecting a preference for punishment that aims at proportional punishment) against the intuitive consequentialism (preference for prevention and deterrence) and intuitive pacifism hypothesis (preference for restoration and upholding social relationships) in a sample of children in middle childhood while considering potential personal and social influences on the appropriateness ratings of punishment responses/motives (punishing agents, types of norm transgressions, justice sensitivity) using a vignette approach. Based on previous research and theoretical considerations, we derived the following hypotheses. Concerning the appropriateness ratings of punishing responses/motives, we expected children to rate (1) retributive punishment responses/motives as more appropriate than consequentialist punishment responses/motives, if they are the punishing agents, supporting the intuitive retributivism hypothesis; (2) special and general preventive punishment responses/motives as more appropriate than retributive responses/motives if teachers are the punishing agent, contrasting the intuitive retributivism hypotheses; (3) restorative responses/motives as most appropriate for themselves and teachers, thus supporting the intuitive pacifism hypothesis and contrasting the intuitive retributivism and consequentialism hypotheses; (4) doing nothing as least appropriate for

themselves and teachers, because all situations were considered worthy of punishment in a pretest. Concerning potential influences of the type of norm transgressions, we expected (5) personal transgressions to be more strongly punished than impersonal transgressions across all punishment responses/motives when children are the punishing agent and (6) retributive punishment to be rated as even more appropriate than consequentialist punishment in cases of personal than of impersonal norm transgressions when children are the punishing agents. Concerning the potential influence of JS, we expected all JS perspectives to be (7) positively related to higher appropriateness ratings of all punishment responses/motives and to be negatively related to appropriateness ratings of doing nothing for children and teachers and (8) most closely related to positive appropriateness ratings of restorative responses/motives. Given that victim JS is associated with an urge for revenge, we expected (9) high victim JS to predict higher appropriateness ratings of all forms of punishment, but retributive punishment in particular and (10) highly victim justice-sensitive children to favor special over general preventive responses/motives by teachers because the latter may imply own punishment. In contrast, we expected higher perpetrator JS to predict (11) higher appropriateness ratings of consequentialist punishment responses/motives. Finally, we expected (12) negative relations between increasing age and appropriateness ratings of revenge and retributive punishment responses/motives and (13) higher appropriateness ratings of revenge and retributive punishment responses/ motives in boys and higher appropriateness ratings of restorative responses/motives in girls. We explored potential differences between the child and teacher perspectives.

### **6.2.1 Method**

**Sample.** A subsample of children who took part in a two-wave longitudinal study on JS in middle childhood (JUST-study;  $N = 140$ ) and whose parents agreed that their children might participate in additional data collections, as well as a newly recruited sample ( $N = 37$ ),

answered the questionnaire in school's aftercare ( $N = 64$ ) or in a telephone survey during Corona-crisis ( $N = 113$ ). We excluded seven children due to non-compliance or problems with understanding the questionnaire. The total sample included  $N = 170$ , 7- to 12-year-olds [ $M = 9.26$ ,  $SD = 1.01$ ; 50.6% girls, 0.6% transgender and gender-nonconforming ( $\cong 1$  child, excluded from all analyses controlled for gender)]. An a priori power analysis with G\*Power (Faul et al., 2009; expected effect size  $\eta^2_p = .10$ ;  $p = .05$ ;  $1 - \beta = 0.90$ ; non-sphericity correction  $\varepsilon = 1$ ) for  $n = 1$  group,  $n = 6$  number of measurements for the six responses after norm transgressions (Table 1) suggested that a sample of minimum  $N = 150$  participants would allow for conducting a repeated-measures ANOVA. In order to secure sufficient power for moderation analysis and structural equation models, we obtained additional participants.

### **Measures**

**Punishment Motivation.** We presented children with six simple, short vignettes describing intentional norm transgressions by a class- or schoolmate ("During the break, a child deliberately throws a snowball pretty hard at your head so that it hurts. How fair do you think it is, if you.. .") and asked them to rate the appropriateness of different motives/responses (Table 1) that were assumed to reflect retributive, special preventive, and general preventive punishment motives (Carlsmith & Darley, 2008; Twardawski, Hilbig, et al., 2020). We further separated retributive punishment into revenge (tit-for-tat) and other retributive action (just deserts). We added a restorative response option and a manipulation check (doing nothing). We pretested different vignette and consequentialist punishment versions and selected those options that caused the most moral outrage, were considered realistic and worthy of punishment, and consequentialist punishment versions by teachers that were considered most realistic and preventive [see the Electronic Supplementary Material (ESM) available at <https://dx.doi.org/10.23668/psycharchives.5007> (Strauß, 2021)].

We manipulated the transgression type. Three vignettes covered personal, victim-

focused norm transgressions (“A child deliberately throws your school bag out of the window so that all of your stuff falls out.”), three vignettes covered impersonal norm violations with multiple victims (“A child in your class keeps interrupting class. Everyone else wants to pay attention because you have a paper due in the next lesson.”). We further manipulated the perspective of the punishing agent as children themselves (“How fair do you think it is, if you: .. .”) or the teachers (“The teacher saw what happened. How fair do you think it is, if the teacher: .. .”).

After each vignette, we asked children to rate the appropriateness of the six different motives/responses by themselves and their teachers on a 4-point Likert scale (0 = *not fair at all* to 3 = *totally fair*; see Appendix A in the ESM for full vignettes and responses). We calculated mean scores for the six punishment motives/responses, a mean overall retributive punishment motive score (revenge + other retributive), a mean overall consequentialist punishment motive score (special + general preventive), and a mean overall punishment score (retributive + consequentialist + restorative) separately for children and teachers and across punishing agents.

**Justice Sensitivity.** We measured JS via self- and parent-reports with adapted versions of the Justice Sensitivity Inventory for children and adolescents (JSI-CA5; Bondü & Elsner, 2015; Schmitt et al., 2005; Strauß et al., 2020) for children from 6 years onward and reworded for caregivers. Victim (“I/My child cannot easily bear it when others take advantage of me.”), observer (“I/My child cannot easily bear it when someone takes advantage of others.”), and perpetrator sensitivity (“I/My child cannot easily bear the feeling of taking advantage of someone.”) were measured with five items each (15 items in total). Response options ranged from 0 = *not at all true* to 3/5 = *exactly true*. Evidence for the reliability and validity of the measures was provided (Bondü & Kleinfeldt, 2021; Strauß et al., 2020). We computed separate mean scores for all three JS perspectives and a combined

altruistic JS score from observer and perpetrator JS. Children from the JUST-study had rated their JS at two previous points of measurement prior to the present data collection, children from the additional sample rated their JS together with the appropriateness of norm transgression responses. We used the second JS ratings for children from the JUST-study in order to secure better comparability of the two subsamples.

### ***Procedure***

We collected data from children in 45–60-minute sessions between February and October 2020. All instructions and items were read aloud to the children by trained research assistants. In after-school care, children marked their answers in the questionnaire themselves. In telephone surveys, questionnaires were previously sent via e-mail. Parents were asked not to work through them with their children prior to the surveys and to leave the room during the children's telephone survey. Children were asked to name their answers, and research assistants marked them down. Written informed consent was obtained from all primary caregivers. Children attended voluntarily, were guaranteed privacy, and received small gifts for their participation. Parents will receive general information about the study results.

### ***Analysis***

We used IBM SPSS Statistics 27 for all manifest analyses (descriptive and correlation analyses, analyses of variance) and *Mplus8* (Muthén & Muthén, 1998–2012) for latent structural equation models (SEM). We examined differences between children from the initial and the newly recruited sample and between children tested in the school aftercare or at the telephone. All analyses were controlled for age, gender, and data acquisition setting (in school/via telephone). We handled missing data in the SEM by using the full maximum likelihood procedure in *Mplus*. Missing values ranged between 0% and 3.5% for vignettes and 5.9% and 7.1% for JS. We used the default Maximum Likelihood estimator. Because the

$\chi^2$ -test is sensitive to sample size, model fits were considered acceptable if absolute fit indices were ( $CFI \geq .95$ ,  $RMSEA \leq .08$ ,  $SRMR \leq .05$ ). The JS subscales and the punishment motives were indicated by test halves, respectively. All parcels loaded significantly on their latent factors. In order to account for the shared variance of parcels, we modeled two latent indicator factors with loadings of second parcels for JS perspective factors and all outcome factors. Indicator-specific and trait factors were constrained to be uncorrelated.

### 6.2.2 Results

**Preliminary Analyses.** A multivariate analysis of covariance (MANCOVA) including all response/motive appropriateness ratings, the JS subscales, age, and gender did not show a significant effect of the sample,  $F(17, 122) = 1.025$ ,  $p = .436$ ,  $\eta^2_p = .125$ , but a significant effect of the data acquisition setting,  $F(17, 122) = 2.823$ ,  $p < .01$ ,  $\eta^2_p = .282$  (Table 2).

Children that participated in the telephone survey rated overall punishment, overall retributive punishment, revenge, retributive punishment, and general preventive punishment as less appropriate than children participating at school; they also rated themselves higher in perpetrator JS. We, therefore, considered the data acquisition setting as a control variable in all subsequent analyses.

**Descriptive Statistics.** Table 2 shows ranges, internal consistencies, means, and standard deviations of all study variables. Children considered restorative responses as the most appropriate, followed by special preventive, other retributive, and revenge responses. General preventive punishment and doing nothing were considered least appropriate. The pattern was almost identical for children and teachers (see below). Therefore, also the results for the combined scores from child and teacher ratings were almost identical to those for the separate ratings and will not be further discussed. Contrasting Hypothesis 13 that predicted gender differences in revenge, other retributive punishment, and restoration, a MANCOVA including all appropriateness ratings and the JS subscales showed no gender effect,  $F(15,$

123) = 1.639,  $p = .073$ ,  $\eta^2_p = .167$ .

All appropriateness ratings of punishment responses/motives from the child's and teacher's perspective were positively correlated (apart from special and general preventive punishment as well as general preventive punishment and restoration in teachers; see Table S1 in the ESM). Of note, particularly in children, retributive and consequentialist responses/motives showed high correlations ( $r = .48-.73$ ; other retributive and special preventive:  $r = .71$ ). Doing nothing was negatively correlated with overall retributive punishment in children, and overall punishment, other retributive punishment, special preventive punishment, and restoration in children and teachers. Corresponding ratings for children and teachers were moderately positively correlated. Victim JS was positively correlated with overall punishment, overall consequentialist, general preventive responses/motives (child perspective), and overall retributive punishment and revenge (teacher perspective), observer JS was positively correlated with special preventive punishment (teacher perspective). Parent-rated victim JS was negatively correlated with doing nothing (see Table S3 in the ESM). These findings only partly supported Hypothesis 7, which predicted all JS perspectives related to higher appropriateness ratings of all punishment responses and contradicted Hypothesis 8, which predicted closest relations with restorative responses. Contrasting Hypothesis 12 that predicted negative relations between age and revenge as well as retributive motives, age was positively correlated with other retributive and special preventive responses (and perpetrator JS).

**Testing and Qualifying the Intuitive Retributivism Hypothesis.** To test the intuitive retributivism hypothesis against the intuitive consequentialism and intuitive pacifism hypothesis, we calculated a repeated-measures ANOVA with the six punishment responses/motives from both the child's and the teacher's perspective, respectively, as within-subject factors with Greenhouse-Geisser correction for non-sphericity, followed by pairwise

Bonferroni-corrected post-hoc difference tests of the estimated marginal means. There was a significant main effect of responses/motives,  $F(5.53, 840.92) = 4.866, p < .001, \eta^2_p = .031$  (see Table 2, Figure 1; see also Table S3 in the ESM).

Regarding the sequence of appropriateness ratings, children rated other retributive punishment (children:  $\Delta M = 0.88, p < .001; 95\% \text{ CI } [0.68, 1.07]$ ; teachers:  $\Delta M = 1.38, p < .001; 95\% \text{ CI } [1.16, 1.59]$ ) and revenge (children:  $\Delta M = 0.32, p < .001; 95\% \text{ CI } [0.10, 0.54]$ ; teachers:  $\Delta M = 0.25, p < .01; 95\% \text{ CI } [0.03, 0.47]$ ) as more appropriate than general preventive punishment in line with the intuitive retributivism hypothesis, but special preventive punishment as more appropriate than revenge (children:  $\Delta M = 0.61, p < .001; 95\% \text{ CI } [0.39, 0.83]$ ; teachers:  $\Delta M = 1.18, p < .001; 95\% \text{ CI } [0.94, 1.43]$ ), contrasting the intuitive retributivism hypothesis. In addition, other retributive and special preventive punishment appropriateness ratings did not differ (children:  $\Delta M = -0.05, p = 1.00; 95\% \text{ CI } [-0.21, 0.11]$ , teachers:  $\Delta M = -0.06, p = 1.00; 95\% \text{ CI } [-0.26, 0.14]$ ). Hence, the findings only partly supported Hypothesis 1 that predicted retributive punishment to be rated as more appropriate than consequentialist punishment from the child's perspective and Hypothesis 2 that predicted special and general preventive punishment to be rated as more appropriate than retributive punishment for teachers. Also contrasting Hypotheses 1 and 2 and the intuitive retributivism hypothesis, additional repeated-measures ANOVAs with the overall retributive and consequentialist punishment scores as within-subject factors did not show significant differences between the two (children:  $F(1, 157) = 0.005, p = .943, \eta^2_p < .001$ ; teachers:  $F(1, 161) = 0.090, p = .765, \eta^2_p = .001$ ; across perspectives:  $F(1, 157) = 0.020, p = .889, \eta^2_p < .001$ ; see Tables S4, S5, and S10 in the ESM).

Instead, supporting Hypothesis 3 and the intuitive pacifism hypothesis, children rated restorative motives (children:  $M = 2.38, SD = .50$ ; teacher:  $M = 2.43, SD = .50$ ) the most appropriate and significantly more appropriate than any other motive at  $p < .001$  for



themselves and teachers (see Figure 1, also Table S3 in the ESM).

Only partly supporting Hypothesis 4 that expected children to rate doing nothing as the least appropriate response for themselves and teachers, there were no significant differences between doing nothing (children:  $\Delta M = 0.02$ ,  $p = 1.00$ ; 95% CI [-0.25, 0.29]; teachers:  $\Delta M = -0.07$ ,  $p = 1.00$ ; 95% CI [-0.28, 0.15]) and general preventive responses, and doing nothing and revenge (children only:  $\Delta M = -0.29$ ,  $p = .093$ ; 95% CI [-0.61, 0.02]), respectively (see Table 2 and Figure 1, also Table S3 in the ESM).

Concerning potential differences between punishing agents, children rated revenge ( $\Delta M = 0.30$ ,  $p < .001$ ; 95% CI [0.14, 0.46]), general preventive punishment ( $\Delta M = 0.23$ ,  $p < .001$ ; 95% CI [0.07, 0.40]), and doing nothing ( $\Delta M = 0.32$ ,  $p < .001$ ; 95% CI [0.18, 0.46]) as more appropriate for themselves than for teachers, and other retributive ( $\Delta M = 0.27$ ,  $p < .001$ ; 95% CI [0.11, 0.43]) and special preventive ( $\Delta M = 0.28$ ,  $p < .001$ ; 95% CI [0.11, 0.44]) punishment as more appropriate for teachers than themselves. There were no differences concerning restorative responses/motives (see Table 2, Figure 1, also Table S3 in the ESM).

Concerning potential differences between types of norm transgression, we calculated repeated-measures ANOVA with overall punishment as the outcome. Contrasting Hypothesis 5 that predicted stronger punishment of personal norm transgressions by children, there was no difference in the appropriateness ratings of overall punishment between personal ( $M = 1.34$ ,  $SD = 0.52$ ) and impersonal ( $M = 1.40$ ,  $SD = 0.55$ ) norm transgressions ( $F(1, 155) = 0.118$ ,  $p = .732$ ,  $\eta^2_p = .001$ , see Table S6 in the ESM). A  $t$ -test for paired samples (as preregistered) indicated a small difference,  $t(159) = -2.155$ ,  $p = .033$ ,  $d = 0.17$ . Contrasting Hypothesis 6, that predicted retributive punishment to be rated as more appropriate than consequentialist punishment by children for personal norm transgressions, a factorial repeated-measures ANOVA with the punishment response (retributive vs. consequentialist) ratings from the child's perspective and the type of norm transgression (personal vs.

impersonal) as within-subject factors showed no effect of the punishment response,  $F(1, 157) = 0.005$   $p = .943$ ,  $\eta^2_p < .001$ ), the type of norm transgression,  $F(1, 157) = 0.255$   $p = .614$ ,  $\eta^2_p = .002$ , and their interaction,  $F(1, 157) = 1.563$   $p = .213$ ,  $\eta^2_p = .010$ ) (see Table S7 and Figure S1 in the ESM).

Concerning potential associations with justice sensitivity, latent path models including the three JS subscales as predictors and the six norm transgression responses/motives as outcomes, in the models with appropriateness ratings from the child's perspective and across both perspectives, victim JS showed positive relations with general preventive punishment ( $\beta_{\text{child}} = .592^*$ ;  $\chi^2 = 178.076$ ,  $df = 118$ ,  $p < .001$ ; RMSEA = .055 [.038; .071]; CFI = .957; SRMR = .043;  $R^2 = .228$ ;  $N = 169$ ;  $\beta_{\text{overall}} = .520^*$ ;  $\chi^2 = 174.328$ ,  $df = 118$ ,  $p < .001$ ; RMSEA = .053 [.035; .069]; CFI = .966; SRMR = .044;  $R^2 = .168$ ;  $N = 169$ ). The model with appropriateness ratings from the teacher's perspective only converged when the loadings of all second parcels for the punishment responses were restricted to 1 and did not show significant associations. Hence, the results only partly supported Hypothesis 9 that expected victim JS to predict higher appropriateness ratings of all punishment responses/ motives and retributive punishment in particular and contradicted Hypothesis 10 that expected victim sensitivity to be more closely related to special than to general preventive responses/motives by teachers. Contrasting Hypothesis 11, higher perpetrator JS was unrelated to consequentialist responses/motives. When using parent-ratings of child JS, in the models with appropriateness ratings from the child's and the teacher's perspective and across both perspectives, victim JS showed negative relations with doing nothing (children:  $\beta = -.364^*$ ;  $\chi^2 = 175.549$ ,  $df = 118$ ,  $p < .001$ ; RMSEA = .054 [.036; .070]; CFI = .963; SRMR = .038;  $R^2 = .123$ ;  $N = 169$ ; teachers (with loadings of all second parcels for the punishment responses restricted to 1):  $\beta = -.363^*$ ;  $\chi^2 = 193.241$ ,  $df = 123$ ,  $p < .001$ ; RMSEA = .058 [.042; .073]; CFI = .949; SRMR = .051;  $R^2 = .091$ ;  $N = 169$ ; overall:  $\beta = -.370^*$ ;  $\chi^2 = 173.248$ ,  $df = 118$ ,  $p <$

.001; RMSEA = .053 [.035; .069]; CFI = .970; SRMR = .040;  $R^2 = .105$ ;  $N = 169$ ).

### 6.3 Discussion

The present study investigated the appropriateness ratings of six punishment responses/motives in a sample of children in middle childhood using vignettes and examined potential influences of the perspective and status of the punishing agent, the norm transgression type, and their moral-related trait justice sensitivity. In doing so, we tested the intuitive retributivism hypothesis, stating that individuals favor retributive over consequentialist punishing responses/motives. Contrasting this hypothesis, children strongly advocated restorative punishment responses/motives, supporting the intuitive pacifism hypothesis. There were no significant differences in overall retributive and consequentialist motives. When further dividing intuitive and retributivist punishment responses/motives, children seemed to simultaneously follow retributive and consequentialist punishment motives with equal preferences for other retributive and special preventive punishment responses/motives. There were only small if any relations with the perspective/punishing agent, norm transgression type, and justice sensitivity, suggesting a general interest in norm clarification, the restoration of positive relationships between victims and perpetrators, and victim compensation.

#### *Punishment Motives in Children*

Unlike previous research with indirect measures, the present findings do not support the intuitive retributivism hypothesis. Children considered other retributive and special preventive (and overall retributive and consequentialist) responses/motives as equally appropriate for themselves and teachers. The present findings are, therefore, more in line with a preference for special preventive punishment in adults (Twardawski, Tang, et al., 2020), research showing that children followed both retributive and consequentialist motives in third-party punishment (Marshall et al., 2020; Twardawski & Hilbig, 2020), and the notion

that a clear dichotomy of retributive and consequentialist motives may be unlikely (Carlsmith & Darley, 2008). High correlations between other retributive and special preventive responses/motives may also indicate that children attribute similar qualities to them because they both convey a message to the perpetrator (i.e., not to repeat the behavior; Gollwitzer et al., 2011; Marshall et al., 2020) and are target-specific, hence, directed toward the specific perpetrator. Hence, children may not (be able to) distinguish between the two punishment options and/or consider both to serve special preventive goals.

Children rated general preventive punishment aiming at deterrence (with its own potential costs in case of norm transgressions by others) as equally inappropriate as doing nothing (low ratings of this option indicated that we succeeded in presenting children with scenarios that were considered to require punishment). This is in line with previous research showing low fairness ratings of collective punishment by teachers among children and indicating that children perceived this as a sign of mistrust (Mooijman et al., 2015; Smith & Warneken, 2016). In line with the results above, for children, punishment should apparently be target-specific. General preventive responses/motives in the present study may be considered different from retributive and restorative responses/motives because they threaten rather than immediately inflict punishment. This, however, was also true for specific preventive responses/motives, and we carefully selected a general preventive punishment option that was considered adequate by children in a pretest and contained an element of immediate punishment as well.

The restoration was rated the most appropriate response/motive, supporting the intuitive pacifism hypothesis and indicating that children prefer victim compensation, moral reformation of the perpetrator, and the restoration of the relationships with the perpetrator, and consider long-term goals. Because restorative actions tend to clarify the norm, children may also perceive them as most communicative (Funk et al., 2014). However, high

appropriateness ratings of restorative responses/motives and low ratings of revenge may also indicate that children know what is socially desirable and answer accordingly, although revenge can also be considered to communicate a message (Gollwitzer et al., 2011).

However, as adults, children may perceive utter revenge as less appropriate than other retributive acts (Gerber & Jackson, 2013).

### ***Influencing Factors on Punishment Motives***

Children's appropriateness ratings of punishment responses/motives were mostly independent of the perspective of the punishing agent, the transgression type, and personal characteristics. Hence, these ratings may be driven by a strong and rather general norm or by social desirability, children may not have been sufficiently able to distinguish between perspectives (as indicated by almost identical sequences of appropriateness ratings for punishment responses/motives between perspectives), and/or that the differences between personal and impersonal norm transgressions were too weak. Note, however, that there were many significant differences in the mean appropriateness ratings between children and teachers, indicating an understanding of the different perspectives and in line with research showing that high-status individuals are expected to inflict punishment (Gordon & Lea, 2016).

Particularly victim JS was associated with a high tendency to punish norm transgressions and need for norm clarification in correlation results and in SEM using parent ratings (prediction of lower appropriateness of doing nothing) in line with research showing fear of norm-transgressors and potentially exploiting individuals (Schmitt et al., 2005). Particularly insignificant correlations with restorative responses may indicate that these motives are a strong norm that is independent of own justice convictions. Positive relations with general preventive punishment responses/motives in SEM using child JS-ratings contrasted our expectations and require replication in larger samples.

***Limitations and Outlook***

The strengths of the present study include disentangling retributive responses/motives, considering restorative responses/motives and doing nothing as response options, disentangling the child's and the teacher's perspective, considering the type of norm transgression and justice sensitivity as potential influencing factors. Limitations include a small sample size that may have limited the statistical power to find significant effects in complex models and – contrasting our initial plans – not randomizing the sequence of punishment responses/motives. We measured children's perceived appropriateness of punishment responses/ motives separately for children and teachers in order to examine which punishment responses children find appropriate for themselves in contrast to higher-status authorities. Note that this distinction is confounded with differences between second- and third-party punishment and, therefore, children's victim and teachers' observer status. Future research should, therefore, try to further disentangle status and perspective and exactly why the ratings were not sufficiently able to discriminate between perspectives. Asking children for the teacher's perspective, which is highly relevant in school settings, furthermore, seemed less confusing than switching between a victim and observer status of the child in the same situations. Indirect measures of punishment motives cannot rule out that individuals differently interpret the behavioral options and attribute different or overlapping underlying motives. Future research should, therefore, aim to derive punishment options that clearly reflect and differentiate single punishment motives without naming these motives at the same time. It is unclear whether the present measure captures attitudes toward punishing behavior or the underlying individual motives. Finally, asking for the appropriateness/fairness of behavior may reflect common knowledge and social desirability rather than personal opinions and motives. Future research should replicate the present findings in larger samples of children and consider other potential influencing variables. Experience sampling studies

may highlight a preference for punishment responses/motives in real-life settings.

The present study aimed to extend previous research on punishment motivation in primary school settings. It showed restorative responses/motives to be important and considered appropriate for school discipline by children (Gregory et al., 2016). This may inform school staff on how to establish appropriate punishment norms. Whereas teachers tend to prefer general preventive punishment (Twardawski, Hilbig, et al., 2020), children in the present sample rated special preventive punishment as much more appropriate, pointing to a mismatch in justice perceptions. This is all the more important because positive teacher-child relationships were related to higher social skills and prosocial behavior among children. Hence, avoiding incomprehensible punishment may promote children's moral development.

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Contrasting our initial plans, we did not counterbalance the sequence of the punishment responses/motives after the six vignettes. Unfortunately, we only realized this after roughly half of the sample had already been assessed and, therefore, proceeded with not counterbalancing the sequence of the punishment responses. Typo in the stage-1 protocol: The power analysis did not request 139 but 150 participants. We corrected this in the final manuscript.

Contrasting the stage-1 protocol, we calculated the overall punishment score across retributive, consequentialist, and restorative responses/motives instead of only including retributive and consequentialist responses/motives due to theoretical reconsiderations. Results, however, did not differ when only including retributive and consequentialist punishment responses/motives.

### **Open Data**

Electronic supplementary material (ESM) is available at <https://dx.doi.org/10.23668/psycharchives.5007> (Strauß, 2021).

## 6.5 Appendix

**Table 1**

*Norm Transgression Responses, Representing Typical Responses by Children/Teachers*

Response	Explanation The victim/teacher...	Example (child/teacher) How fair do you think it is, if you/the teacher:
revenge, tit for tat	... does the same to the punisher	"... also throw/s a snowball at the head of this child?"
retributive with alternative action, just deserts	... does something intended to harm the punisher that is different from the initial transgression	"... insult the child?"/" ... reports the child to the school management?"
consequentialist – special preventive	... gripes at the punisher (immediate punishment) and threatens the same punishment as in "retributive with alternative action"	"... gripe at the child and tell them that you will insult them if they do something like that again?"/" ... gripes at the child and tells them that they will be reported to the school management if they do..."
consequentialist – general preventive	... gripes at the punisher in a way that all children can overhear it (immediate punishment) and threatens all children with the same type of punishment as in "retributive with alternative action"	"... gripe at the child such that the other children also hear it and say that you will insult anybody who does something like that again?"/" ... says that the next time someone does something like this, the whole class will be reported to the school management?"
restorative – apology and reparation or compensation	... tells the punisher to apologize and how to compensate the damage (the compensation directly addresses the norm transgression)	"... ask the child to apologize and to take care of you for the rest of the day?"/" ... tells the child to apologize and to take care of you for the rest of the day?"
nothing	... does nothing (manipulation check in order to test whether children consider the situations as worthy of punishment)	"... do/does nothing?"

**Table 2**

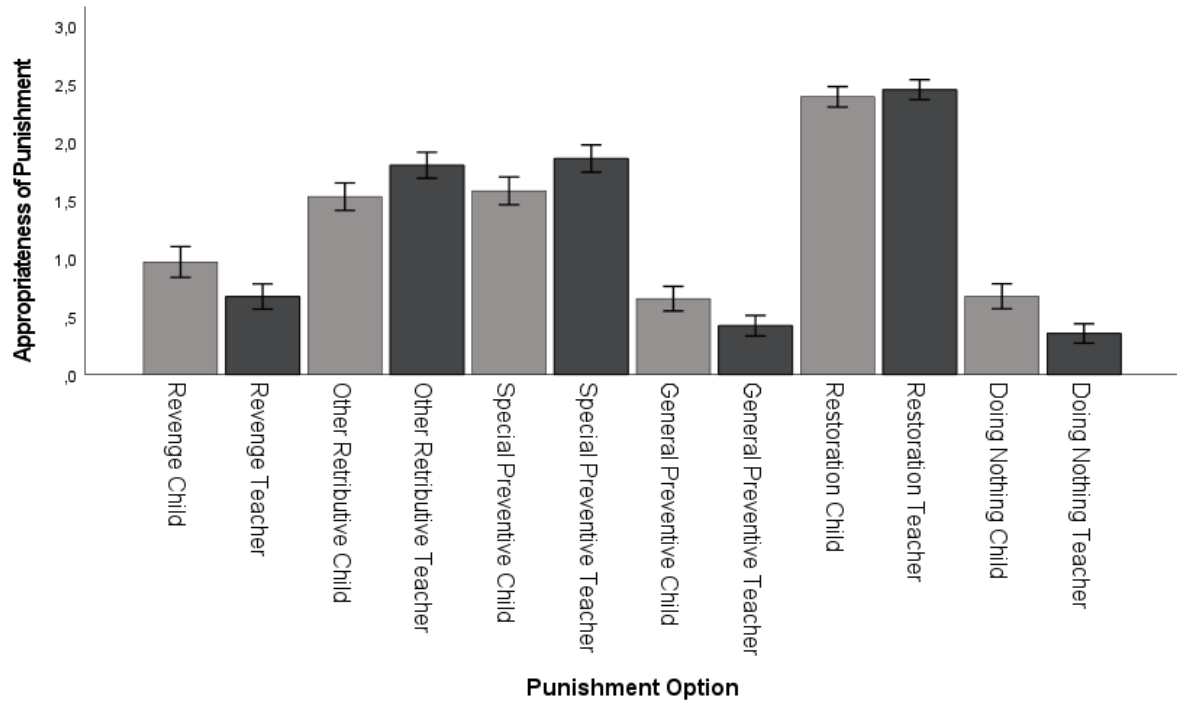
*Descriptive Statistics of all Measures*

	Range	$\alpha$	Total	Child	Teacher
		Total/Child/ Teacher	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )
Overall punishment	0-3	.94/.92/.87	1.56 (0.42)	1.54 (0.48) <sup>a</sup>	1.59 (0.40)
Overall retributive	0-3	.93/.88/.86	1.16 (0.59) <sup>a</sup>	1.16 (0.67) <sup>a</sup>	1.17 (0.59) <sup>a</sup>
Revenge* (a)	0-3	.91/.87/.85	0.71 (0.68) <sup>a</sup> (b,c,d,e,f)	0.86 (0.78) <sup>a</sup> (b,c,d,e)	0.57 (0.69) <sup>a</sup> (b,c,d,e,f)
Other retributive* (b)	0-3	.86/.78/.76	1.62 (0.62) (a,d,e,f)	1.46 (0.71) <sup>a</sup> (a,d,e,f)	1.78 (0.65) (a,d,e,f)
Overall consequentialist	0-3	.88/.84/.74	1.11 (0.47)	1.07 (0.57)	1.16 (0.46)
Consequentialist: Special preventive* (c)	0-3	.86/.78/.77	1.71 (0.63) (a,d,e,f)	1.54 (0.70) (a,d,e,f)	1.88 (0.68) (a,d,e,f)
Consequentialist: General preventive* (d)	0-3	.84/.81/.76	0.51 (0.50) (a,b,c,e)	0.60 (0.63) <sup>a</sup> (a,b,c,e)	0.43 (0.52) (a,b,c,e)
Restoration (e)	0-3	.86/.74/.72	2.41 (0.48) (a,b,c,d,f)	2.38 (0.50) (a,b,c,d,f)	2.43 (0.50) (a,b,c,d,f)
Doing nothing* (f)	0-3	.89/.83/.83	0.50 (0.53) (a,b,c,e)	0.66 (0.65) (b,c,e)	0.35 (0.50) (a,b,c,e)
JS Victim	0-3	.70	1.91 (.63)		
JS Observer	0-3	.70	1.99 (.64)		
JS Perpetrator	0-3	.79	2.24 (.73) <sup>b</sup>		
JS Victim (parent-rated)	0-5	.85	3.56 (1.04)		
JS Observer (parent-rated)	0-5	.91	3.33 (1.04)		
JS Perpetrator (parent-rated)	0-5	.91	2.99 (1.21)		
Age	7-12		9.26 (1.01)		

*Note:* <sup>a</sup>Significant lower and <sup>b</sup>higher levels according to MANCOVA results between children asked via telephone as compared to children asked in schools ( $p < .05$ ). \*Significant differences between the children's and teachers' perspective ( $p < .001$ ). (a,b,c,d,e,f) indicate which means differed column-wise ( $p < .01$ ). Separate MANCOVA's conducted for parent ratings ( $N = 119$ ) showed no significant differences between samples, data acquisition settings, or gender in victim, observer, and perpetrator JS. JS = justice sensitivity.

**Figure 1**

*Means of Appropriateness Ratings of Punishment Responses/Motives from the Child's and the Teacher's Perspective.*



*Note:* Error bars represent 95% confidence intervals; \*\*\*  $p < .001$ .



## 6.6 Supplementary Material

### **“Who may punish how? The Influence of Punisher Status, Transgression Type, and Justice Sensitivity on the Assessment of Punishment Motives in Middle Childhood”**

#### **Highlights**

1. What was the specific effect you wanted to replicate?
  - We wanted to replicate the effect that retributive responses are rated as more appropriate than consequentialist responses by teachers, that is, the intuitive retributivism hypothesis (Twardawski et al., 2019), in a sample of children in elementary school age
2. What factors/aspects of the original study did you hold constant?
  - We asked children which responses/motives by teachers they considered appropriate in the case of a norm transgression by a student in the school context using the appropriateness-rating approach
  - We separated consequentialist punishment into special and general preventive punishment
3. What factors/aspects did you vary from or add to the original design?
  - We had children rate the appropriateness of the punishment options not only for their teachers (3rd party perspective/higher status/not directly affected by the norm transgression), but also for themselves (2nd party perspective/equal status as the perpetrator/affected by the norm transgression), thereby manipulating the status and the perspective of the punishing agent
  - We further disentangled retributive motivation into revenge (tit-for-tat, the victim or teacher does the same to the perpetrator) and other retributive (just deserts, the victim or teacher punishes the other child with an action

considered appropriate or proportional to the norm transgression) punishment responses/motives

- We added a response option thought to reflect restorative motives, that is, the goal to clarify the norm, but also work to uphold positive social relations with the perpetrator who is requested to make up for the harm they caused
  - We added the response option doing nothing
  - We considered different types of norm transgressions (child is the single victim of a norm transgression vs. child is the victim of the norm transgression by being part of a specific group) as well as the moral-related trait justice sensitivity as potential influencing factors
4. What was the result of your study (in particular with regard to your replication attempt and the “Intuitive Retributivism” Hypothesis)?
- Appropriateness ratings of overall retributive and overall consequentialist punishment options did not differ significantly for both children and teachers, contrasting the intuitive retributivism hypothesis.
  - Restorative responses/motives were rated as the most appropriate for both children and teachers, contrasting the intuitive retributivism hypothesis and supporting an intuitive pacifism hypothesis.
  - Special preventive and other retributive punishment responses/motives were rated as equally appropriate and as far more appropriate than revenge and general preventive punishment responses/motives, pointing to potential similarities and differences between retributive and consequentialist punishment responses/motives
  - The sequence of the appropriateness ratings for child and teacher punishing agents were almost identical. However, the mean appropriateness ratings of all

responses/motives but restorative responses/motives differed between children and teachers as punishing agents.

- Norm transgression type did not influence appropriateness ratings.
- The tendency to negatively respond to own perceived unfair treatment (victim justice sensitivity) was related to stronger punishment in general in zero-order correlations and predicted higher appropriateness ratings of general preventive punishment responses/motives in structural equation models.

### Appendix and Supplementary Material

accompanying the article “Who may punish how? The Influence of Punisher Status, Transgression Type, and Justice Sensitivity on the Assessment of Punishment Motives in Middle Childhood”.

#### Appendix A

*Translated vignettes used in the main study.*

##### Introduction

*Version 1) for data acquisition in school or at the telephone for all children that already took part in the JUST study:*

Hello,

Thank you very much for answering our questions! We are glad that you are taking part and we hope you will have fun doing so! You do not have to participate if you do not want to, and you are always allowed to quit. There will be no problem if you decide to quit. Your answers remain secret. I will read the questions aloud to you and you are going to mark your answers on the paper in front of you. Everybody works on their own and you answer the questions however it feels right to you. It is only important what each of you thinks individually, there are no right or wrong answers. In case you are not sure which answer to pick, just chose the one that seems best in the moment. You can only choose one answer per question. Please answer the questions silently and do not reveal your answers to others. Let me know in case you have a question or did not understand something. Do you still have questions now? So we can start! Have fun!

*Version 2) for data acquisition at the telephone for all children that were newly recruited:*

Hi, I am ... from the JUST study. Thank you for taking part in our study and for answering

our questions! We are glad that you are taking part and we hope you will have fun doing so! I have sent you a questionnaire. Do you have it in front of you? Today I want to know your opinion on different ways of behaving. It is only important what you think personally, there are no right or wrong answers. You can answer whatever you like to and what feels right to you. Your answers remain secret. Is there anybody in the room with you, or are you all by yourself?

*(in case there is somebody in the room)* Okay, but ... cannot hear my questions, only your answers. Hence, everything we will talk about remains secret. You do not have to participate if you do not want to, and you are always allowed to quit. There will be no problem if you decide to quit. We are very happy that you are taking part and to thank you, you will receive a gift from us. I will read the questions aloud to you and you will fill in which ones are right for you. Each circle on the questionnaire represents one answer. You can choose whichever one you want, and as I said, everything is correct, there are no wrong answers. In case you are not sure which answer to pick, just choose the one that seems best in the moment. You can only pick one answer per question. That means you can only fill in one answer per row, and every row has to have an answer filled in. After you fill in your answer to a question, tell me what the right answer for you was, and I will mark it down here on my paper. Do you still have any questions? Then we can start now!

*Vignettes: personal (single victim)*

<i>A child deliberately throws your school bag out of the window so that all of your stuff falls out. How fair do you think it is, if you:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also throw the child's school bag out of the window so that all of their stuff fall out?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
do not invite the child to your birthday party anymore?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
gripe at the child and tell them that if they do something like this again, you will not invite them to your birthday	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

party anymore?				
gripe at the child in a way that the other children also hear it and say that you will not invite any child to your birthday party anymore that does something like this again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ask the child to apologize to you, to help you pick up your stuff and buy new things for the ones that broke?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The teacher saw what happened. How fair do you think it is, if the teacher:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also throws the child's school bag out of the window so that all of their stuff fall out?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
enters the child into the class register:?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at the child and tells them that they will be entered into the class register if they do something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, the whole class gets a class register entry?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tells the child to apologize to you, to help you pick up your stuff and buy new things for the ones that broke?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<sup>2</sup> A method of German primary school pedagogy, see also Twardawski et al., 2019, p. 40.

<i>During the break, a child deliberately throws a snowball pretty hard at your head so that it hurts. How fair do you think it is, if you:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also throw a snowball at the head of this child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
insult the child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child and tell them that you will insult them if they do something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child in such a way that the other children also hear it and say that you will insult anybody who does something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ask the child to apologize to you and to take care of you for the rest of the day?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The teacher saw what happened. How fair do you think it is, if the teacher:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also throws a snowball at the head of the child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
reports the child to the school management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at the child and tells them that they will be reported to the school management if they do something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, the whole class will be reported to the school management?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tells the child to apologize and to take care of you for the rest of the day?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<i>You find out that a child is telling lies about you in class. How fair do you think it is, if you:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also tell lies about this child in class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do not talk to the child for a while?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child and tell them that if they do something like this again, you will not talk to them for a while?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child in such a way that the other children also hear it and say that you will not talk to anybody who does something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ask the child to apologize to you and to tell the other kids that the stories were lies?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The teacher hears what happened. How fair do you think it is, if the teacher:</i>				

	not fair at all	rather not fair	some-what fair	totally fair
also tells lies about this child in class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
writes an e-mail to the parents of the child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at the child and tells them that they will write an e-mail to the parents if the child does something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, all parents will receive an e-mail?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tells the child to apologize to you and to tell the class that the stories were lies?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Vignettes: impersonal (multiple victims)*

<i>A child in your class keeps interrupting class. Everyone else wants to pay attention because you have a paper due in the next lesson. How fair do you think it is, if you:</i>				
	not fair at all	rather not fair	some-what fair	totally fair
also disturb the child later while they are studying?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do not help this child with their homework later when they ask you for help?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child and tell them that if they do this again, you will not help them with their homework?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child in such a way that the other children also hear it and say that you won't help anybody with their homework who does something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ask the child to apologize and explain the material of the lesson to all of you?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The teacher saw what happened. How fair do you think it is, if the teacher:</i>				
	not fair at all	rather not fair	some-what fair	totally fair
also disturbs the child later while they are studying?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



gives this child extra work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at the child and tells them that if they do something like this again, they will be given extra work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, the whole class will be given extra work?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tells the child to apologize to all of you and to explain the material of the lesson to the class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*You play ball with your friends during lunch break. Another child deliberately kicks your ball onto the roof of the school so that no one can play with it anymore. How fair do you think it is, if you:*

	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also kick a ball from this child onto the school's roof?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do not allow this child to play with all of you anymore?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child and tell this child that you won't allow them to play with all of you anymore?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child in such a way that the other children also hear it and say that nobody who does something like this again will be allowed to play with all of you anymore?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ask the child to apologize, to go to the facility manager to get the ball back down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*The teacher saw what happened. How fair do you think it is, if the teacher:*

	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also takes away a ball from this child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sends this child away from the schoolyard?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at this child and tells them that if they do something like this again, they will not be allowed to go to the schoolyard for a while?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, the whole class won't be allowed to go to the schoolyard for a while?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

tells the child to apologize and to go to the facility manager to get the ball back down?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<i>You're planning a bike ride with the class. When you are about to start, you see that a child from your class has punctured some bicycle tires so that the bike ride cannot take place. How fair do you think it is, if you:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also puncture the tires of this child's bicycle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
yell at the child?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child and tell them that if they do this again, you will yell at them?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripe at the child in such a way that the other children also hear it and say that you will yell at anybody who does something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ask the child to apologize and make sure the tires will be fixed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
do nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>The teacher saw what happened. How fair do you think it is, if the teacher:</i>				
	<b>not fair at all</b>	<b>rather not fair</b>	<b>some-what fair</b>	<b>totally fair</b>
also punctures the tires of this child's bicycle?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
excludes the child from the next class trip?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
gripes at the child and tells them that they will be excluded from the next class trip if they do something like that again?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
says that the next time someone does something like this, the next class trip will be cancelled for the whole class?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
tells the child to apologize and make sure the tires will be fixed?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
does nothing?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Table S 1**

*Correlations of Punishment Appropriateness Ratings from the Child's and the Teacher's Perspective*

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Child																	
1 Punishment	.888***	.731***	.861***	.871***	.814***	.679***	.675***	-.240**	.842***	.779***	.665***	.720***	.571***	.539***	.289***	.587***	-.216**
2 Retributive		.902***	.882***	.720***	.665***	.572***	.373***	-.172*	.657***	.769***	.732***	.628***	.395***	.378***	.191*	.322***	-.097
3 Revenge			.592***	.562***	.489***	.475***	.227**	-.055	.495***	.679***	.736***	.457***	.264**	.245**	.141	.148	.001
4 Other retr				.734***	.707***	.551***	.440***	-.248**	.687***	.693***	.563***	.667***	.453***	.441***	.210***	.429***	-.183*
5 Conseq					.874***	.843***	.372***	-.116	.692***	.601***	.538***	.523***	.640***	.559***	.393***	.368***	-.072
6 Spec prev						.475***	.428***	-.184*	.637***	.483***	.370***	.487***	.596***	.664***	.177*	.413***	-.086
7 Gen prev							.201**	-.010	.549***	.553***	.564***	.408***	.500***	.281***	.510**	.211**	-.037
8 Restoration								-.335***	.721***	.506***	.288***	.613***	.335***	.387***	.076	.824***	-.407***
9 Nothing									-.205**	-.094	.038	-.210**	-.034	-.069	.031	-.345***	.679***
Teacher																	
10 Punishment										.812***	.609***	.828***	.735***	.671***	.406***	.755***	-.266**
11 Retributive											.888***	.873***	.401***	.359***	.231**	.392***	-.128
12 Revenge												.551***	.248**	.172*	.208**	.180*	.024
13 Other retr													.464***	.469***	.198*	.521***	-.258**
14 Conseq														.824***	.669***	.366***	-.127
15 Spec prev															.131	.424***	-.164*
16 Gen prev																.085	-.005
17 Restoration																	-.371***
18 Nothing																	1

Note: \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

**Table S 2**

*Correlations of Punishment Appropriateness Ratings from the Child's and the Teacher's Perspective with JS Self- and Parent-Ratings, and Age*

		19	20	21	22	23	24	25
Child	1 Punishment	.175*	.001	-.109	.094	.023	-.056	.085
	2 Retributive	.147	-.040	-.143	.085	.045	-.044	.124
	3 Revenge	.124	-.047	-.145	.058	.071	-.036	.045
	4 Other retr	.139	-.029	-.112	.094	.005	-.038	.182*
	5 Conseq	.173*	.012	-.080	.134	.082	.021	.142
	6 Spec prev	.067	-.026	-.072	.083	.050	.036	.162*
	7 Gen prev	.239**	.051	-.068	.148	.089	-.004	.072
	8 Restoration	.095	.053	-.038	.005	-.090	-.140	-.094
	9 Nothing	.026	-.092	-.037	-.225*	-.106	-.177	-.069
Teacher	10 Punishment	.155	.105	-.014	.029	-.008	-.036	.060
	11 Retributive	.169*	.026	-.086	-.008	-.009	-.029	.073
	12 Revenge	.170*	.005	-.135	.016	.039	-.021	.035
	13 Other retr	.128	.042	-.014	-.032	-.059	-.031	.095
	14 Conseq	.126	.130	.051	.075	.064	.110	.082
	15 Spec prev	.076	.162*	.086	.092	.032	.109	.138
	16 Gen prev	.120	.012	-.025	.002	.067	.041	-.037
	17 Restoration	.060	.103	.022	.016	-.059	-.135	-.017
	18 Nothing	-.011	-.082	.048	-.171	-.031	-.113	.017
19 JS-V		.551***	.241**	.158	.068	.020	.072	
20 JS-O			.484***	.120	.127	.153	-.046	
21 JS-P				.089	.115	.202*	.168*	
22 JS-V p					.576***	.261**	.052	
23 JS-O p						.652***	.106	
24 JS-P p							.193*	
25 Age							1	

Note: 22-24: parent-rated justice sensitivity scales. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### Supplementary Material

#### Pre-Test

We aimed at developing punishment options that would represent typical optional responses by children and teachers. Hence, we ran a pre-test prior to the actual data collection in order to guide the selection of vignettes and to examine different response options of punishment behavior that should allow to infer punishment motives in line with the proceeding suggested for the special issue. We pre-tested 50 children in grade 2 (7 to 8 years of age) and grade 5 (10 to 12 years of age). On the basis of the results, we selected the three vignettes describing single victims and the group as victim, respectively, that were rated as most realistic (“How much do you think a child would do something like that?”), provoked the highest moral outrage (“How much would that upset you?”), and were considered as most urgent to punish (“How much do you think the child should be punished?”). We further compared consequentialist punishment reactions that could be employed by teachers regarding their level of realism as assessed by the children (“How much do you think a teacher would do such a thing?”) and how preventive they are to hinder future norm transgressions (“How much do you think this punishment ensures that a child will not do such things again?”). Concerning consequentialist punishment options, we compared two possible versions of suggested punishment: The first version suggested a punishment that would actually be carried out (special preventive: “The teacher makes the child write an essay about why it is not okay to do something like this.”/ general preventive: “The teacher has the whole class work out in small groups why it is not okay to do something like this.”), the second version included an immediate annoyed response (“you/the teacher gripes at the child”) and a threat of punishment in case of future norm transgressions (e.g., special preventive, teacher: “tells them [the child] that they will be entered into the class register if

they do something like that again”). Children in the pre-test considered the first options as more realistic, but less preventive. Hence, children may regularly experience this kind of punishment in school, but apparently perceive it as ineffective. These punishment options seemingly do not adequately measure consequentialist motivation (i.e., the prevention of future norm transgression). In addition, the retributive (non-revenge) option and the two consequentialist options were intended to be equivalent in general content. By immediately carrying out the punishment in the retributive version and threatening in case of future norm transgression in the consequentialist versions, we aimed at more precisely inferring the implicit motivation and disentangle confounded effects of mere punishment content. This was a further argument to choose the version including griping at the norm transgressor and threatening the retributive punishment in case of future norm transgression for the consequentialist response options for each vignette.

**Table S 3**

*Repeated Measures ANOVA for the Six Punishment Responses from the Children and Teacher's Perspective, controlled for Gender, Data Acquisition Setting, and Age.*

		Sum of Squares	<i>df</i>	Mean Squares	<i>F</i>	<i>p</i>	Partial $\eta^2$
Punishment Responses	Greenhouse-Geisser	15.163	5.532	2.741	4.866	.000	.031
Punishment Responses * Gender	Greenhouse-Geisser	3.340	5.532	0.604	1.072	.376	.007
Punishment Responses * Data Acquisition Setting	Greenhouse-Geisser	17.163	5.532	3.102	5.508	.000	.035
Punishment Responses * Age	Greenhouse-Geisser	8.024	5.532	1.450	2.575	.021	.017
Error (Punishment Responses)	Greenhouse-Geisser	473.672	840.917	0.563			

**Table S 4**

*Child Perspective Repeated Measures ANOVA for Punishment Motives (Overall Retributive vs. Overall Consequentialist), controlled for Gender, Data Acquisition Setting, and Age.*

	Sum of Squares	<i>df</i>	Mean Squares	<i>F</i>	<i>p</i>	Partial $\eta^2$
Punishment Motives	0.001	1	0.001	0.005	.943	.000
Punishment Motives * Gender	0.031	1	0.031	0.280	.598	.002
Punishment Motives * Data Acquisition Setting	0.621	1	0.621	5.637	.019	.035
Punishment Motives * Age	0.020	1	0.020	0.182	.670	.001
Error (Punishment Motives)	17.308	157	0.110			

**Table S 5**

*Teacher Perspective Repeated Measures ANOVA for Punishment Motives (Overall Retributive vs. Overall Consequentialist), controlled for Gender, Data Acquisition Setting, and Age.*

	Sum of Squares	df	Mean Squares	F	p	Partial $\eta^2$
Punishment Motives	0.013	1	0.013	0.090	.765	.001
Punishment Motives * Gender	0.294	1	0.294	1.982	.161	.012
Punishment Motives * Data Acquisition	2.805	1	2.805	18.939	.000	.105
Punishment Motives * Age	0.038	1	0.038	0.260	.611	.002
Error (Punishment Motives)	23.843	161	0.148			

**Table S 6**

*Repeated Measures ANOVA for Norm Transgression Type (Personal and Impersonal Norm Transgressions), Overall Punishment Appropriateness (Retributive, Consequentialist, Restorative) as Outcome, controlled for Gender, Data Acquisition Setting, and Age.*

	Sum of Squares	df	Mean Squares	F	p	Partial $\eta^2$
Norm Transgression Type	0.006	1	0.006	0.118	.732	.001
Norm Transgression Type * Gender	0.000	1	0.000	0.003	.955	.000
Norm Transgression Type * Data Acquisition	0.006	1	0.006	0.116	.734	.001
Norm Transgression Type * Age	0.016	1	0.016	0.301	.584	.002
Error (Norm Transgression Type)	8.050	155	0.052			

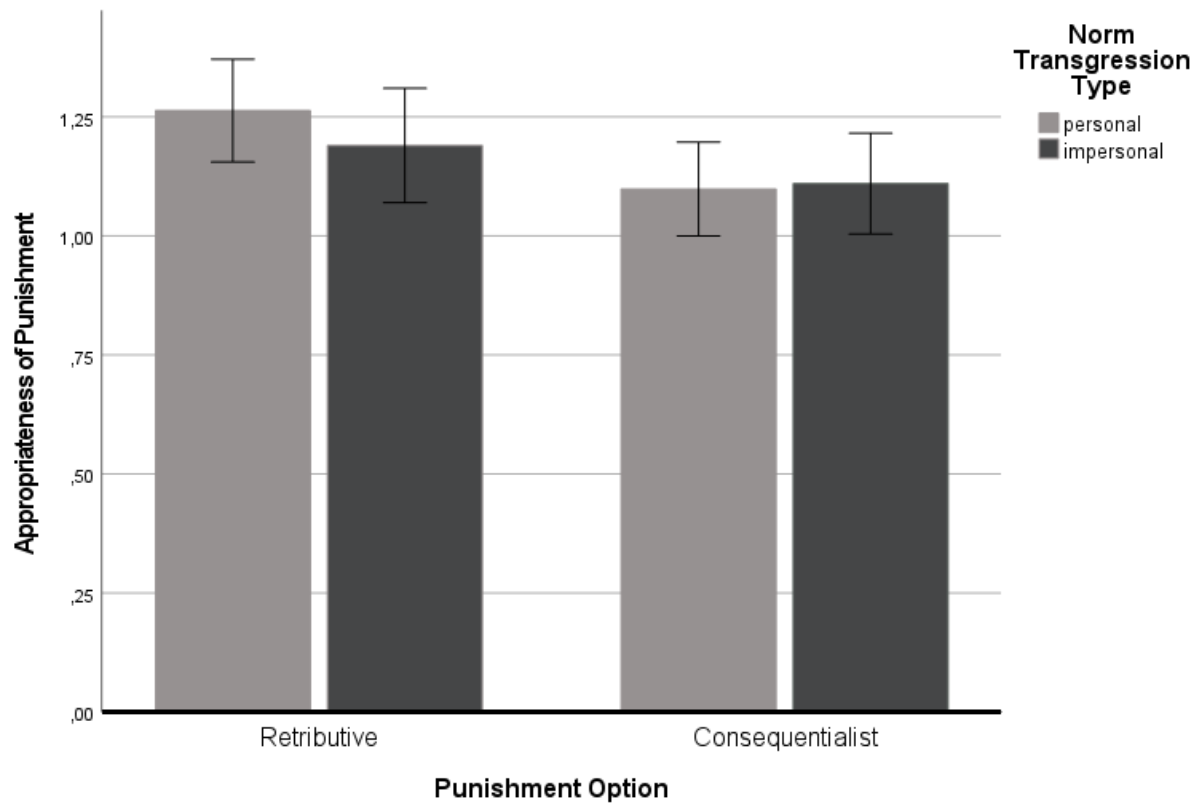


**Table S 7**

*Factorial Repeated Measures ANOVA with Punishment Motives (Overall Retributive vs. Overall Consequentialist) from the Child's Perspective, Norm Transgression Type (Personal vs. Impersonal), Interaction Punishment Motive \* Norm Transgression Type, controlled for Gender, Data Acquisition Setting, and Age.*

	Sum of Squares	df	Mean Squares	F	p	Partial $\eta^2$
Punishment Motives	0.001	1	0.001	0.005	.943	.000
Punishment Motives * Gender	0.062	1	0.062	0.280	.598	.002
Punishment Motives * Data Acquisition Setting	1.243	1	1.243	5.637	.019	.035
Punishment Motives * Age	0.040	1	0.040	0.182	.670	.001
Error (Punishment Motives)	34.616	157	0.220			
Norm Transgression Type	0.034	1	0.034	0.255	.614	.002
Norm Transgression Type * Gender	0.011	1	0.011	0.084	.772	.001
Norm Transgression Type * Data Acquisition	0.001	1	0.001	0.011	.916	.000
Norm Transgression Type * Age	0.021	1	0.021	0.153	.696	.001
Error (Norm Transgression Type)	21.072	157	0.134			
Punishment Motives * Norm Transgression Type	0.120	1	0.120	1.563	.213	.010
Punishment Motives * Norm Transgression Type * Gender	7.350E-05	1	7.350E-05	0.001	.975	.000
Punishment Motives * Norm Transgression Type * Data Acquisition	0.228	1	0.228	2.988	.086	.019
Punishment Motives * Norm Transgression Type * Age	0.083	1	0.083	1.090	.298	.007
Error (Punishment Motives * Norm Transgression Type)	12.005	157	0.076			

Figure S 1



Note: Error bars represent 95% CIs. Retributive Punishment and Personal Norm Transgression  $M=1.19$ ,  $SD=.66$ ; Retributive Punishment and Impersonal Norm Transgression  $M=1.10$ ,  $SD=.75$ ; Consequentialist Punishment and Personal Norm Transgression  $M=1.05$ ,  $SD=.60$ ; Consequentialist Punishment and Impersonal Norm Transgression  $M=1.08$ ,  $SD=.63$ .

**Table S 8**

*Correlations of Punishment Appropriateness Ratings collapsed across the Child's and the Teacher's Perspective with JS Self- and Parent-Ratings, and Age.*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Revenge C + T	1	.642***	.383***	.439***	.243**	-.050	.156	-.024	-.150	.055	.060	-.033	.030
2 Other retr C + T		1	.632***	.461***	.570***	-.281***	.147	.002	-.076	.037	-.029	-.034	.152
3 Spec prev C + T			1	.352***	.473***	-.165*	.074	.075	.014	.089	.047	.083	.172*
4 Gen prev C + T				1	.180*	-.060	.213**	.039	-.056	.107	.091	.017	.016
5 Restoration C + T					1	-.392***	.086	.079	.000	.007	-.071	-.136	-.050
6 Nothing C + T						1	.014	-.086	.007	-.223*	-.087	-.180	-.036
7 JS-V							1	.551***	.241**	.158	.068	.020	.072
8 JS-O								1	.484***	.120	.127	.153	-.046
9 JS-P									1	.089	.115	.202*	.168*
10 JS-V p										1	.576***	.261**	.052
11 JS-O p											1	.652***	.106
12 JS-P p												1	.193*
13 Age													1

*Note:* 10-12: parent-rated justice sensitivity scales. \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

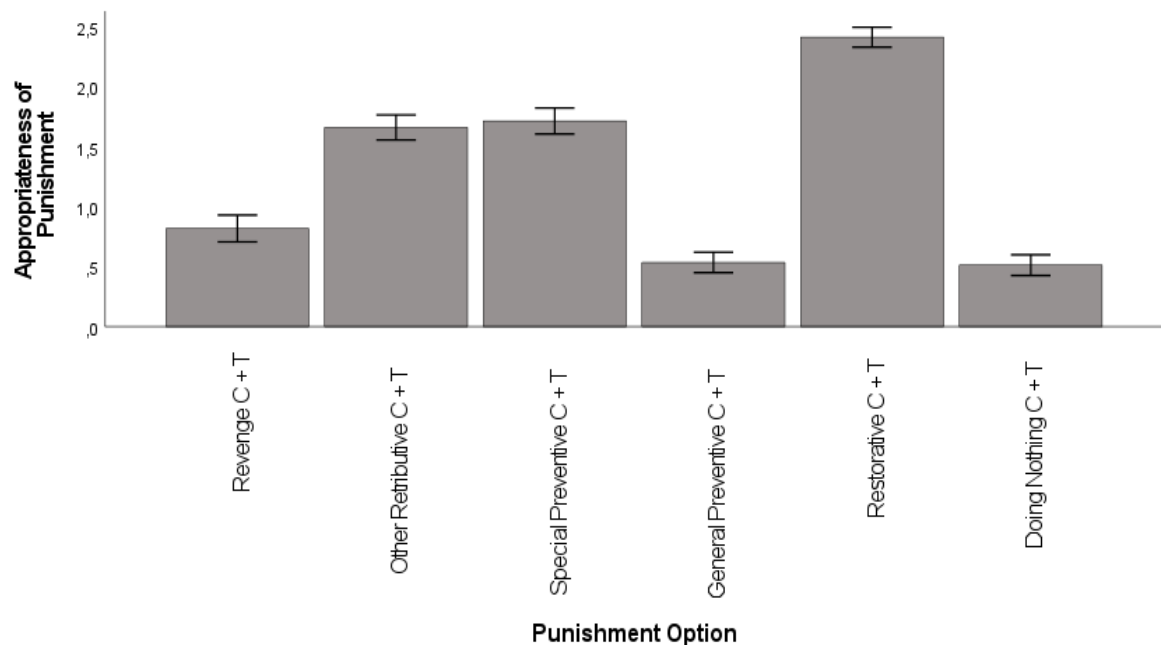
**Table S 9**

*Repeated Measures ANOVA for the Six Punishment Responses collapsed across the Child's and the Teacher's Perspective controlled for Gender, Data Acquisition Setting, and Age.*

Quelle		Sum of Squares	df	Mean Squares	F	p	Partial $\eta^2$
Punishment Responses	Greenhouse-Geisser	6.423	3.632	1.768	5.422	.000	.034
Punishment Responses * Gender	Greenhouse-Geisser	0.833	3.632	0.229	0.704	.576	.005
Punishment Responses * Data Acquisition Setting	Greenhouse-Geisser	6.641	3.632	1.829	5.607	.000	.036
Punishment Responses * Age	Greenhouse-Geisser	3.156	3.632	0.869	2.665	.037	.017
Error (Punishment Responses)	Greenhouse-Geisser	180.045	552.039	0.326			

**Figure S 2**

*Means of Appropriateness Ratings of Punishment Responses/Motives collapsed across the Child's and the Teacher's Perspective.*



*Note:* Error bars represent 95% CIs. No significant means differences between Other Retributive and Special Preventive punishment responses; and between General Preventive punishment and Doing Nothing. Significant mean differences at  $p < .01$  for Revenge and Doing Nothing. Significant mean differences at  $p < .001$  for all other mean differences (pairwise comparisons).

**Table S 10**

*Repeated Measures ANOVA for Punishment Motives (Overall Retributive vs. Overall Consequentialist) collapsed across the Child's and the Teacher's Perspective, controlled for Gender, Data Acquisition Setting, and Age.*

	Sum of Squares	<i>df</i>	Mean Squares	<i>F</i>	<i>p</i>	Partial $\eta^2$
Punishment Motives	.002	1	.002	.020	.889	.000
Punishment Motives * Gender	.149	1	.149	1.528	.218	.010
Punishment Motives * Data Acquisition	1.580	1	1.580	16.232	.000	.094
Punishment Motives * Age	.022	1	.022	.226	.635	.001
Error (Punishment Motives)	15.278	157	.097			

## 7. General Discussion

Justice is central to the striving of societies and social relationships of any kind. Justice norm internalization as part of moral development was particularly interesting for developmental psychology, as the early importance within psychological theories and research underlines. Despite the long tradition of psychological research on justice and morality, justice-related traits have been rather neglected in childhood hitherto. This is striking because over the last thirty years, research gained much evidence for dispositional differences in moral- and justice-related attitudes and behavior (Aquino & Reed, 2002; Blasi, 2005; Dalbert, 2009; Dalbert et al., 1987; Huseman et al., 1987; Montada et al., 1986; Schmitt et al., 1995, 2005). Particularly JS, the dispositional sensitivity toward injustice was established as a trait and related to manifold other social, justice-, and moral-related outcomes in adults and adolescents (Baumert & Schmitt, 2016). JS showed substantial relations with pro- and anti-social, distributive, political, or moral behavior in adult and adolescent samples (Fischer et al., 2021; Gollwitzer et al., 2005; Jahnke et al., 2020; Rothmund et al., 2020; Rothschild & Keefer, 2018; Sonnentag et al., 2018). JS was rarely considered in childhood, although particularly the age range from six to twelve years is sensitive to both personality and moral development (Molchanov, 2013; Shiner, 2021). The present research project, therefore, investigated JS in middle childhood with a special focus on potential correlates and outcomes to investigate trait influences on social, justice-, and moral-related development, thereby contributing to a theory of justice in childhood, extending the psychology of JS to middle childhood, and allowing to examine a potentially underlying internal justice motive. By means of the present studies, justice-related trait aspects may be introduced to a holistic approach to social, moral, and justice development. Findings thereby provide knowledge about what precedes, hinders, or supports prosocial and moral behavior.

To investigate JS in middle childhood with a special focus on relations with social and moral-related variables, four studies were conducted: In the first study, the measurement and manifestation of JS as a trait, relations with variables from the social skills and temperament space, as well as JS as a potential cross-sectional predictor of pro- and antisocial behavior had been investigated in a pilot sample of children between 6 and 10 years of age from south Germany. Because questionnaire self-ratings are the common method of assessing JS and would provide a large benefit for justice and moral developmental research due to their economic, ecologically valid, large-scale applicability, particular attention was directed toward evaluating the assessment of JS via the further adapted JSI-CA5 (Bondü & Elsner, 2015) that was proven reliable and valid in older samples. Therefore, we measured JS via questionnaire self-ratings, via parallel vignette measures for children, and via content equivalent questionnaire parent-ratings. Thereby, the study was the first to assess JS via other-ratings. By confirming the valid and reliable measurement of JS and its manifestation as a trait already in middle childhood with the positively correlated but distinct victim-, observer-, and perpetrator JS perspectives, study 1 provided the basis for the following investigations of JS correlates and outcomes.

In the second study, relations with moral behavior in the form of distributive behavior were examined in a large-scale data set of children between 5 and 12 years of age from Berlin and Brandenburg via the adapted JSI-CA5 (Bondü & Elsner, 2015) self- and parent-rating instruments that were proven reliable to measure JS in the first study and a quasi-experimental vignette design for large-scale measurement of distributive behavior. JS showed meaningful relations to sharing behavior and with distributing as a disinterested judge following distributive principles, underlining its relevance for prosocial and moral behavior development. The underlying victim and altruistic/observer and perpetrator JS perspectives thereby showed diverging distributive tendencies mostly in line with previous findings and theory, confirming

an early present motivational differentiation of the trait beyond a general internalization of justice norms.

In the third study, relations of JS with important variables of moral development had been investigated in the same large-scale data set, by using the JS self-ratings and a combination of quasi-experimental vignettes and established, adapted questionnaires to measure the moral outcomes. The study showed that JS may inform moral reasoning, but most pronounced moral emotions and moral identity – variables that prepare for moral behavior. In line with theory, it confirmed that JS is particularly associated with affective and identity-related aspects that may motivate to prosocial and moral behavior, with diverging outcomes for the victim and altruistic/observer and perpetrator perspectives.

In the fourth study, punishment motivation of children from middle childhood after norm transgressions in a school setting was investigated. Punishment motivation as the readiness to and preferred type of encountering transgressions of justice norms added a further important aspect of justice-related development to the present research project. Within this study, JS was for the first time considered as a potential correlate or cross-sectional predictor of punishment motivation satisfying either retributive, consequentialist, or restorative motives, respectively. JS did not add to a general preference for restorative motives in middle childhood, but particularly children high in victim JS endorsed punishment behavior including strong norm clarification and communication.

Across all four studies, the findings of the present research project are threefold: First, a reliable and valid measurement of JS and its perspectives seems possible at least from middle childhood onward, via questionnaire self-reports and other-reports from caregivers. All studies indicated that JS manifests as a distinct trait with the typical subscale pattern of victim, observer, and perpetrator JS in middle childhood. JS was related to temperamental dimensions, social and self-regulation skills, and global pro- and antisocial behavior, pointing to similarities



with older samples and extending the psychology of JS to middle childhood. Furthermore, JS as a justice-related trait showed relations with prosocial and moral behavior in the form of distributive behavior; with moral reasoning, moral emotions, and moral identity as antecedents of moral behavior; as well as with reactions to restore justice in the form of punishment. The relations supported the trait's discriminant, predictive, and criterion validity and its relevance for social, moral, and justice development at least from middle childhood onward.

Second, the findings showed differing relations for the JS perspectives/subscales, thereby mostly replicating findings from adolescent or adult samples, and underlining the early present ambivalent trait structure beyond a general sensitivity toward injustice. Victim JS was related to less adaptive and more egoistic correlates and outcomes and altruistic JS was related to more prosocial, universally justice- and moral-oriented correlates and outcomes. These different relations allowed to explore the victim, observer, and perpetrator scales and their manifestation in childhood more profoundly. Particularly the manifestation, development, and effects of the altruistic scales have not been studied thoroughly yet. Findings indicate diverging underlying motivations of the subscales.

Third, JS cross-sectionally predicted antecedents of justice and moral motivation and behavior, beyond age and gender – emphasizing its universal trait structure as well as beyond social skills – emphasizing its motive structure. The findings indicate that a personally relevant need to protect or re-establish justice is an important element of social and moral development beyond social skills to grasp and elaborate on justice-related situations (such as ToM or empathy). If justice is a personally relevant goal within social interactions, it may establish as an internal motive that underlies justice-related traits (Baumert, Rothmund, et al., 2013; McClelland, 1985). The present findings point to the relevance of a justice motive underlying JS as early as in middle childhood. Simultaneously present diverging correlate and outcome

relations of the subscales suggest proposing additional underlying motives of the victim and the altruistic perspectives that may become reinforced across development.

The findings of all studies mostly resembled JS research in older samples, suggesting the early and ongoing relevance of justice- and moral-related traits for development. They informed a theory of justice in middle childhood beyond research on distributive justice or punishment motivation and emphasized the early importance of justice-related traits reflecting an internal justice motive as correlates and antecedents of other (pro-)social, justice-, and moral-related constructs and behavior.

### **7.1 Implications on Measurement and Manifestation of JS in Middle Childhood**

Although assessing traits in younger samples is considered challenging, the findings of the present research project have shown that the measurement of JS is useful and meaningful in middle childhood. Interpersonal differences in JS may reliably and validly be measured via self- and other-reports from 6 years of age onward. Across the present data sets, the JS subscales showed acceptable to very good psychometric properties. Mean level rank orders and internal consistencies of the JS subscales, gender-related differences in subscale levels (higher JS levels in girls), subscale correlation patterns when using the self-rating, vignette, and parent-rating instruments, and the factor structure in structural equation models resembled findings from older samples (Bondü & Elsner, 2015; Bondü, Hannuschke, et al., 2016; Schmitt et al., 2010). Children- and parent-ratings each showed highly comparable correlation coefficients of subscales and strict measurement invariance across ratings in study 1. Whereas in study 2, child-rating subscales showed slightly higher correlation coefficients across scales, in studies 1 and 4, parent-rating subscales showed slightly higher correlation coefficients across scales, indicating no general tendency toward a stronger differentiation of perspectives when rated by children or parents.

Children self-rated subscales were mostly positively correlated with age across samples; whereas only the parent-rated altruistic scales were positively correlated with age, parent-rated victim JS was uncorrelated with age. Older children reported higher levels of JS, and parents reported higher levels of altruistic JS for older children, pointing to stronger rater congruency for increasing levels of the altruistic JS perspectives across middle childhood (Bondü & Kleinfeldt, 2021). Children in study 1 ranged between 6 and 10 years of age ( $M = 7.66$ ,  $SD = 0.96$ ), children in studies 2 to 4 between 5 and 12 years of age (studies 2 and 3:  $M = 8.05$ ,  $SD = 1.02$ ; study 4:  $M = 9.26$ ,  $SD = 1.01$  [range 7 to 12 years]), providing information on the whole range of middle childhood. Children below and from 8 or 9 years onward did not differ in findings. Age and gender were rarely covariates and never moderators in the models. Hence, age and gender effects were negligible, underlining the generalizability of the present findings and the universal trait structure of JS. Future studies should explore the development of JS and potential interaction effects with age on outcomes longitudinally.

Relations with correlates and outcomes were moderate in strength and mostly in line with theoretical assumptions, indicated discriminant validity toward related constructs from the social, justice, and moral nomological network, and provided insights into the functioning of JS and its perspectives. The magnitude of coefficients indicated that JS is a narrow, meaningful trait in middle childhood that cannot be reduced to temperament, social or self-regulation skills, pro-/antisocial behavior; sensitivity for distributive justice norms; cognitive, affective, or identity-related moral variables; or punishment motivation.

However, some findings warrant a closer investigation. In study 1, victim and observer JS cross-rating subscales each were significantly correlated, whereas in study 4, only perpetrator JS parent- and child-rated subscales were significantly correlated, pointing to rater incongruency. (Note that study 2 did not report subscale correlations across raters; study 3 did not include parent-reports of JS). In study 1, which was conducted with the youngest sample,

parent-ratings (compared to child-ratings) of JS showed more informative relations to parent-rated social behavior. In studies 2 and 3 conducted with the large-scale data set, child self-ratings (compared to parent-ratings) of JS showed more informative relations to child-reported outcomes (although relations between parent-ratings of JS and distributive decisions in study 2 pointed to the same directions, albeit not significantly). In study 4, children- and parent-ratings of JS provided slightly different, but not contradicting information on relations to children's punishment responses, underlining that both rating sources may provide important, complementary information regarding trait influences of JS on moral and justice decisions, motivation, and behavior (De Los Reyes et al., 2015). Hence, different rating sources of JS seem informative and provide a more comprehensive picture of the trait in childhood.

Taken together across all four studies, measurement aspects also provided further insights into how JS manifests as a trait across development. In line with Bondü and Elsner (2015), we were able to replicate the well-known three-factor structure via confirmatory factor analyses. Victim, observer, and perpetrator JS were positively correlated. A high correlation between observer and perpetrator JS, a medium-high correlation between victim and observer JS, and a low correlation between victim and perpetrator JS confirmed the typical pattern. Hence, the present results indicate that the further adapted JSI-CA5 (Bondü & Elsner, 2015) was better suited than Ehrhardt-Madapathi et al.'s (2018) instrument to validly measure the construct of JS in middle childhood and successfully challenged the assumption that children are not able to discriminate between perspectives. Ehrhardt-Madapathi et al.'s (2018) vignette measure was based on the two-item short instrument of Baumert, Beierlein, et al. (2014), that Pretsch et al. (2016) successfully used in a sample of children from the sixth grade onward. To adapt the measure for younger children, vignettes were used that depicted the same unjust situations from different perspectives (victim, observer, perpetrator, beneficiary) in an interview study. Children were then globally asked to rate the emotional valence and openly

asked for their specific emotional reactions, emotional intensity, and behavioral reactions (help the victim, turn to a responsible adult, punish, do nothing). Thereby, the instrument was stronger in line with the original SBI measure (Schmitt, 1996; Schmitt et al., 1995) that was developed to measure a global sensitivity toward injustice (initially, from the victim's perspective). The instrument used in the present project, however, was stronger in line with the adaptations made by Schmitt et al. (2005, 2010), resulting in measuring perspective-specific emotions of anger (victim JS), outrage (observer JS), and guilt (perpetrator JS, beneficiary JS). This latter approach may increase perspective-specific variance through measurement aspects considering that the items of each scale ask for a predefined emotion to be aroused. However, children in middle childhood may largely differ in their ability to report their specific emotions and specify them verbally (Zeman et al., 2007). Moreover, behavioral reactions were dropped as indicators in the JSI, because the JSI focused on differences between perspectives and emotional and ruminative reactions converged most (Schmitt et al., 2005, 2010). In a reduced, easier-worded version (Bondü & Elsner, 2015) this instrument was proven reliable and valid in adolescent samples (for example, Bondü, Hannuschke, et al., 2016; Bondü & Krahe, 2015). Therefore, a further simplified version of the JSI-CA5 (Bondü & Elsner, 2015) used in the present research project may have been more suitable to replicate a three-factor, scale discriminant solution in a sample of children from middle childhood than the instrument of Ehrhardt-Madapathi et al. (2018).

Noticeably, Bondü et al. (2022) showed that all JS perspectives were related to a variety of negative emotions comprising sadness, (self-)pity, disappointment, and helplessness. These findings suggested overlapping negative emotional responses of all perspectives. Ehrhardt-Madapathi et al.'s (2018) measure openly asked for emotional reactions and may be more suitable to detect those overlapping emotional responses of scales. Although JS is considered a narrow trait with distinct, but positively correlated subscales, there is no study at hand that

showed a latent general factor JS model with subordinate perspective facets yet. It may be important where we look at: global responses to injustice with a broader variety of possibly overlapping negative responses, or perspective-distinct responses with specific emotional reactions that have shown informative correlate and outcome relations. Both approaches may be important to establish a theory of justice in middle childhood by examining the universality (importance of justice, an internal justice motive) and distinctness (self- or other-oriented perspective on (in)justice, potentially underlying further motivations) that may unfold simultaneously. However, the perspective-distinct approach might be more suited to examine differences in social and moral-related outcomes as it allows particularly examining the underlying pro- and antisocial perspectives of JS and their effects.

Findings from the pilot sample were replicated recently with the large-scale data set that provided the basis for studies 2, 3, and (partly) 4 of the present research project (Bondü & Kleinfeldt, 2021). The inverted mean rank order of children's self-ratings and parent-ratings of children's JS was also replicated: Whereas children rated themselves highest in perpetrator JS and lowest in victim JS, parents rated children highest in victim JS and lowest in perpetrator JS. Noticeably, this finding emerged despite the establishment of strict measurement invariance between ratings. This level of measurement invariance implies that measurement parameters are the same across raters. Hence, children and parents both understand the items in the same way and do not attach different meanings to them, indicating that the true score latent factor means of the scales differ between raters. What children observe and indicate as their JS truly deviates from what parents observe and indicate as children's JS. Parents may be precise in rating children's JS via observable behavior. The items also ask for internal processes, such as rumination and strain when confronted with injustice. External responses of children may not reflect internal responses, particularly not for children with adaptive behavior associated with the altruistic perspectives. Children may more precisely rate their internal and external

responses to injustice (depending on their ability to introspect). Hence, parents may underestimate the level of perpetrator JS because they may underestimate the level of related internal responses. Furthermore, JS of children and observable affective or behavioral reactions may differ between contexts. Whereas children can relate to their justice reactions in all situations, such as the school, peer, and family context, parents and other caregivers can mostly only relate to reactions to injustice at home. Perpetrator JS ratings may also be biased in children by an early need to appear altruistically justice-oriented, whereby this need does not necessarily manifest in altruistic responses for parents to observe. Accordingly, JS has been theoretically and empirically associated with moral identity (Baumert, Rothmund, et al., 2013; Bondü, Hannuschke, et al., 2016; Gollwitzer et al., 2009; study 3) that may also comprise a facet of “empty” moral impression management, undermining moral behavior (Krettenauer & Casey, 2015). This argument is also supported by study 2 which showed only unstable positive relations between altruistic JS and altruistic sharing behavior and significant negative links between perpetrator JS and self-rated aggression, but insignificant links with parent- and teacher-rated aggression (Bondü & Krahe, 2015). However, in study 2, parent-ratings resembled child-ratings for the effects of altruistic JS on sharing behavior and distributive preferences but were insignificant for victim JS. Hence, rater congruency regarding JS effects may still be higher for altruistic than victim JS. Note that also Baumert, Beierlein, et al. (2014) reported a mean level rank order similar to that of parent-ratings in an adult sample with lower self-ratings in perpetrator than victim JS. They made use of the two-item short scale (Baumert, Beierlein, et al., 2014) that measures the strength of perspective-specific emotional reactions and affective strain in the face of injustice. This indicates that parent-ratings of children’s JS may resemble findings in adults based on instruments that rely on JS perspective-specific affectivity and affective strain as indicators. Parents may be better at observing the emotional responsiveness toward injustice in their children than the level of intrusive thoughts and

perseveration (De Los Reyes et al., 2015). Therefore, relations between parent-reported JS and correlates and outcomes may be more informative regarding the effects of affective and observable sensitivity toward injustice, whereas self-rated JS may be more informative regarding effects of both cognitive and affective sensitivity toward injustice but may be biased by moral impression management. Future research may want to test these interpretations of rater incongruency.

Overall, the present research project indicated that JS is measurable from 6 years onward via economic self- and other-ratings. JS manifests as a trait with acceptable to very good psychometric properties of subscales, the well-known subscale correlations, and factor structure, resembling findings from older samples. The subscale intercorrelations and their relations to outcome variables indicated that an underlying justice motive is already present from middle childhood onward, but the JS perspectives may be associated with additional motives that also unfold already in that age range.

## **7.2 Implications on the Psychology of JS in Middle Childhood: Relations to Social and Moral-Related Correlates and Outcomes**

Relations between JS and correlates and outcomes may provide more information regarding the psychology of JS and its associated motives and goals. Simultaneously, they may provide information on justice-related trait influences on important variables of social and moral development. Thereby, the present findings support a theory of justice in middle childhood. Importantly, the studies of the present research project suggested similarities between perspectives, but also meaningful differences and additive effects of both perspectives from middle childhood onward.

Focusing on similarities, relations to social skills can contribute to explaining the functioning of JS and its developmental antecedents and correlates. Well-developed social skills, particularly those that enable cognitive and affective perspective-taking (ToM, empathy)



may underlie and promote the development of all JS perspectives (Pretsch et al., 2016). Empathy as the capability and readiness to feel others' feelings was related to all JS perspectives in adults (Decety & Yoder, 2016; Edele et al., 2013; Schmitt et al., 2005). Accordingly, all perspectives were positively related to ToM and empathy in children in middle childhood (study 1). Across studies 2 and 3, the altruistic scales were mostly related to ToM and empathy, whereas victim JS was either positively related to ToM (study 2) or empathy (study 3). These positive correlations of all scales imply that impairments in social-cognitive and affective skills neither explain ambiguous social behavior outcomes of observer JS, nor less prosocial and more antisocial to aggressive outcomes of victim JS in study 1 and across different age groups (Bondü & Elsner, 2015; Bondü & Krahé, 2015; Bondü & Richter, 2016b). Children high in JS seem able to understand others' perspectives and their strain irrespective of the predominant perspective, although victim JS may not correlate as stably with these skills as the altruistic scales. JS predicted the moral variables in studies 2 and 3 beyond ToM and empathy included as covariates, ToM and empathy did not moderate between JS and moral outcomes (Baumert, Schlösser, et al., 2014; Imuta et al., 2016; Paulus & Leitherer, 2017). These findings point to the importance of JS as a trait for moral motivation beyond social-cognitive and -emotional skills, with an underlying internal justice motive that directs attention as well as cognitive and affective processing. Hence, although social skills may contribute to trait JS development, the level of skill development does not influence moral outcome associations, underlining the relevance of motives beyond skills for justice- and moral-related motivation and behavior. Relations to moral correlates and outcomes itself may support this argument. Particularly the significant associations of all JS perspectives with distributive principles as an indicator of moral behavior and with moral identity underline the motive structure which comprises a profound integration of justice norms into the self-concept (Baumert, Rothmund, et al., 2013). However, relations with global pro- and antisocial behavior, with specific

preferences for distributive principles, with moral emotions following norm transgressions, and with punishment motivation differed by perspectives, underlining the facet structure of JS that divergently influences moral motivation and justice-related behavior already in middle childhood.

### ***7.2.1 Victim JS and Relations to Social and Moral Variables***

Previous research on victim JS focused on explaining the dysfunctional mechanisms (Gollwitzer et al., 2013; Maltese et al., 2016), but tended to neglect potential adaptive effects. The present research project contributes to a more extensive understanding of the victim JS perspective via findings from younger samples. Less moral or more self-focused emotional and behavioral reactions associated with victim JS may signal important underlying motives and may even have functional qualities.

No significant negative relations between victim JS and sharing in study 2 contradicted expectations but were in line with insignificant relations between victim JS and prosocial behavior in study 1 or experimental games in adults (Edele et al., 2013; Fetchenhauer & Huang, 2004; Schlösser et al., 2018). This underlines self-protective motives instead of active egoistic behavior (Gollwitzer et al., 2015) and that JS generally may show behavior-suppressing rather than behavior-eliciting effects (study 1).

However, positive relations of victim JS with antisocial behavior, negative affectivity, and anger reactivity in study 1, resembling findings from adolescents (Bondü & Elsner, 2015; Bondü & Krahe, 2015), and higher levels of happy victimizer tendencies (fewer moral emotions) in study 3 suggested impaired affect-regulation and/or also an adaptive function of anger in individuals high in victim JS. In addition, no significant relations with moral cognitions in study 3 and mostly significantly positive relations with ToM and empathy across studies indicated no impairment of cognitive moral or social skills. Activating emotions like anger and positive emotions or emotional expectations after norm transgressions irrespective

of abstract knowledge about moral rules provide assertiveness to strive for own goals irrespective of (social) consequences. The lack of affective self-regulation and emotions motivating toward norm transgressions may foster the justification of own norm transgressions (Gollwitzer et al., 2005), (proactive) aggression, and uncooperative and egoistic behavior of adults high in victim JS (Baumert, Schlösser, et al., 2014; Bondü, 2018; Fetchenhauer & Huang, 2004). From an evolutionary perspective, this behavior may have been adaptive at times because it may have generalized toward fighting for outcomes for the own in-group (Baumert et al., 2022). Positive relations to moral identity indicate that already children high in victim JS may aim for the greater good in a utilitarian sense, with sometimes antisocial to aggressive means. In line with insignificant or negative relations to the equality principle in study 2, children high in victim JS may fear exploitation or disadvantage for the self or the in-group in light of universalistic norms and altruistic behavior (Süssenbach & Gollwitzer, 2015).

Close links of victim JS with anger and aggression may also explain why in study 4, children high in victim JS were most eager to punish in general and declined to do nothing after a transgression. Children- and parent-rated victim JS both were related to a pronounced need for punishment, pointing to stable punitive tendencies in individuals high in victim JS and underlining the importance of punishment motivation as an outcome for JS already in middle childhood. Anger provides power to overcome obstacles for own goals; it signals norm transgressors a moral responsibility for their deeds and provides assertiveness to enforce punishment even when one may appear less sympathetic (Schmitt et al., 1995; Seip et al., 2014). Punitivity was originally considered an indicator of JS based on theories of the social significance of anger (Averill, 1983; Plutchik, 1980). Considering that anger, aggression, and punishment are helpful to prevent or end enduring frustration, to even out harm, and to provide strength to achieve own goals despite obstacles (Schmitt et al., 1995), it may be an important feature for the thriving of a group when some individuals hold the disposition to react angry

and punitive. Note that in study 3, victim JS was related to *attributed* happy victimizer tendencies, indicating that low trust in morality of others may explain low moral motivation and the need to defend own concerns even with aggressive means. This mistrust may generalize toward expectations of others' untrustworthiness and overall expectations of injustice of adults high in victim JS (Gollwitzer et al., 2012, 2015). This may also explain why in study 4, victim JS was unexpectedly related to more general preventive punishment motivation including self-punishment, reflecting that this perspective is associated with sending a clear message of norm clarification to one's group, even in the light of own disadvantages and sacrifices (Baumert et al., 2022). Costly punishment that includes sacrificing own resources was considered altruistic or prosocial punishment aiming at norm protection and the greater common good (Gollwitzer & van Prooijen, 2016; Lotz et al., 2011). Children high in victim JS may not only hold a self-protective motive but may also feel responsible to protect justice within their in-group in general. Although punishment is a common trigger of injustice feelings in childhood (Fan & Chan, 1999), children high in victim JS pay remarkable attention to norm-communicating punishment, indicating a strong justice motive also in individuals high in the perspective described as egoistic. This interpretation is also backed up by positive correlations between victim JS and moral identity: children high in this perspective care about a moral self, but mistrust in others' moral intentions may diminish overall prosocial motivation. However, public norm communication may also be an even stronger emotional punishment because it includes punishing with guilt and shame (Rodogno, 2009). Other children affected by the general preventive punishment may judge and blame the perpetrator even stronger. Furthermore, positive correlations of victim JS with retributive punishment and revenge by teachers in study 4 indicated a need for harsh punishment exerted by status higher individuals. This may also guarantee that perpetrators do not profit from norm transgressions by reducing their outcome (Gerber & Jackson, 2013) in line with relations between victim JS and

advocating the merit principle in study 2. Strong norm adherence and need for situation-specific norm clarification were also shown in study 2 when children high in victim JS advocated distributions following the merit principle but preferred the need principle when contrasting equality, merit, and need. Taken together, the findings of the present studies indicate that the justice motive of individuals high in victim JS may conflict with self-interests but may comprise a utilitarian sense of a greater common good, and protection of justice norms within the community irrespective of own social costs. It may have been evolutionary adaptive for a group to integrate individuals high in victim JS that are eager to protect and fight for justice norms and equitable outcomes.

### ***7.2.2 Observer and Perpetrator/Altruistic JS and Relations to Social and Moral Variables***

To explain JS functions, research focused more pronounced on victim JS and antisocial outcomes than on altruistic JS and prosocial outcomes (Baumert, Otto, et al., 2012; Gollwitzer & Rothmund, 2009, 2011; Maltese et al., 2016). The findings of the present research project may allow to dig deeper into the psychology behind altruistic JS in childhood, to investigate similarities and differences between or additive effects of observer and perpetrator JS, and to add a profound examination of these perspectives to the present state of JS research.

Non-significant relations between the altruistic JS scales and negative affect in study 1 indicated that links between altruistic JS and neuroticism found in adult samples (Schmitt et al., 2005, 2010) seem to develop later than in middle childhood. This points to stronger influences of nurture than nature and ongoing influences of the social environment, most probably via transactive effects: Prosocial motivation may be reinforced by positive social feedback following prosocial behavior; but increasing sensitivity toward others' detriments and the own responsibility may increase relations to neuroticism across development. Note, however, that the findings of study 1 are based on parent-reports of negative affect in children. Parents may more readily observe and report negative affect in children that tend to show self-

oriented justice concerns and antisocial behavior, than in children that tend to show other-oriented justice concerns and prosocial behavior. Parents may therefore underestimate the psychological stress and strain of children with high levels of altruistic JS, although altruistic JS was related to depressive symptoms from late childhood onward (Bondü et al., 2017) and to general anxiety and social phobia symptoms in adults (Bondü & Inerle, 2020). Often experiences of stress and strain when perceiving injustice, but also a persistent focus on others' interests before one's own may promote internalized problems, because it may hinder the fulfillment of own needs.

Study 1 also resembled relations between observer and perpetrator JS and prosocial attitudes and behavior outcomes in older samples (Baumert, Schlösser, et al., 2014; Schlösser et al., 2017, 2018; Stavrova & Schlösser, 2015). Relations between the altruistic scales and adherence to distributive principles in study 2 provided more information on the prosocial orientation of these perspectives. Altruistic JS was positively associated with sharing, equal distributions, and a preference for equal distributions in line with previous research in adults (Faccenda & Pantaléon, 2011; Schlösser et al., 2017; Schmitt et al., 1997), emphasizing an unconditional, universally oriented justice motive inherent in altruistic JS from middle childhood onward. Moreover, altruistic JS and prosocial (distributive) behavior seem to be stably associated into adulthood, as indicated by similar findings of less selfish and more cooperative behavior (Fischer et al., 2021; Schlösser et al., 2018) associated with higher altruistic JS. When using JS parent-ratings, the relations to sharing behavior and distributing as a disinterested judge tended to resemble the pattern of findings with child-rated JS, indicating the stability across raters when individuals hold high levels in both perspectives. Hence, the first studies implicated that the link between altruistic JS and prosocial behavior is already present and stable as early as in middle childhood when considering global prosocial and specific moral or distributive behavior.

These findings underline that altruistic JS comprises a motive structure that motivates prosocial and moral behavior. This motive structure may profit from well-developed social-cognitive skills (see study 1) to consider and integrate a variety of salient aspects of a situation and the potential needs of all respective individuals, fostering an urge to balance all those. However, findings from study 3 indicated that altruistic JS was only low and unstably associated with moral reasoning as the cognitive precursor of moral behavior. The altruistic justice motive and its prosocial outcomes may not be informed by cognitive skills to a large amount (note, however, that the internal consistency of the moral reasoning measure was limited). Cognitions may be less relevant because they only represent an understanding of justice and morality, but not necessarily a personal goal to act just and moral, similar to how people with psycho-or sociopathic personality structures are well prepared to understand others but may be more prone to follow own interests, irrespective of others' feelings (Aharoni et al., 2012). Study 1 indicated that well-developed affective self-regulation in children with high levels of altruistic JS may contribute to prosocial behavior outcomes. Apart from cognitive skills, affective and self-regulatory skills may better explain moral motivation related to altruistic JS across development (Bondü & Elsner, 2015; Edele et al., 2013).

Anticipated and actual moral emotions following norm transgressions or norm-conforming behavior may reflect the justice motive, as in the positive relations between altruistic JS and moral emotions in study 3. These relations persisted even beyond ToM and empathy, resembling findings in adults (Rothschild & Keefer, 2018). Furthermore, study 3 indicated that moral traits are particularly important for children high in altruistic JS. Striving for congruency with moral norms may explain altruistic motivation. Particularly the pronounced relations of perpetrator JS with moral identity beyond social skills indicate that JS is important for moral identity development in general (potentially vice versa) and well before adolescence (Bondü, Hannuschke, et al., 2016). Positive relations between the combined scales

with fewer *attributed* happy victimizer tendencies in study 3 signal trust in moral intentions and integrity of others and may further explain moral motivation of individuals high in altruistic JS. In combination with high self- and emotion-regulation skills and high own moral standards, these individuals may experience social relationships as supporting and promoting environments, creating a self-enforcing circle of altruistic justice behavior, positive social interactions, and adaptive social relationships (Bondü, Hannuschke, et al., 2016). Hence, the present findings underline the relevance of children's JS for moral development particularly regarding moral emotions and moral identity, underlining the characteristics of JS being an early moral-related trait associated with pronounced affective reactivity and norm internalization.

Other than expected, the altruistic JS scales showed nearly no effect on punishment motivation. This contradicted positive relations to self-punishment and third-party punishment in adults (Fetchenhauer & Huang, 2004; Lotz et al., 2011), indicating that prosocial justice orientations do not further contribute to restoration or punishment motivation in childhood or that other, more assertive dispositions may be more important (such as victim JS). It may also indicate that group harmony is so important that individuals high in altruistic JS refrain from acts that may be interpreted as perpetuating conflict or that evoke anger and resentment in others.

Observer and perpetrator JS also showed diverging correlate and outcome relations, indicating that children already meaningfully differ in these perspectives. These differences may be due to the specific emotional processes underlying these perspectives. Observer JS was associated with moral outrage which can be considered a more behavior-activating emotion than guilt associated with perpetrator JS (Tangney et al., 2007). The present findings extended knowledge about their divergent or additive influences on prosocial and moral behavior. Study 1 indicated that children high in observer JS behaved more actively prosocial, as reported by



parents. Children high in perpetrator JS behaved more actively prosocial but also less antisocial. The suppressing effect on antisocial behavior related to perpetrator JS may be even more pronounced than the behavior-activating effects, whereas observer JS may be stronger related to behavior activation, resembling findings from adolescents (Bondü & Elsner, 2015). Interestingly, observer and perpetrator JS both were positively related to inhibition, only unstably positively related to effortful control, and unstably negatively related to anger reactivity, indicating no substantial differences in impulse control in middle childhood. This speaks for diverging underlying ideas of how to preserve or re-establish justice or slightly differing additional motives beyond a general justice motive (see below). Accordingly, although altruistic JS was stably related to rejecting the merit principle, when separating both perspectives, only observer JS was negatively correlated with distributions following merit. Perpetrator JS was slightly positively correlated, indicating that norms protecting the outcome are preferred at least when not contrasted against equality or need. Importantly, when separating the scales, only perpetrator JS was related to moral identity, which may also comprise the desire to appear moral and likable (Krettenauer & Casey, 2015; see below for a more extensive discussion). Observer JS was unrelated to moral identity in study 3 and related to moral behavior irrespective of “moral impression management” in adults (Rothschild & Keefer, 2018). Positive relations to social skills shown in study 1 suggested that sometimes positive links between observer JS and aggression (Bondü & Krahé, 2015; Bondü & Richter, 2016b) may be motivated by altruistic punishment to clarify norms, irrespective of reputation concerns and potential negative social consequences. Note that study 4 pointed to a weak correlation between observer JS and special preventive punishment by teachers, indicating that this perspective is related to a preference for target-specific, communicative punishment, and a preference for perpetrator punishment before restorative victim compensation (Lotz et al., 2011).

Considering additive effects, study 2 elucidated that only the combined observer and perpetrator JS scales were related to altruistic sharing. Moreover, despite significant negative zero-order correlations of both subscales with happy victimizer tendencies, only the combined scales predicted fewer happy victimizer tendencies or more moral emotions in the structural equation models in study 3. Hence, both perspectives show diverging ideas of how to preserve or re-establish justice already in middle childhood but may meaningfully complement each other in bringing about moral motivation and prosocial behavior.

Taken together, altruistic JS may motivate just, prosocial, and moral behavior via well-developed social skills and affective self-regulation, via trust in moral intentions of others, via affect- and identity-based moral norm integration and commitment, reflecting the need for personal integrity in line with a universal justice motive. However, observer and perpetrator JS do show complementary differences: whereas observer JS may entail concerns about morality and justice beyond identity and self-representation aspects, perpetrator JS may entail concerns to be and *appear as* moral, reflecting a motivation to regulate (moral) status as well. Future studies may investigate relations between perpetrator JS and altruistic narcissism (the tendency to exhibit prosocial behavior for selfish reasons; Konrath et al., 2016).

Taken together across the victim and altruistic JS perspectives, particularly the affective and identity-related components of JS may explain its relations to social and moral behavior. Whereas individuals high in victim JS focus on preventing victimization and exploitation, mostly irrespective of negative social consequences, individuals high in altruistic JS may focus on universal justice, living up to one's moral standards, and a self-consistent moral identity, mostly irrespective of negative material outcomes. Hence, victim JS may be motivated by a strong self-interest motive, but also by a utilitarian interest in the common greater good, which may be at times adaptive for the striving of a group. Altruistic JS may be predominantly prosocial justice-oriented, but particularly the perpetrator perspective may entail a motive to

enhance the own status via appearing moral (and hence, likable). However, findings indicated the cumulative explanatory power of observer and perpetrator JS. Note that not higher levels of victim JS, but lower levels of altruistic JS predicted lower numbers of shared sweets in study 2. Research may investigate whether low levels of altruistic JS may be more detrimental than high levels of victim JS (Baumert, Halmburger, et al., 2013; Schlösser et al., 2018). Moderate levels of victim JS in combination with high levels of altruistic JS may protect own interests even at high levels of moral motivation and by that, may support adaptive development by preventing externalizing as well as internalizing problems. Cluster solutions of JS levels within individuals may reveal functional and beneficial patterns of JS.

### **7.3 Implications on an Underlying Justice Motive and Potential**

#### **Additional Motives**

When confronted with (potential) injustice, individuals have to consider abstract norms, the context, and their own and others' needs, they have to regulate aversive emotions and strain, and they may want to act to protect or re-establish justice. Because people are confronted with these complex demands regularly and early on, it seems evident that patterns of perception of and reaction to injustice manifest on the personality level. Characteristic adaptations in contextualizing situations perpetuate to affect- and identity-related motivational aspects of personality (Walker, 2014). The present findings underline the relevance of such traits by showing that JS is a cross-sectional predictor of global social behavior, distributive behavior as a specific type of moral behavior, antecedents of moral development, and punishment motivation. The studies of the present research project implicated that JS reflects an underlying justice motive that drives behavior across time and situations, in line with previous theoretical considerations (Baumert, Rothmund, et al., 2013; Gerlach et al., 2012). The findings also suggested that although social skills may be important for JS development, JS may be more important for social and moral-related behavior than social skills, underlining the relevance of

motives or goals (Eisenberg et al., 2016). Justice-related goals may foster the integration of justice norms into the self-concept. The motive structure underlying JS may prepare for pronounced affective reactivity and easy behavior activation via justice-related goals (Baumert et al., 2011; Baumert, Otto, et al., 2012). The assumed motive structure may allow to propose some functional mechanisms of JS in childhood.

Justice is a recurrent concern of individuals high in JS, and injustice is incongruent with a strong justice motive. That is, if perception and cognitive evaluation result in a misfit between internal justice concerns and external (objective or subjective) unjust events, it causes pronounced emotions among individuals high in JS that motivate to actions to avoid injustice and related emotions or to restore justice to cope with such (Baumert, Rothmund, et al., 2013; Baumert & Schmitt, 2016). Evaluation of unjust situations underlies social-cognitive processes such as easy activation of cognitive patterns and deep elaboration of injustice-related information that prepare for selective attention, interpretation, and encoding (Baumert & Schmitt, 2016). Accordingly, JS is characterized as a trait with strong social-cognitive qualities (Baumert & Schmitt, 2016; Bondü & Richter, 2016a; Gollwitzer et al., 2015). The pronounced focus on injustice and related reactions is therefore object to disposition (chronic stability across situations) and situation characteristics (responsiveness and priming), similar to mechanisms that had been suggested for moral identity (Darnell et al., 2019; Lapsley & Narvaez, 2004). The motive structure of JS may therefore be subject to internal processes and external events. These external events must signal that a relevant goal is threatened. People generally desire to be treated fairly because it entails important information about themselves within their social relations, their social status, or their risk of being excluded (Gollwitzer & van Prooijen, 2016; van Prooijen et al., 2002). Hence, injustice may be detrimental to social inclusion, self-esteem, well-being, and mental health (Pretsch, 2021; Pretsch et al., 2016), because it reflects the threat of the fundamental human need to belong (Baumeister & Leary,

1995). Victim and altruistic JS may represent two diverging ways to control and cope with this threat. Hence, JS may have an important function in structuring social relationships. Via reciprocal processes, own and others' reactions to injustice and the resulting outcomes may have an important function in forming JS (Bondü & Esser, 2014).

Across all findings, JS structured behavior that is directed toward others or its antecedents. It informed general pro-and antisocial behavior, sharing with others and distributing between them, justifying moral dilemma decisions of others, anticipating others' emotions after norm transgressions, indicating which attributes are most important for the self-concept (indicating for which one wants to be liked), and rating the appropriateness of punishment following norm transgressions in a group context. Importantly, all JS perspectives were related to moral identity. Moral identity reflects the importance of moral characteristics for the self, which may comprise how others should perceive the self (particularly in an age range that is sensitive to the sophistication of a theory of mind, such as middle childhood [Imbolter et al., 2016; Imuta et al., 2016]; note that moral identity was positively predicted by ToM in study 3). These associations may signal an important function of JS to navigate through the social world, and a particular motivation to protect oneself within interpersonal relations, or to protect the relationships with others and harmony within a group. Via reciprocal relations, person-environment transactions may be likely to form JS across the life span (Bondü, Hannuschke, et al., 2016; Paciello et al., 2020; Shiner & Caspi, 2003) Stimulus-response associations in social situations related to (in)justice may be ongoingly reinforced, creating typical perceptions of and responses to social threats, generating motives comprising preferences of how social inclusion and social status should be protected. Including the idea of a reciprocal social relationship-regulating function seems fruitful to better understand how JS manifests and differentiates into its two broader perspectives as early as in middle childhood.

This may also allow to propose functional mechanisms of altruistic JS which has been studied less than victim JS thus far.

### ***7.3.1 Implications on Underlying Motives of Victim JS***

Victim JS has been studied theoretically and empirically more intensively than altruistic JS (Baumert, Otto, et al., 2012; Gollwitzer & Rothmund, 2009; Gollwitzer et al., 2012, 2013, 2015; Maltese et al., 2016). In general, victim JS was considered a risk factor in social interactions (Baumert & Schmitt, 2016). The SeMI model has been introduced to explain how sensitivity to mean intentions or exploitation motivates self-protection even with antisocial behavior outcomes (Gollwitzer et al., 2013). Individuals high in victim JS want to trust others, but cannot, resulting in hyper-vigilance toward cues of untrustworthiness and exploitation in social situations (Gollwitzer & Rothmund, 2009; Gollwitzer et al., 2013). This approach may be well suited to explain findings of uncooperativeness in adults but was also challenged by other studies that tested the assumed underlying mechanisms of the SeMI model (Bondü, 2018; Bondü & Krahe, 2015; Bondü & Richter, 2016a, 2016b). Moreover, this approach presupposed victim JS as mostly maladaptive, explained via mechanisms of self-defense though but neglecting potential adaptive effects. Importantly, positive relations of all JS perspectives were replicated in the present research project, underlining an early common core of JS from middle childhood onward that reflects the justice motive. Moreover, victim JS was positively related to social skills (studies 1, 2, 3), moral identity (study 3), as well as punishment motivation that may be considered altruistic (study 4). These findings may allow broadening the model of victim JS' functional mechanisms by considering underlying social needs and potential adaptive effects.

Across studies, affective components can be considered most important to explain low moral motivation of children high in victim JS. Study 1 indicated negative affectivity and low affect regulation to be related to high levels of victim JS, and study 3 indicated that individuals

attribute fewer moral emotions to norm transgressors. No relations with sharing behavior in study 2 and with (im)moral reasoning underlined that children high in that perspective may not be antisocial per se and do not justify moral-related decisions via own benefits, but that mistrust in others and related fears may be predominant. Victim JS showed positive relations to social withdrawal (Bondü et al., 2022) and negative relations to interpersonal trust (Baumert, Beierlein, et al., 2014; Schmitt et al., 2005). Children high in victim JS may tend to avoid situations in which they (or their in-group) could be exploited (Maltese et al., 2016). In line with the SeMI model (Gollwitzer et al., 2013), self-protection seems most urgent in light of potential exploitation to avoid negative feelings related to betrayal (Gerlach et al., 2012). These negative feelings may reflect the threat of a need to belong and to be respected because exploitation and betrayal signal lower status within one's social relationships. Children high in victim JS may have a genetic predisposition of vulnerability toward such threats (see relations with negative affectivity in study 1); observation, own experiences, and/ or justice-related parenting may have taught them that they should protect themselves and their status within social relationships. Protecting own outcomes and preventing exploitation would signal assertiveness. Hence, the affect-related indicators of victim JS may also reflect relationship-related concerns and fear of low status. Self-protective antisocial behavior based on anticipated intentions of others may lead to a vicious circle with negative enhancement through avoidance of correcting social experiences (Gollwitzer et al., 2015). The motivational mixture underlying victim JS may therefore comprise a general concern for justice that conflicts with fear of low social status and exclusion at least from middle childhood onward. According to the stability of antisocial outcomes of victim JS across samples from different ages, this reinforced motivational mixture bears the risk of lifelong antisocial tendencies in situations involving social uncertainty. The ambiguous justice motive may be nurtured by ongoing encounters with

injustice and related disappointments in social relationships (Bondü et al., 2017; Gollwitzer et al., 2015).

Rigidity and stability of self-protective behavior across social contexts are also shown in relations of victim JS with justice principles in distribution situations. Research suggested that the application of justice principles tends to be adapted to the social context (Gollwitzer & van Prooijen, 2016). Merit may be appreciated in work settings where rewards should be in line with performance, emphasizing direct reciprocity and social exchange. The more prosocial-oriented principles of equality and need may be stronger appreciated within interpersonal settings, where just and fair treatment are important for group harmony. Because of disappointing social experiences, individuals high in victim JS may prefer merit also in interpersonal situations to avoid feelings related to exploitation, betrayal, and following low status. That is, they may evaluate social situations generally from an equity perspective, and this may lead to an urge to protect norms of social exchange even at high social costs (see below for potential links between JS-V and the intuitive economist mindset). In line with that, children high in victim JS preferred general preventive punishment including all present individuals in study 4, which may be interpreted as a need to regulate justice at the intergroup level (Baumert et al., 2022; Süßenbach & Gollwitzer, 2015). To acquire justice through perpetrator punishment instead of victim compensation and restoration reflects the mistrust that is guiding actions to reinstall justice.

The relationship-related concerns comprising the need to be respected are in line with a positive correlation of victim sensitivity with vulnerable narcissism, which captures manipulative tendencies and feelings of distinctiveness, but a simultaneous lack of self-confidence and hypersensitivity toward others' feedback (Freis & Hansen-Brown, 2021). Narcissistic traits can be considered as overcompensation of insufficiency feelings in social situations. They reflect an inner belief system that expects connection and intimacy of self-



disclosure and mutual trust will result in detrimental outcomes for the self, which is why agency, mastery, and dominance are overemphasized within social situations (Exline et al., 2004). Negative relations to prosocial behavior and positive relations to physical and relational aggression rated by parents in study 1 may reflect related mechanisms that result in risking harmony and communion for the sake of protecting their vulnerability (Kjærviik & Bushman, 2021). According to the present findings, these mechanisms manifest early and may perpetuate to increased revenge and avoidance motivation and lower benevolent motivation toward closely related persons in adults high in victim JS, even with mistrust in their reconciliatory behavior after norm transgressions (Gerlach et al., 2012). It, therefore, seems important to investigate relationship-related concerns in children high in victim JS to understand the role of social needs. This may help to prevent negative feedback loops in social relationships of individuals high in victim JS that affect well-being and mental health (Bilgin et al., 2022).

Regarding potential adaptive effects of victim JS, study 1 indicated positive relations to social skills and moral identity (which may conflict with easy activation of self-protection mechanisms) as well as the willingness to protect justice norms via deviations from equality (study 2) and via punishment (study 4). This may be adaptive for a group, because punishment and equity norms may be unpopular, but at times necessary to balance injustice. Particularly consequentialist punishment may decrease the likelihood of future norm transgressions by anyone. It signals open and honest norm communication and may prevent potential ulterior motives behind the reconciliatory behaviors of perpetrators or may change their behavior sustainably (Gerlach et al., 2012). However, it seems important for children high in victim JS to collect experiences of interpersonal conflict solutions with just outcomes for the self to develop pro-relationship cognitions and a more accurate assessment of whether (reconciliatory) behavior is trustworthy (Gerlach et al., 2012). Settling conflicts in constructive ways may be beneficial for individuals high in victim JS in the long run. It seems important to investigate at

which age and to what extent biased social cognitions are malleable and whether positive events have a comparable effect to negative events (Baumeister et al., 2001). This may provide important information for personality development in general. Victim JS showed more stability across development (Bondü, Hannuschke, et al., 2016), indicating that experiences fostering self-protective behavior are early and ongoingly important for these individuals and may be frequently faced when children become older (Bondü, Rothmund, et al., 2016). Therefore, caregivers and educators should support to collect positive experiences in justice-related situations that transform their expectations.

Taken together, the associations of victim JS with related variables in the present research project may signal an underlying need to belong and to be respected within one's social relationships. However, also due to their antisocial behavior, children high in victim JS may early and ongoingly collect experiences reinforcing their vulnerability and decreasing interpersonal trust (Gollwitzer et al., 2015). These experiences may come upon an already heightened perception of and responsiveness to injustice (against the self) probably manifested via nature (genetics) and nurture (own experiences, observation/role models, parenting behavior). However, individuals that are not universally justice-oriented may hold an important function within groups, because these individuals may act as an early warning system against exploitation, enforce unpopular norms to protect equity, and are willing to enforce punishment even at high social costs. For adaptive psychological development, however, children high in victim JS should experience just solutions to conflicts. Disturbing patterns of negative expectations in social interactions and reinforcement through avoidance learning may be important for beneficial social and mental health development.

### ***7.3.2 Implications on Underlying Motives of Altruistic JS***

Observer and perpetrator JS have shown consistent correlate and outcome relations across samples of different ages, which have been interpreted as adaptive and beneficial, but—

maybe due to the reputation as unproblematic—overlooked to be explained and well-understood. This gap in research should be addressed by considering functional mechanisms of how altruistic JS may motivate prosocial behavior and is reinforced by such, in line with assumed transactive effects, potential social needs, and relationship-regulating qualities.

Prosocial and moral motivation and behavior associated with altruistic JS may emerge early, as outcome relations particularly in studies 1, 2, and 3 have shown and seem to be stable into adulthood (Bondü & Elsner, 2015; Stavrova & Schlösser, 2015). Perpetrator JS was related to more prosocial and less antisocial behavior, sharing behavior, strongly advocating equality norms, and antecedents of moral development. Perpetrator JS was associated with guilt, which represents a self-referential, prosocial emotion (Tangney et al., 2007). Guilt-proneness may support behaving in line with justice norms and moral standards (Cohen et al., 2012; House & Tomasello, 2018), manifesting in a strong moral identity. The early link of perpetrator JS with moral emotions (study 3) suggested that children high in that perspective hold high levels of self-awareness in social interactions early on. Due to a variety of ontogenetic aspects, such as genetic preparation, observation, justice-related parenting, and experiences with peers and caregivers in early educational settings, they may be aware early of the risk of exclusion when one behaves unfairly. Pronounced moral emotions may prepare for moral motivation because when one behaves in line with justice norms, the personal gain of belonging is stronger than potential material outcomes from norm transgressions. Behavior in line with justice norms then signals that one is trustworthy and may result in satisfying exchange relations and fewer experiences of others behaving unfairly toward oneself. Consistent positive outcomes such as acceptance within one's social groups may reinforce the perpetrator JS perspective (Bondü, Hannuschke, et al., 2016). Overall, children high in perpetrator JS may consolidate a fundamental belief that it is more profitable to have supportive social relationships with mutually shared norms of caring, sharing, and solidarity than to protect their outcomes at any

(social) costs (Stavrova & Schlösser, 2015). In adults, however, research showed insignificant relations between altruistic JS and interpersonal trust (Baumert, Beierlein, et al., 2014; Schmitt et al., 2005). Importantly, these findings were based on the short JS scales focusing only on affective indicators or the initially mixed perpetrator/beneficiary item scale, respectively; and interpersonal trust items were rather general and not specifically relationship-related. Trust may also weaken across development due to accumulations of negative outcomes despite own just behavior. Children high in perpetrator JS, however, may regulate their interpersonal relations via a self-enhancing circle that prioritizes getting along, harmony, and mutual exchange before their outcomes or, on a global level, community before agency (see below for potential links with the intuitive politician and theologian mindsets).

However, in study 2, only the combined altruistic JS scales were related to sharing with anonymous children without further social obligation. Furthermore, parent-ratings of prosocial behavior from study 1 may be based on overt, observable behavior regarding the own peer group or family members, when social risks of behaving unfairly are high. This indicates that is not irrelevant toward whom one's behavior is directed: social costs and gains of behaving unjustly may be implicitly analyzed according to the context. Research gathered evidence of two different types of moral identity: one that pays attention to consistency with moral virtues, and one that pays attention to appearing moral to others (Krettenauer & Casey, 2015). Self-representation concerns may bias the association between moral identity and behavior (Hertz & Krettenauer, 2016). Considering that perpetrator JS was most stably and strongly correlated with moral identity, it may also consist of some proportions of "moral impression management" (see also Batson & Collins, 2011). Until now, altruistic JS was consistently related to adherence to and protection of justice in light of temptations, own gains at stake, or when potential costs for just behavior were high in adults (Gollwitzer et al., 2009; Lotz et al., 2011, 2013; Schlösser

et al., 2018), underlining the prosocial justice motive. These findings may be replicated with anonymous, hidden (quasi-)experimental conditions within child samples.

Furthermore, consistent positive relations to a preference for equality in study 2 and across samples (Faccenda & Pantaléon, 2011; Schlösser et al., 2017; Schmitt et al., 1997) may indicate a need to prevent disapproval of others. Justified inequality is mandatory at times to organize the striving of a group or society by balancing investments or privileges. This draws attention to the difference between perpetrator and observer JS. Observer JS, associated with moral outrage reflecting a focus on external events instead of the self, showed more readiness to protect injustice also in light of social costs: it was inconsistently related to antisocial behavior (Bondü & Elsner, 2015; Bondü & Krahe, 2015; Bondü & Richter, 2016b; Stavrova & Schlösser, 2015) and to moral motivation beyond moral impression management (Lotz et al., 2011; Rothschild & Keefer, 2018). In study 4, observer JS was significantly positively correlated with punishment in the form of special preventive punishment, whereas perpetrator JS was uncorrelated with punishment motivation. Avoiding punishing somebody may also be a social strategy to be accepted by others. To learn more about the mechanisms behind altruistic JS, research should explore at which age or with which information at hand and under which social costs individuals high in altruistic JS would deviate from equality or be more prone to punish norm transgressors than children with low levels of altruistic JS. Regarding behavior-activating and -suppressing effects, it may be interesting to investigate if observer JS shows a greater tendency to act, whereas perpetrator JS may be related to refraining from deciding or acting at all in complex situations. The need to belong and to strive for harmony may counteract the assertiveness to disadvantage or punish a certain individual, undermining moral responsibility. Moral responsibility as the integration of morality into one's identity (Blasi, 1983) may further explain when and under which circumstances JS as a justice-related trait translates into moral behavior. However, both perspectives of altruistic JS showed consistent

considerations of others' needs, were related to a personal relevance of justice norms, and a profound need for justice for others. They can be considered a social resource as early as in middle childhood. They seem important in situations of conflict and crisis, when solidarity, caring for others, and a striving for harmony are important for the cohesion and functionality of a group or society (Baumert, Thomas, et al., 2012; Fischer et al., 2021; Thomas et al., 2011) and should be promoted by caregivers and educators.

In sum, altruistic JS may support prosocial and moral behavior through integrating affective and identity-related motivational aspects, potentially stabilized also via pronounced self-regulation, interpersonal trust, and moral responsibility, that may perpetuate to consistent moral integrity. Altruistic JS integrates a justice motive that strives toward consistency of moral identity and behavior, probably motivated by avoiding unpleasant emotions such as guilt, the threat of social exclusion, and by positive social feedback, reflecting the need to belong. Mostly beneficial outcomes of prosocial, just, and moral behavior within social relationships may reinforce altruistic JS. However, focusing on positive social feedback may result in an urge to please others, which may undermine moral responsibility and behavior and thereby conflict with the justice motive at times. Relations between perpetrator JS and anxious rejection sensitivity (Bondü & Krahe, 2015), general anxiety, and social phobia (Bondü & Inerle, 2020) may be investigated closer in middle childhood to explore potential detrimental effects of harmony striving, a desire to be liked, or a potential tendency toward conflict avoidance that may be related to that perspective. Particularly perpetrator JS may be related to a pronounced need to belong, resulting in strictly internalized norms that may foster rigidity in behavior when social risks are salient. Children high in observer JS may be more prone to risk their social status due to a strong justice motive comprising moral affectivity toward external events.

The importance of social relationships may bring about a heightened susceptibility to social threats within individuals high in altruistic JS across development. Research indicates

that JS is a fairly stable trait early onward (see study 1; Bondü & Kleinfeldt, 2021), but particularly altruistic JS is malleable across adolescence (Bondü, Hannuschke, et al., 2016). Adolescence is known for higher levels of self-orientation and egoism (Eisenberg et al., 1991), which may bring about more negative outcomes in the social sphere also for individuals that are more prosocial-oriented. Hence, reciprocal development models of JS may pay attention to the feedback loops of altruistic JS and social experiences and outcomes for mental health and well-being.

Taken together, JS may comprise an underlying justice motive, reflected in all JS perspectives. The early differentiation of the trait points to additional underlying motivations, which may reflect materialistic or relationship interests, but predominantly differing strategies to counteract a threat of the need to belong related to injustice. Justice research in adults increasingly integrates different goal states of materialistic, social status, and moral concerns. One such is the functional pluralism model of justice (Skitka et al., 2016; Skitka & Wisneski, 2013), which integrates these concerns into procedural and distributive justice. Different justice mindsets have been suggested that are subject to situational aspects and goal states at a given time (Skitka et al., 2016; Skitka & Wisneski, 2013). Although individuals are thought to hold all mindsets depending on salient cues, children high in JS may particularly internalize a certain mindset depending on the predominant JS perspective and related easier activation and higher responsiveness toward particular cues. The intuitive politician mindset focuses on the achievement and maintenance of social status, and the accumulation of influence and power (Skitka et al., 2016). All JS perspectives may be related to an easy activation of that mindset when injustice threatens the social status and need to belong. The intuitive economist mindset describes a materialistic orientation and rating equitable outcomes as fairer than equality- or need-based outcomes (Skitka et al., 2016). This mindset may be frequently activated within children high in victim JS and may contribute to explaining behavior following self-interest,

strongly advocating the merit principle, and assertiveness to enforce norm communication in light of (potential) norm transgressions. The intuitive prosecutor mindset is characterized by the urge to defend oneself and others from harm (Skitka et al., 2016). This mindset may be frequently activated within children high in observer JS, resulting in a greater tendency to punish and at times antisocial outcomes related to that perspective. The intuitive theologian mindset is characterized by concerns about abstract moral principles and the greater good (Skitka et al., 2016). Children high in altruistic JS may internalize this perspective early. Future research may investigate empirical relations between the intuitive mindsets and JS to elucidate which underlying goal orientations drive JS perspective development and diverging behavior outcomes.

#### **7.4 Limitations and Implications for Future Research**

The strengths of the present research project lie in its profound investigation of JS as a justice- and moral-related trait and its social and moral-related correlates and outcomes in middle childhood, an age range that is prone to personality, justice, and moral development. The present studies made use of adapted and partly newly developed measures that allow for economic investigations of JS and outcomes in a large-scale data set. Questionnaire self- and parent-ratings turned out to be reliable and valid measurement instruments of JS. The present research project considered important social skills as correlates, covariates, and moderators to investigate the influences of skills on JS development and outcome relations of JS beyond skills. It thereby underlined the importance of traits and underlying motives beyond skills for prosocial and moral motivation and behavior. By investigating the influences of a social-cognitive, justice-related trait on moral variables in childhood, the present research project adds a multi-perspective approach to a theory of justice in childhood and moral development.

However, across studies, some limitations should be kept in mind when interpreting the findings and may be considered by future research. Studies 2 and 3 were based on a large-scale



data set and findings from the smaller pilot sample of study 1 had been largely replicated within this data set (Bondü & Kleinfeldt, 2021). Findings from the additional data set of study 4 should be replicated in a larger sample and with either telephone or real-life data acquisition to level out unspecific measurement variance. Some measures had rather low reliabilities (moral reasoning) or assessed only global valences (moral emotions), limiting the validity and interpretability of findings. Future research may refine the present measures and may integrate assessment approaches from other moral development theories (for example, from alternative conceptualizations of moral emotions or identity) to extend content validity. For the sake of theoretical completeness and construct validity, research may want to explore age-appropriate ways to assess beneficiary JS already in childhood. Differences between child- and parent-ratings of children's JS should be investigated closer. Questionnaire measures and quasi-experimental designs generally bear the risk of biases from social desirability. Future studies may combine the present measures with hidden experimental conditions. This would also allow testing relations of JS with moral impression management as suggested in the theoretical implications section. Research may also explore a greater variety of JS other-ratings, such as teacher- or peer-ratings, or real-life assessments of justice reactions for example via diary studies.

The social skills investigated in the present research showed, if any, only small direct and no moderation effects on the outcomes. Different rating sources for JS, outcomes, and social skills may have resulted in biased variance distributions of the variables. Self-regulation may be an additional potential covariate or moderator. Similar to how self-regulation influences coping with just-world threats that challenge an external justice motive, particularly affective self-regulation may regulate threats toward the internal justice motive (van den Bos & Bal, 2016). Future research may want to deeper investigate JS and its relations to self-regulation.

For a comprehensive exploration of motives underlying JS, it seems important to further investigate what connects all JS perspectives and what separates them. Current research showed all JS perspectives to be related to negative emotions comprising sadness, (self-)pity, disappointment, and helplessness, to reduced use of cognitive coping strategies such as trivialization, suppression, or victim blaming, and to an urge for victim compensation (Bondü et al., 2022). A future measurement approach may include these affective reactions. This may allow to replicate the distinct perspectives and potentially also a general factor of trait justice sensitivity that reflects general concerns for (in-)justice, resembling a core justice motive.

Moreover, researchers may want to further specify JS reactions to particular types of injustice in childhood, for example, into material versus social, or want to include procedural injustice to elucidate more about the psychology behind JS. Relations of JS with utilitarian and deontologist reasoning may be interesting to examine. Future studies may also want to examine JS of children toward justice conflicts from different system levels (Bronfenbrenner, 1979). This may allow to investigate early links between JS development and societal justice conflicts on the macrosystem level. On the microsystem level, research may closer investigate JS and injustice in the school and classroom setting, family influences such as parenting styles and differences in sibling treatment; as well as conflicts with siblings or peers to closer investigate JS development and potential bi-directional effects within the closer social environment. Frequency and intensity of endured injustice and helplessness versus self-efficacy may modulate the effects of external influences on JS development. It seems further interesting whether negative events directed toward the self or others have a stronger influence on JS development than positive events of just outcomes in ambiguous or conflict situations. Differences in the weighting of negative or positive events may contribute to explaining diverging stabilization patterns of the JS perspectives (Baumeister et al., 2001).

Until now, only some first studies focused on JS at the group level, but without further systematization in that regard. Baumert et al. (2022) developed a model of how JS forms reactions in interaction with the group position (advantaged, disadvantaged, bystander) in intergroup contexts. This may be relevant also for outcome relations of JS and justice perceptions (Brickman et al., 1981), and social and moral behavior. JS may interact with ingroup- and outgroup perspectives regarding preferences for distributive principles or punishment motivation (Lerner, 1977). Children high in victim or altruistic JS may differ in their preferences for distributive principles according to a (predominant or primed) individual- or group-level perspective or their level of identification with the relevant group. Concerning JS as a potential social relationship regulator, it might be interesting to explore whether children hold a private and a public justice motive.

The present cross-sectional findings do not allow for conclusions regarding the causality of effects and limit the interpretability of age effects. Hence, longitudinal replications are necessary. Cluster solutions of JS in childhood may also allow us to better understand the development of the trait and its outcomes. Moreover, a substantial amount of research was interested in ontogenesis and negative effects of victim JS, but ontogenesis and positive effects of altruistic JS are not well understood. Research may want to closer investigate how the assumed underlying prosocial justice motive promotes moral behavior and vice versa. Some potential ways of effect were suggested in the theoretical implications section of the present research. Cross-lagged models may be employed to investigate reciprocal effects, including a greater variety of moral- and justice-related cognitions, moral emotions (sadness, [self-]pity, powerlessness), identity (moral responsibility, moral impression management), and behavior (a greater variety of reactions, including aspects of behavioral self-consistency and constitution of the self via behavior), as well as social status and relationship-related concerns. This may enrich knowledge of social-cognitive trait development in relation to internal and external

factors. Other moral and justice theories such as the functional pluralism model of justice (Skitka et al., 2016; Skitka & Wisneski, 2013) may provide fruitful stimulation for JS theory and research.

Finally, the present research project is based on specific definitions of and assumed theoretical overlaps between justice and morality. However, there are parts of morality that are unrelated to justice and vice versa. To explore these gaps may enrich the theory of the respective other construct as well (Skitka et al., 2016). Hence, it seems interesting to further explore what distinguishes JS and related moral variables to highlight the unique contribution of that justice-related trait for (moral) developmental psychology.

### **7.5 Practical Implications**

The present findings indicated that JS manifests as a trait already in middle childhood, with significant outcome relations to important variables of social and moral motivation and behavior. School, family, and peer environments should be particularly relevant for fostering a beneficial JS development due to regularly occurring justice conflicts with parents, siblings, peers, and teachers. Within clinical therapy contexts, JS should be considered more strongly due to its relevance for external and internal outcomes such as (negative) affectivity, identity, social behavior, and mental health.

Regarding school contexts, it seems important that educators and caregivers know about the existence of personality traits such as JS in children to better understand causes for disruptive behaviors, particularly of children high in victim, but also observer JS. Fostering self- and affective regulation mechanisms and reorganizing biased interpretations of others' intentions and behavior seems important to break otherwise detrimental self-perpetuating circles of negative feedback and avoidance learning. Educators may help children to become aware of the consequences of their actions on their social relationships, to develop skills of negotiation, and to understand that individuals differ in preferred moral and justice norms. They

should also pay attention to clear communication of justice rules in the class setting. Restoration, but also punishment seem important as tools to regulate justice for children in middle childhood beyond a high trait sensitivity toward injustice but particularly for children with high levels of victim JS. To foster altruistic JS, schools and educational contexts should strive to create an environment where moral dilemmas and justice conflicts are constructively discussed early on; and prioritize fostering other-oriented perspectives for example via justice- and moral-related workshops. Teachers may receive specific education on JS to better understand children's perceptions of and reactions to injustice. If teachers can detect indicators of high victim JS, these children may be appointed as injustice experts in the classroom to validate their experiences and enhance feelings of responsibility and empathy for others. Moderated discussions between children high in victim or altruistic JS may also help to foster mutual understanding and to give children high in victim JS a feeling of inclusiveness and appreciation.

Regarding the family and peer context, peer and sibling interactions were considered important for children to internalize justice rules in horizontal relationships (Rubin et al., 2006; Smetana & Ball, 2018). The sibling context is prone to trigger feelings of injustice (Brück, 2019). Caregivers should aim to create contexts for children to independently explore justice conflicts but should intervene particularly when children lack the level of social skills to resolve conflicts. Within the family context, the best parenting to foster beneficial levels of JS may be authoritative parenting, because it allows children to understand and internalize norms for and consequences of their behavior. Furthermore, parents should reflect on their reactions to injustice, because their JS is likely to influence their children's JS development via parenting and observation learning.

Regarding the clinical context, previous research showed that JS was negatively related to life satisfaction (Baumert, Beierlein, et al., 2014), as well as externalizing and internalizing

problems (Bondü & Inerle, 2020; Bondü et al., 2017, 2020; Lis et al., 2018). It, therefore, seems important to consider JS in clinical assessments as early as in middle childhood due to the related detrimental mental health outcomes. Practitioners should pay attention when treating children with indicators of neurodiversity (ADHD, Autism Spectrum Disorder, High Sensory Processing Sensitivity), because these sensitivities were (partly) also related to JS and the related trait of rejection sensitivity (Bondü & Esser, 2014; Schäfer & Kraneburg, 2015) and associated psychological strain. Interventions should concentrate on reducing rumination and affective strain in children high in JS, as well as strengthening their social and self-regulation skills. Re-framing and valuing their sensitivity as an important barometer of justice may support integrating justice norms into the self-concept. This integration should help to organize decisions and behavior in line with own and others' outcomes and thereby support well-being because promoting others' welfare should enhance the own sense of purpose (Krettenauer, 2020; Walker, 2014). Interventions may help children high in JS to find adaptive ways to encounter injustice. Due to the conceptual relatedness of motives and schemas as knowledge structures that are stored in memory; entailing values, traits, goals, and behavioral scripts and informing moral identity (Aquino & Reed, 2002; Lapsley & Hill, 2009; Lapsley & Narvaez, 2004), JS with its underlying justice motive may be particularly considered within schema therapy for children and adolescents (Van Wijk-Herbrink et al., 2017).

The social-cognitive trait structure of JS indicates that supporting adaptive internal processes is important for beneficial JS development. However, adaptations to the environment are also likely to promote such because frequent encounters with injustice were thought to increase the activation potential of injustice-related cognitions and affect and hence, JS across time (Gollwitzer et al., 2015). Comprehensible justice norms, fair and appropriate consequences of actions, and open discussions on justice and moral-related matters in educational and family contexts may prepare for moral and justice conflicts on a societal level.

Social movements initiated by children and adolescents such as “Fridays for Future” should be respected by politicians and lawmakers to reinforce moral responsibility, prosocial orientations, and self-efficacy when confronted with justice conflicts (Killen & Dahl, 2021).

## **7.6 Conclusion**

The present research project extensively investigated justice sensitivity and its relations to variables of social and moral development in middle childhood. It provided evidence for a large-scale, economic self-report measurement of JS and related variables from middle childhood onward. JS was related to temperamental dimensions, social skills, pro- and antisocial behavior; distributive decisions and preferences; moral reasoning, moral emotions, moral identity; and punishment motivation in middle childhood. The underlying perspectives of victim, observer, and perpetrator/altruistic JS showed diverging outcome relations mostly in line with theoretical expectations and previous findings from older samples. The findings emphasized the importance of justice-related traits for social and moral development, supported a theory of justice in childhood, and indicated that an early internal justice motive may underlie JS, but is complemented by additional motives underlying the JS perspectives. The motives may inform moral motivation and behavior and may thereby hold an important function in constituting identity in childhood, and in regulating social status and relationships. The present research project intertwined personality, social, and developmental psychology and particularly the psychology of justice and morality in childhood. Traits are accordingly important to consider in developmental psychology as early as in middle childhood, underlining the importance of a multi-perspective approach to better understand what precedes, hinders, or supports adaptive justice-related behavior. Future research may closer examine how the social-cognitive and motive structure of JS manifests and develops, and how the development is related to external variables, particularly social interactions, thereby considering reciprocal effects. It may continue to closer investigate the psychology of altruistic

JS and its prosocial outcomes. This can help practitioners in the fields of pedagogy and clinical psychology to develop interventions that buffer negative, self-reinforcing circles and promote adaptive justice- and moral-related personality development in childhood.



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### Affidavit

I hereby declare that I have written the present dissertation independently, without assistance from external parties and without use of other resources than those indicated. The ideas taken directly or indirectly from external sources are duly acknowledged in the text. The dissertation has not been submitted in an identical or a similar form to any other academic institution. The dissertation is based on four publications:

Strauß, S., & Bondü, R. (2022). Links between justice sensitivity and moral reasoning, moral emotions, and moral identity in middle childhood. *Child Development, 93*(2), 372–387.  
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The general introduction and general discussion were written by me. Each publication was written by me as a first author and in collaboration with other researchers. The author contributions in each study are separately provided.