Journal of Experimental Child Psychology 165 (2018) 117–134

Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp

The role of personal values in children's costly sharing and non-costly giving

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ARTICLE INFO

Article history:
Available online 22 April 2017

Keywords:
Values
Sharing
Resource allocation
Prosocial behavior
Moral development
Normative development

ABSTRACT

This study examined whether children's values, global and abstract motivations serving as guiding principles, are organized similarly to those of adults, whether values can predict individual differences in children's sharing behaviors, and whether the normative nature of the situation influences the expression of these individual differences. Children ($N = 243$, ages 5–12 years) participated in a values ranking task as part of a visit to a science museum. The majority of children ($n = 150$) also participated in a task examining costly sharing (i.e., sharing that results in giving up part of one's own resources) and non-costly giving (i.e., giving that does not influence one's own share). Starting from 5 years of age, children showed a structure of values similar to that of adolescents and adults, specifically contrasting preferences for opposing values (i.e., self-transcendence with self-enhancement and openness to change with conservation). Importance given to self-transcendence values related positively to costly sharing but not to non-costly giving, indicating that in situations where it is more normative to share, individual differences in values are less expressed in children's actual sharing. In addition, children's sex and age moderated the relation between values and behavior. Children's values are an important aspect of their developing personalities. Taking them into consideration can greatly promote the research of prosocial and normative development as well as our understanding of individual differences in children's behavior.

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http://dx.doi.org/10.1016/j.jecp.2017.03.007
0022-0965/

Introduction

Sharing is not easy. It is usually comes with some cost to the individual and carries with it an inherent dilemma between conflicting motivations (Davidov, Vaish, Knafo-Noam, & Hastings, 2016; de Waal, 2008; Eisenberg-Berg & Hand, 1979). For example, a child facing a possibility to share treats with another child could be motivated by the wish to be kind or the will to behave according to social norms and, at the same time, could be driven by the conflicting motivation to enjoy the treats. Besides personal motivations, this child would also need to consider how others expect him or her to behave and the norms of the situation. Children's sharing may reflect individual differences in their motivations to act prosocially. Therefore, we sought to examine whether children's values, a global and transsituational set of motivations, predict their decisions in sharing dilemmas. We tested children in two types of dilemmas that differ in the normative expectations they elicit to examine whether normativity can influence the expression of individual differences in sharing.

Development of children's values

Values are abstract desirable goals that vary in importance across individuals, serve as guiding principles across situations, and underlie actions (Schwartz, 1992; Schwartz, 2012). Thus, individuals' values provide a set of personal norms, that is, personal expectations or obligations that dictate worldview-compatible actions (Schwartz, 1977; Schwartz & Fleishman, 1978). Many empirical studies guided by Schwartz's theory have found, in various cultures, a set of 10 broad values representing distinct motivational goals. These 10 values can be arranged in two orthogonal dimensions: (a) self-transcendence versus self-enhancement values, which contrast the focus on tolerance and concern for others (universalism and benevolence) with emphasis on personal success and dominance (power and achievement), and (b) openness to change versus conservation values, which contrast the emphasis on openness to new ideas and actions (stimulation and self-direction) with the will to avoid change (tradition, conformity, and security). Hedonism shares aspects of both openness to change and self-enhancement values (Schwartz, 1992) (see Fig. 1 for a graphic presentation and detailed explanation on each value).

When do children form their own personal values? Until recently, it has been thought that this process occurs during adolescence (e.g., Barni, Ranieri, Scabini, & Rosnati, 2011; Knafo & Schwartz, 2004). Recently, however, this notion has been challenged, partly thanks to a new measurement tool, the Picture-Based Value Survey for Children (PBVS-C; Döring, Blauensteiner, Aryus, Drögekamp, & Bilsky, 2010). This instrument presents children with caption-accompanied pictures of a protagonist child performing actions representing each of the 10 values. Using this instrument, children are able to report their values in relatively concrete terms that do not require high abstraction abilities (Döring et al., 2015).

Studies using the PBVS-C revealed that even at 7 years of age, children display a meaningful conception of values. Children gave similar rankings to values from the same higher-order dimension (e.g., benevolence, universalism) and gave different rankings to values from opposing dimensions (e.g., benevolence, power) (Cieciuch, Davidov, & Algesheimer, 2016; Döring et al., 2015; Uzefovsky, Döring, & Knafo-Noam, 2016). Furthermore, from 8 years of age and over, children showed stability in their values preference over a period of 2 years, which was similar in its magnitude to the stability reported for children's personality traits (Cieciuch et al., 2016). Studies that used different methods than the PBVS-C revealed that 4- to 6-year-olds' values preferences can be classified according to the four higher-order dimensions (Cieciuch, Hulak, Kitaj, Leszczyńska, & Bulkowska, 2011) and that most children from 5 years of age and over show consistency in their preferences of values when these are presented with different items (Collins, Lee, Sneddon, & Döring, 2017).

To hold a value system, children first need to have a basic sense of self on which they can report to others. That is, they should be able to relate internal states, such as needs, thoughts, and preferences, as their own (Harter, 2006). This ability emerges during early childhood, with 3- and 4-year-olds being able to construct concrete cognitive representations of observable features of the self such as abilities, physical attributes, and emotions (Harter, 2006). As early as 4 or 5 years of age, children can report on

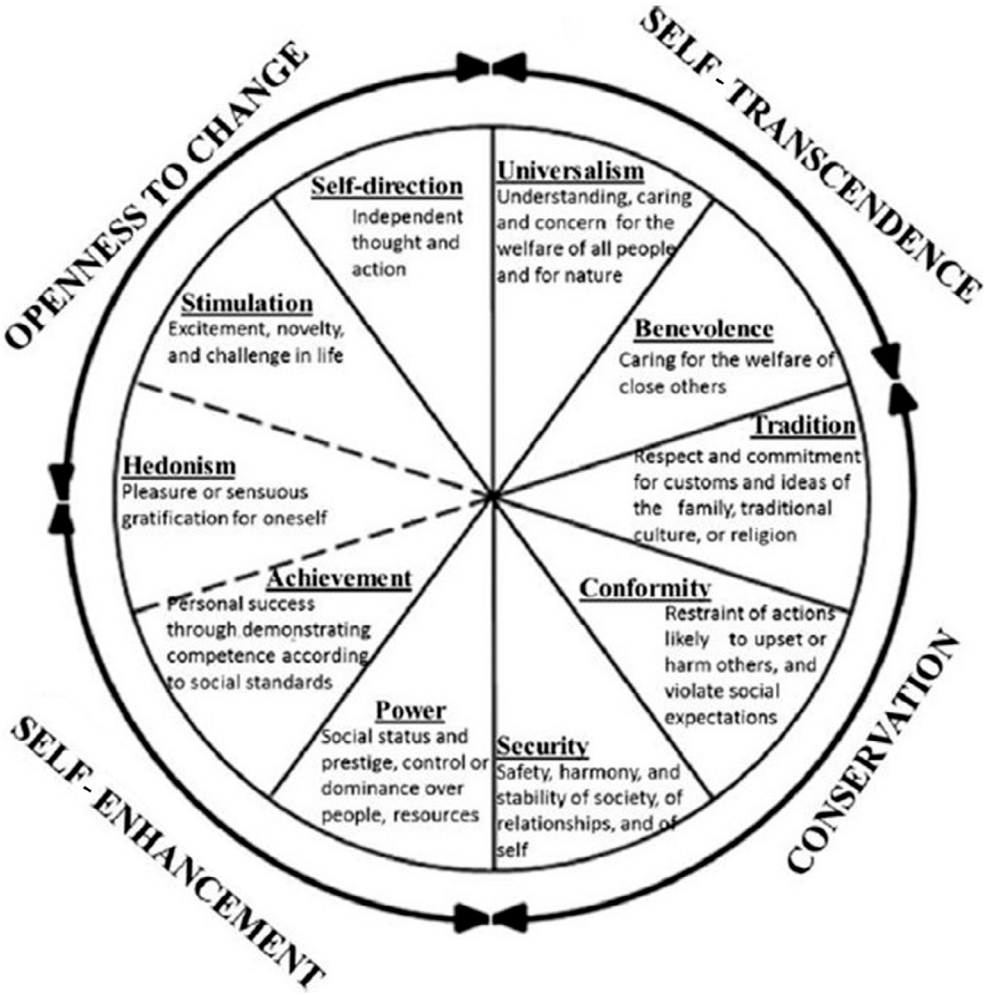

Fig. 1. Schwartz's structure of values. The theoretical structure of relations among the 10 basic values and the four higher order values is shown. (Adapted from Döring, Daniel, & Knafo-Noam, 2016.)

their social and moral behavior as part of their moral self. This is evident from studies that use self-report measurement tools to examine children's moral behavior (e.g., Kochanska, 2002; Krettenauer, Campbell, & Hertz, 2013).

Because values are global trans-situational goals, a second ability children should have is to generalize their distinct desires across different contexts. By 5–7 years of age, children begin to display a rudimentary ability to inter-coordinate concepts related to the self that have been previously compartmentalized, for example, to report on being good at both running and jumping as related abilities (Harter, 2001; Harter, 2006). Children may be able to do the same in the realm of preferences and desires (e.g., to value achievement if they highly care about both winning contests and having good grades) and, by that, to form at least a simple representation of the global abstract motivations that guide their actions across contexts.

Based on these theoretical considerations and empirical findings, our first hypothesis was that *starting from 5 years of age, children would show a meaningful conception of values*.

The relation between children's values and behavior

One of the functions of values is to guide behavior (Bardi & Schwartz, 2003; Schwartz, 2012). Numerous studies of correlational and experimental designs revealed that adults' values predict behaviors such as parenting and political engagement (for a review, see Roccas & Sagiv, 2010). Similarly, values during adolescence were linked to behavior in theoretically meaningful ways. For example, adolescents' self-enhancement and openness to change values were related to antisocial behavior (Bacchini, Affuso, & Aquilar, 2015; Benish-Weisman, 2015; Knafo, Daniel, & Khoury-Kassabri, 2008; Paciello et al., 2017; Rosnati, Barni, & Uglia, 2014). In one study, 10- to 12-year-old pre-adolescents' values and their self-reported value-expressive behaviors associated cross-sectionally and longitudinally, suggesting that values and behaviors reciprocally affect one another (Vecchione, Döring, Alessandri, Marsicano, & Bardi, 2016).

Here we focus on sharing, a kind of prosocial behavior (defined as a voluntary behavior meant to benefit others; Eisenberg, Spinrad, & Knafo-Noam, 2015). The value dimension most relevant to prosocial behavior contrasts self-transcendence with self-enhancement (Schwartz, 2010). Prosocial behaviors express self-transcendence values, reflecting the motivation to benefit others out of concern for their welfare (Bardi & Schwartz, 2003). In contrast, prosocial behaviors are opposed to self-enhancement values, reflecting the motivation to promote self-interests and achieve competitive advantage, which is often achieved at the expense of others (Schwartz, 2010). Indeed, prosocial behaviors such as acts of kindness and sharing resources were related to valuing self-transcendence over self-enhancement (e.g., Daniel, Bilgin, Brezina, Strohmeier, & Vainre, 2015; Sanderson & McQuilkin, in press), benevolence (Sagiv, Sverdlik, & Schwarz, 2011), and universalism (Lönnqvist, Verkasalo, Wichardt, & Walkowitz, 2013). Other prosocial behaviors such as taking care of nature and volunteering for marginalized groups were also related to universalism (Sanderson & McQuilkin, in press; Schwartz, 2007).

Although we are not aware of published studies that examined the relation between young children's values and prosocial behavior, research on children's cognitive development may suggest that this relation should be evident from the moment when values are formed. When children begin to build their self-concept, they first base it on actual concrete characteristics, including specific actions (Harter, 2006; see Chernyak & Kushnir, 2013, for a related argument regarding self-perception of prosociality). Children perform prosocial behaviors starting from the second year of life (Brownell, 2013; Paulus, 2014) and encounter opportunities to act in a prosocial or selfish manner on a daily basis. As noted earlier, 4- and 5-year-olds can report on their moral and prosocial behaviors (Kochanska, 2002), which means that to some level they are aware of their moral and prosocial tendencies. Consequently, by that period children should already be able to integrate their prosocial actions into their self-concept. This integration of moral concepts into the self can be seen as an early indication of values. Moreover, it has been theoretically proposed (Bardi & Goodwin, 2011) and empirically shown (Benish-Weisman, 2015; Vecchione et al., 2016) that it is not only values that change behaviors but also behaviors that lead to change in values. Thus, prosocial behaviors, which emerge before values, can influence young children's value formation process.

The idea that children's values relate to their behaviors is also supported by studies showing that children understand the relations between behaviors and internal states or characteristics. Children as young as 4 years associated between desires and actions, both of themselves and of others (Browne & Woolley, 2004; Kushnir, Gopnik, Chernyak, Seiver, & Wellman, 2015) and predicted others' behaviors and emotions from their traits (e.g., Heyman & Gelman, 2000; Liu, Gelman, & Wellman, 2007; Yuill & Pearson, 1998; for a review, see Meltzoff & Gopnik, 2013). When allowed to answer freely, children explained others' behaviors in terms of stable and innate characteristics, a tendency that increased from 4 to 6 years of age (Seiver, Gopnik, & Goodman, 2013). This also suggests that although young children might not fully grasp the notion of personal consistency, as indicated by their difficulty in predicting others' behaviors from previous behaviors (e.g., Kalish, 2002; Kalish & Shiverick, 2004; Liu et al., 2007; Rholes & Ruble, 1984), they hold at least an implicit sense that abilities and traits are inherently stable. This implicit sense should be sufficient for values–behavior association by that age.

Based on Schwartz's theory and the empirical literature on adults and adolescents, our second hypothesis was that *sharing would be positively associated with preferring self-transcendence values over self-enhancement values.* We did not expect a specific relation between sharing and values on the openness to change–conservation dimension.

The relation between values and behaviors depends on the specific context in which it occurs (Bardi & Schwartz, 2003). One way in which social behaviors differ from one another is in how strongly they are influenced by social norms. In general, when there is a strong social pressure to act in a particular way, people often behave in line with that norm irrespective of their value priorities (Bardi & Schwartz, 2003; Sanderson & McQuilkin, in press). For example, in schools with low exposure to violence (seen as a strong norm against violence), adolescents' values were less predictive of their aggressive behavior than it was in schools with moderate to high exposure to violence (Bacchini et al., 2015; Knafo et al., 2008). Similarly, in the face of a group consensus regarding resource sharing strategy, adults based their decision on that strategy regardless of their personal motivations. In the absence of this consensus, individuals' personal motivations predicted their behavior (van Dijk, de Kwaadsteniet, & De Cremer, 2009).

Accordingly, in situations where it is less acceptable to behave selfishly, the relation between values and prosocial behavior should be weaker. Whereas it makes sense to keep resources to oneself in *costly sharing* situations, it is less suitable to prevent someone from obtaining resources when such a decision does not bear personal cost, that is, in *non-costly giving* situations. Toddlers and young children are strongly guided by social norms. They learn implicit and explicit normative rules quickly by observing and imitating others, understand that the same behavior (e.g., sharing) is subjected to different norms depending on context, and can differentiate between social norms and personal preferences (Rakoczy & Schmidt, 2013). For example, 3-year-olds shared resources more often when sharing had no cost than when it did (Fehr, Bernhard, & Rockenbach, 2008; Paulus & Moore, 2014) and expected others to share more when sharing had no cost (Paulus & Moore, 2014). This suggests that by a very young age, children understand that it is more normative to share in non-costly situations. By 5 years of age, children's own sharing behavior was associated with their expectations as to how other children would share, indicating that children's perceptions of norms and social reciprocity are integrated into their own individual pattern of sharing behavior (Paulus & Moore, 2014). Therefore, our third hypothesis was that *values would be more strongly related to costly sharing than to non-costly giving.*

The current study

Based on the literature, we expected to show that children's values relate to their sharing behaviors, but more so when the norms of the situation allow it. Specifically, we expected that children would display a meaningful conception of values (Hypothesis 1), values of self-transcendence versus self-enhancement would relate to children's sharing (Hypothesis 2), and this relation would vary by the context of sharing being costly or non-costly (Hypothesis 3). We focused on sharing with anonymous others rather than with siblings or peers to have better control of the context in which the sharing occurs and to reduce the influence of specific relationships on children's decisions.

Many prosocial behaviors increase with age during childhood (Eisenberg et al., 2015). Regarding the role of age in children's values, there is a need for more research. Döring et al. (2015) found weak positive relations between age and self-transcendence and openness to change and found weak negative relations between age and self-enhancement and conservation values. Cieciuch et al. (2016) showed a more complex nonlinear relation between age and values. Age may also moderate the relation between values and behavior. For instance, as children grow older, their conception of values might consolidate and become more predictive of their value-expressive behaviors. Given the scarcity of research, we did not have a firm hypothesis for the developmental course of the hypothesized relations. Nevertheless, because our sample included all of the middle childhood and pre-adolescence period (5–12 years), we were able to examine whether the relations between values and sharing varied with age.

Consistent sex differences were found in both values and prosocial behavior. Women were shown to value self-transcendence more than men, and men were shown to attribute more importance to

self-enhancement and openness to change, with small effect sizes (Schwartz & Rubel, 2005). The sex differences in self-transcendence and self-enhancement values were replicated in children (Döring et al., 2015; Knafo & Spinath, 2011; Uzefovsky et al., 2016). In addition, girls were found to behave more prosocially than boys (Edwards et al., 2015; Eisenberg, Fabes, & Spinrad, 2006). Sex may also moderate the relation between values and behavior. For example, a few studies found a relation between adolescents' values and aggression only for boys (Benish-Weisman, Daniel, & Knafo-Noam, in press). Therefore, we examined sex differences in the relation between values and sharing.

Method

Participants and procedure

Children (N = 243) from 169 families (age range = 5–12 years, 44% girls) were invited to participate in a short experiment in an "open lab" as part of a visit to the Bloomfield Science Museum of Jerusalem. All children performed a task that examined values preferences, and the majority of children (n = 150) performed an additional task that examined sharing behaviors. The two tasks were guided by two different experimenters and were conducted in the children's first language (95.5% Hebrew and 4.5% English). During this time, the parents or other caretakers filled out questionnaires regarding demographic details. The majority of children (91.6%) had at least one parent with an academic degree. Informed consent was obtained for each child by his or her parent or adult relative caretaker. The research protocol was approved by the Hebrew University institutional review board.

Measures

Value preferences

Children completed the Picture-Based Value Survey for Children (Döring et al., 2010), which was specifically designed to study values during childhood and has been applied in studies on children's values before (e.g., Cieciuch et al., 2016; Döring et al., 2015; Uzefovsky et al., 2016). The PBVS-C is a Q-sort questionnaire in which participants sort the items according to level of importance. This method is compatible with the view of values as inherently comparative. Moreover, because the ranking procedure forces participants to create variability in responses, the distribution of answers is less susceptible to individual differences in response style (Ozer, 1993; for a review, see Sagiv & Roccas, in press). Importantly, measures of adults' ranking and rating values produced similar results and comparable reliability and validity (Rankin & Grube, 1980). The PBVS-C showed good predictive validity too, as indicated by correlations of values with measures such as gender and religion (Uzefovsky et al., 2016).

Children were asked to think of their goals and the things that are important to them. Then they were shown 10 cartoon-like pictures in which a protagonist performs an action relevant to one of the values from Schwartz's circle. For example, the action "to help others," which is relevant to the value "benevolence," was accompanied by a cartoon of the protagonist helping another to get up from the floor, and the action "to do exciting things," which represents the value "stimulation," was accompanied by a cartoon of the protagonist parachuting. Children were requested to sort the items according to five levels of importance. The PBVS-C uses only 5 graded alternatives instead of 10 to reduce the complexity of the task (Döring et al., 2010) as well as the time it takes to complete it (Ozer, 1993). Here 1 item was ranked as *very important* and 1 as *not important at all.* Then 2 items were ranked as *important* and 2 as *not important.* The remaining 4 items were ranked in the *intermediate* level. Thus, each item received a score on a scale of 1 (*not important at all*) to 5 (*very important*) (see Fig. 2 for a graphic presentation of the values ranking scheme as was displayed to the children). This procedure was repeated with 10 different pictures that represent the same values. The original German labels of the items were adapted to Hebrew following a translation–back-translation procedure (Brislin, 1980). As part of this process, a few labels were a bit changed to fit the language and culture of Israel. For example, the item "thinking of god" was changed to "praying to god," and the item "learning history" was changed to "learning about things that happened a long time ago." For a more detailed

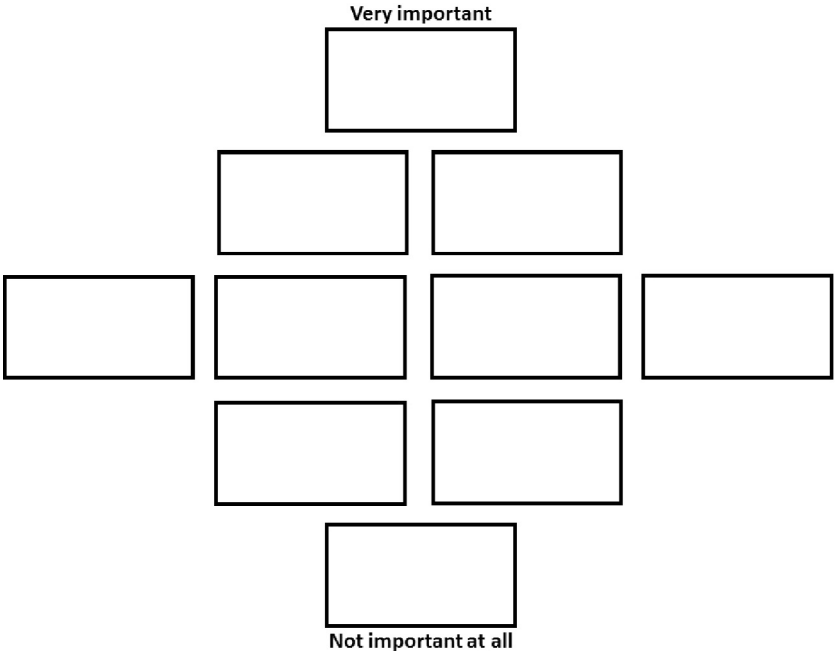

Fig. 2. A graphic presentation of the PBVS-C values ranking scheme. Children were requested to rank one item representing a value as *very important* and one as *not important at all*. Then they were requested to rank two items as *important* and two as *not important*. The remaining four items were ranked in the *intermediate* level.

description of the tool and the procedure, as well as the minor adaptations that were made in the tool to fit it to the lives of children in Israel, see Uzefovsky et al. (2016).

One new change was introduced for the current study. Whereas the original scale required children to rank 20 cartoons, we split them into two lists of 10 to reduce cognitive load on the children. The correlations between the value scores in the two sets were moderate (self-transcendence vs. self-enhancement, $r = .42$, $p < .001$; openness to change vs. conservation, $r = .41$, $p < .001$). At the beginning of the data collection period, the science museum management had limited the length of the experiments. For that reason, 40 children (20 5-year-olds and 20 6- and 7-year-olds) ranked only the first set of cartoons. Preliminary analyses showed that dropping data from these children did not largely change results. Because there was no theoretical difference between the two sets, we decided to conduct the analyses with the full data (10 items in some cases, but the aggregated mean scores of the 20 items in most cases).

Sharing behaviors

Sharing behaviors were examined with a resource allocation task inspired by a task from Fehr et al. (2008). Children were asked to decide how to divide chocolate coins between themselves and another anonymous child of the same sex. To engage children's attention and to make the situation more concrete and persuading, children were shown a picture of children at school and were told that the child could be any one of the children in the picture. Each participant child was presented with two paper sheets colored half in blue and half in yellow. In each trial, the experimenter put chocolate coins on the two sheets. Chocolate coins placed on the blue part represented the player's share, and chocolate coins placed on the yellow part represented the share of the anonymous child. In each trial, there was one sheet representing a prosocial option, whereas the other sheet represented a selfish option. The child was asked to choose which sheet he or she preferred. After each decision, the female experimenter

Table 1
Number and configuration of chocolate coins presented to children in each social dilemma in the sharing task.

	Prosocial option		Selfish option	
	Self	Other	Self	Other
Costly dilemmas	1	1	2	0
	0	1	1	0
	2	2	3	0
	0	2	1	0
Non-costly dilemmas	1	1	1	0
	0	1	0	0

gave the child the chocolate coins in the blue half of the chosen sheet and told the child that she would give the chocolate coins in the yellow half to the anonymous child.

Table 1 describes the six social dilemmas that were presented to the children. Whether the prosocial and selfish options were on the right or left in each dilemma and the dilemmas' order were counterbalanced. In four dilemmas, choosing the prosocial option resulted in losing one chocolate coin. The child's choices (0 = selfish, 1 = prosocial) were summed into one variable named *costly sharing,* that is, the proportion of costly prosocial choices (ranging from 0 [no prosocial choice] to 1 [four of four prosocial choices]). In the other two dilemmas, choosing the prosocial option did not affect the child's resources. The child's choices in these dilemmas were summed into another variable named *non-costly giving,* that is, the proportion of non-costly prosocial choices (ranging from 0 [no prosocial choice] to 1 [two of two prosocial choices]).

Results

Value structure in different age groups

To examine the patterns of similarities and differences between values across development, we performed a confirmatory multi-dimensional scaling (MDS; Borg & Groenen, 2005). To our knowledge, MDS had been employed in all the studies on children's values until now (e.g., Cieciuch et al., 2016; Collins et al., 2017; Döring et al., 2015; Uzefovsky et al., 2016). The MDS represents each value as a point in a two-dimensional space, based on simultaneously considering all interrelationships among all items. The distance between each two values represents the congruence between them, so that higher proximity between values represents a higher correlation. Each item has a starting position that is based on the ideal location in Schwartz's (1992) model. This approach facilitates a theoretically grounded interpretation of the results and helps to avoid local minima (Borg & Groenen, 2005). The confirmatory MDS was performed using the PROXSCAL routine in SPSS 22. As a measure of fit for the data, we used Kruskal's Stress measure (Stress 1 or Stress I in SPSS), which measures the loss of information due to the representation of the data in a two-dimensional space (Borg & Groenen, 2005). Stress 1 ranges between 0 and 1, with lower values indicating a better fit.

To examine age-related patterns of children's value structure, we divided the sample into four age groups: 5 years (n = 60, 38% girls, mean age = 5 years 4.06 months, SD = 3.31 months), 6 and 7 years (n = 78, 45% girls, mean age = 6 years 9.42 months, SD = 6.61 months), 8 and 9 years (n = 47, 47% girls, mean age = 8 years 9.15 months, SD = 6.76 months), and 10 to 12 years (n = 58, 50% girls, mean age = 11 years 0.43 months, SD = 10.19 months). We performed MDS analyses separately for each age group.

In line with our first hypothesis, the value structures in the confirmatory MDS analyses resembled Schwartz's (1992) prototypical model in all age groups, including the 5-year-old group (Fig. 3). In all age groups, values of openness to change (stimulation and self-direction) contrasted with conservation values (security, tradition, and conformity) with two exceptions: Tradition values appeared with openness to change values at 6 and 7 years of age, and self-direction values among 8- and 9-year-olds were slightly misplaced toward self-transcendence. Similarly, values of self-enhancement (power and

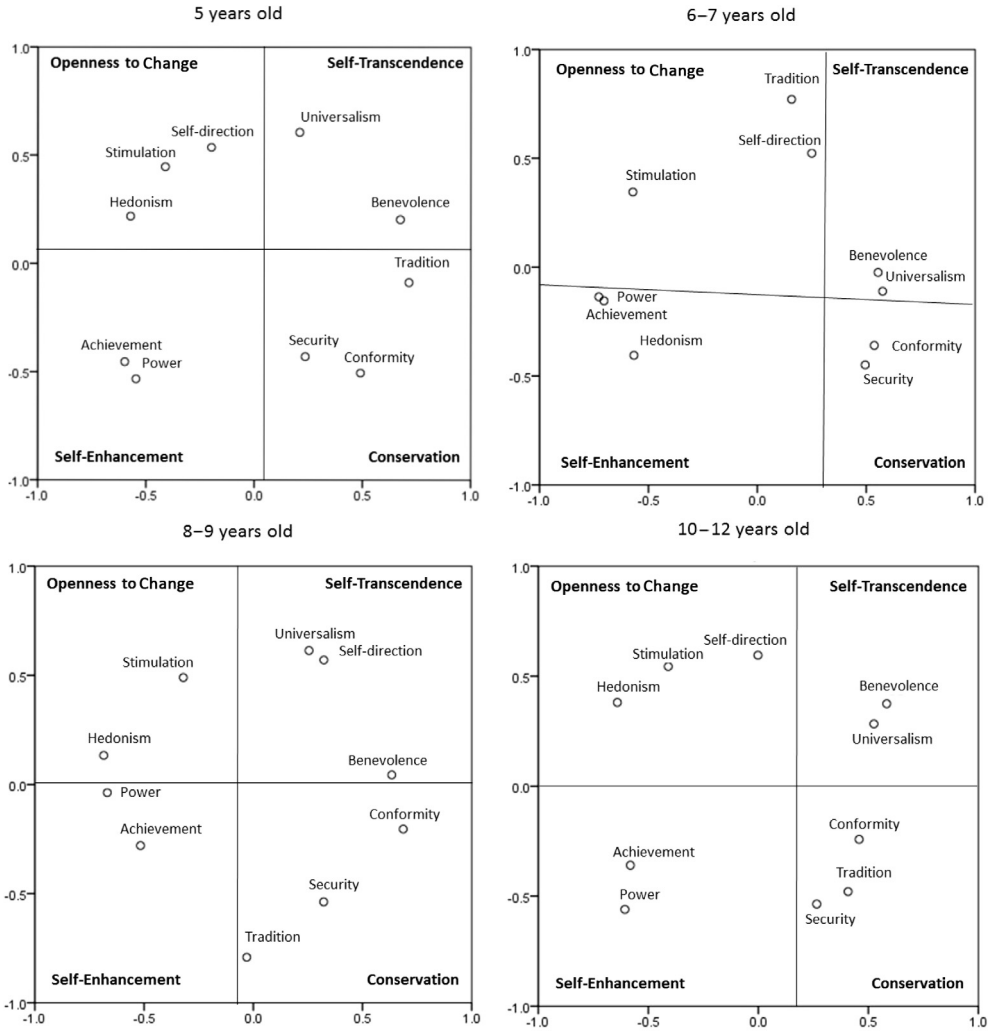

Fig. 3. Multi-Dimensional Scaling (MDS) of children's value priorities separately for each age group. Each value signifies the mean score of the two items representing it in the values ranking task.

achievement) contrasted with self-transcendence values (benevolence and universalism) at all ages. Hedonism values appeared, as theoretically expected, in either openness to change (most age groups) or self-enhancement (6- and 7-year-olds).

The Stress 1 values of the MDS in each group were compared with the Stress 1 value that would be expected for an MDS with two dimensions and 10 items performed on random data (Spence, 1979, as cited in Borg & Groenen, 2005). All Stress 1 values were lower than this value, .198 (5 years, .164; 6–7 years, .084; 8–9 years, .122; 10–12 years, .163). Deviations from the theoretical structure included the location of hedonism closer to conservation values than to openness to change values at 6 and 7 years. In addition, the location of tradition was closer to self-enhancement than to self-transcendence at 8 and 9 years. Despite these deviations, the relative positioning of values was highly similar to the one predicted by theory.

Table 2
Means and standard deviations of the study variables.

Variable	Range	Mean	*SD*
Values			
Security	1–5	3.37	0.80
Conformity	1–5	2.86	0.81
Tradition	1–5	3.01	0.91
Benevolence	1–5	3.71	0.76
Universalism	1–5	3.06	0.86
Self-direction	1–5	2.98	0.65
Stimulation	1–5	2.97	0.72
Hedonism	1–5	3.20	0.80
Achievement	1–5	2.54	0.85
Power	1–5	2.30	1.02
Higher-order values			
Self-transcendence vs. self-enhancement	1–5	3.48	0.62
Openness to change vs. conservation	1–5	2.98	0.40
Sharing behavior			
Costly sharing	0–1	.38	.35
Non-costly giving	0–1	.62	.40

Many children ($n = 134$) were siblings. To ensure that the dependence between children did not essentially influence results, an additional analysis was performed. In cases with siblings in the same age group, only one child (randomly chosen) was retained in the analysis, resulting in 222 children overall. The results were essentially unchanged.

Descriptive analyses and sex and age differences

Means and standard deviations of the study variables are presented in Table 2. Because the organization of values suited the two-dimensional structure in all age groups, and to reduce the number of examined variables, we averaged the variables benevolence, universalism, power, and achievement (last two reversed) into one variable representing the dimension of self-transcendence versus self-enhancement. Children scoring high on this variable value self-transcendence highly and value self-enhancement to a low degree. In the same manner, we averaged the variables hedonism, self-direction, stimulation, conformity, tradition, and security (last three reversed) into one variable representing the axis of openness to change versus conservation. Children scoring high on this variable value openness to change highly and value conservation to a low degree. Means and standard deviations of these variables also appear in Table 2.

Correlations between all study variables and children's age are presented in Table 3. Age correlated positively with costly sharing (see also Fig. 4) and with self-transcendence and openness to change values. A marginally significant correlation was revealed also for age and non-costly giving (Spearman $r = .15$, $p = .07$). Sex differences appear in Table 4. Girls valued self-transcendence values more than boys. No sex differences were found for openness to change versus conservation values or for sharing behaviors.

Costly sharing and non-costly giving

Fig. 4 presents the mean proportion of costly sharing and non-costly giving for each age group. As noted above, an increase in both sharing types was found across ages. As expected from the previous literature, non-costly giving was substantially more prevalent than costly sharing, $F(3, 146) = 42.80$, $p < .0001$, $\eta_p^2 = .23$. This difference did not vary significantly across ages. There was no difference in variance between the costly sharing and non-costly giving variables (Pitman's $t = 1.74$, $p = .08$).

Table 3
Bivariate correlations among the study variables.

	1	2	3	4
1. Age				
2. Self-transcendence vs. self-enhancement values	.29**			
3. Openness to change vs. conservation values	.21**	− .09		
4. Costly sharing[a]	.23**	.35**	.04	
5. Non-costly giving[a]	.15	.09	− .01	.39**

** $p < .01$, two-tailed.
[a] Spearman correlation.

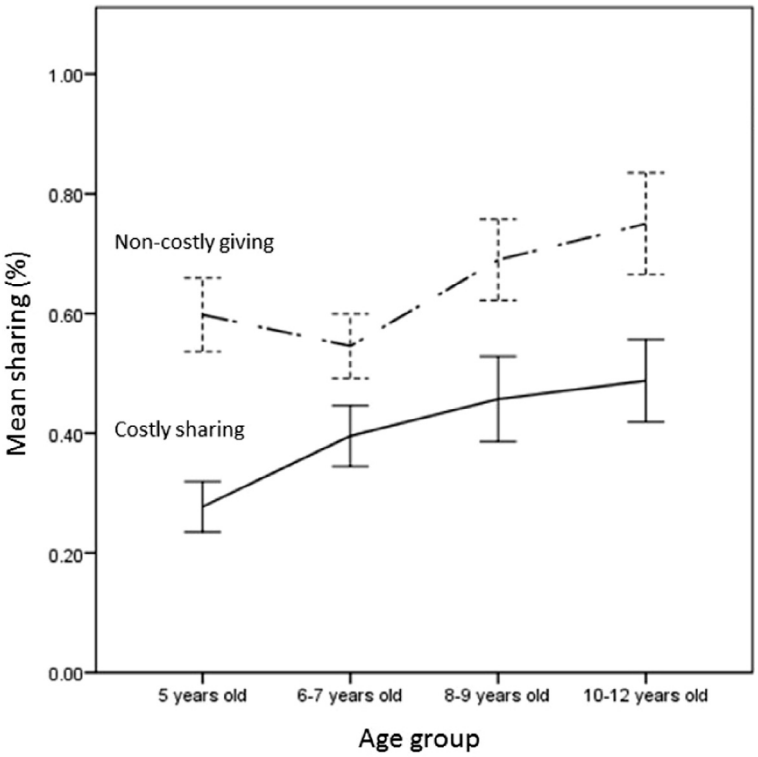

Fig. 4. Mean proportions of children's decisions to share chocolate as a function of age and dilemma (costly sharing or non-costly giving). Error bars represent the standard errors (±1 standard error).

Table 4
Differences in the study variables between boys and girls.

Variable	Mean boys (*SD*)	Mean girls (*SD*)	*t* Value	Cohen's *d*
Self-transcendence vs. self-enhancement values	3.36 (.64)	3.63 (.56)	−3.43**	−.45
Openness to change vs. conservation values	3.01 (.41)	2.96 (.40)	.91	.12
Costly sharing	.39 (.34)	.37 (.36)	.31	.05
Non-costly giving	.63 (.38)	.60 (.42)	.56	.09

** $p < .01$, two-tailed.

Values and sharing behaviors

Self-transcendence values correlated with costly sharing but not with non-costly giving, supporting our second and third hypotheses. There was no correlation between openness to change values and either sharing variable.

To examine whether values predicted children's costly sharing and non-costly giving while considering age and sex differences, we tested a set of nested models, incrementally adding key paths among the variables age and sex and the two dimensions of values as independent variables. The decision on the best-fitting model was made using chi-square difference tests with the Satorra–Bentler scaled chi-square statistic (Satorra & Bentler, 1999) (see Table 5). Analysis was conducted using the software Mplus 6.1, with maximum likelihood robust (MLR) estimation and the type = complex option to account for the dependence between siblings in the sample (Muthén & Muthén, 1998–2012). In all models, correlations between costly sharing and non-costly giving and correlations between the independent variables were estimated. We began with a model with only age and sex as predicting sharing behaviors. This model was significantly improved by adding the value variables. Entering interactions between values and age and between values and sex further improved the fit of the model. This model was chosen to be the final model, and showed excellent goodness of fit (Model 3 in Table 5).

Values and costly sharing

Costly sharing was predicted by self-transcendence versus self-enhancement values and by the interaction between openness to change versus conservation and sex (Fig. 5). Bivariate correlations conducted separately for boys and girls revealed that girls who valued openness to change gave more chocolate to the anonymous child ($r = .33$, $p < .001$), whereas there was no relation between the importance given to openness to change versus conservation and boys' costly sharing ($r = -.17$, $p = .14$). Interestingly, although age correlated with costly sharing, this relation was no longer significant when entered in the same model with children's values. Indeed, the partial correlation between age and costly sharing when controlling for self-transcendence versus self-enhancement values was not significant ($r = .10$, $p = .21$).

Values and non-costly giving

Although there was no direct relation between non-costly giving and values, non-costly giving was predicted by the interaction between self-transcendence versus self-enhancement values and children's sex and by the interaction between self-transcendence versus self-enhancement values and children's age. Bivariate correlations conducted separately for boys and girls revealed a positive correlation between boys' values of self-transcendence versus self-enhancement and non-costly giving ($r = .25$, $p = .011$), whereas in girls no such correlation was found ($r = -.07$, $p > .50$).

To clarify the interaction between age and values, we examined the correlation between self-transcendence versus self-enhancement values and non-costly giving separately for each age group. Although correlations were not significant in any of the groups, the correlation between

Table 5
Fit statistics and chi-square comparisons for all models.

	Model	*df*	*CFI*	*RMSEA*	$\chi 2$	$\Delta\chi^2$ (*df* difference)	*p*	R^2 costly sharing	R^2 non-costly giving
1	Age and sex	28	.783	.041	39.572	–	–	.061	.042
2	Values (self-transcendence vs. self-enhancement and openness to change vs. conservation) added	24	.935	.024	27.492	15.98 (4)	.003	.129	.042
3	Interactions between values and sex and between values and age added[a]	16	1.00	.00	12.450	21.88 (8)	.005	.185	.147

Note. *CFI*, comparative fit index; *RMSEA*, root mean square error of approximation.
[a] Final model based on chi-square difference tests with Satorra–Bentler chi-square statistic.

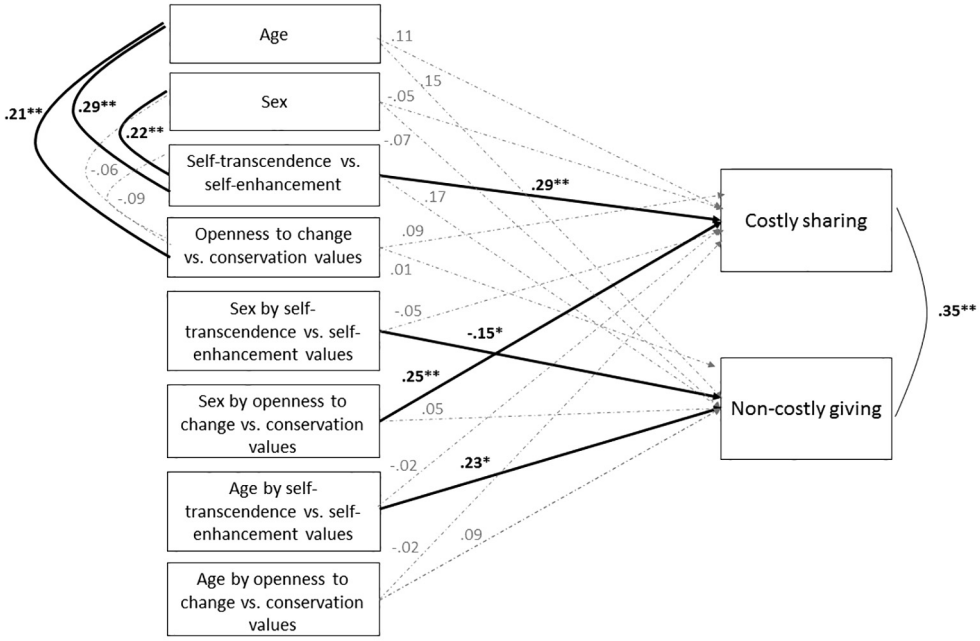

Fig. 5. Path analysis of age, sex, values, and interactions between values and age and sex as predictors of sharing behaviors. Results are provided in terms of standardized regression coefficients and correlations. $^{*}p < .05$, $^{**}p < .01$.

self-transcendence and non-costly giving increased with age (5 years, $r = -.03$, $p > .80$; 6–7 years, $r = .11$, $p > .40$; 8–9 years, $r = .22$, $p > .20$; 10–12 years, $r = .42$, $p = .095$).

Discussion

This is the first study to provide evidence for the relation between children's values and their observed behavior. Specifically, we showed that children's preferences for certain values co-vary with their decisions of whether to share (or not share) resources with another child.

Children's value structure

We found that, like adolescents and adults, children who value self-transcendence values (benevolence and universalism) valued self-enhancement (power and achievement) less and vice versa. Similarly, children who ranked openness to change values (hedonism, self-direction, and stimulation) as more important tended to rank values of conservation (security, tradition, and conformity) as less important. Values of the same global dimension, with few exceptions, were placed in the same quarter of the MDS configuration, indicating that children tended to rank them similarly. This pattern was found for all age groups, starting from the youngest (5-year-olds). Thus, our findings support previous studies (Cieciuch et al., 2011; Collins et al., 2017) showing that children meaningfully report on goals that are important to them, at least when requested to choose among a set of goals presented to them in a visual way.

In the 6- and 7-year-old group, tradition was unexpectedly closer to openness to change than conservation values. A closer examination of the item level revealed that in the younger groups the item "learning about things that happened a long time ago," which reflects the value of tradition, was related to items reflecting stimulation and self-direction (5 years: "to do exciting things," $r = .42$,

$p < .01$; 6–7 years: "to use my imagination," $r = .22$, $p = .095$). It may be that younger children perceive the idea of learning about the past as an act of curiosity rather than a way to relate to tradition.

The presence of a meaningful value structure at such an early age suggests that values are part of the core characteristics of emerging personality (Döring, Daniel, & Knafo-Noam, 2016). Future studies should investigate the relation between children's values and other characteristics such as temperament and individual differences in moral reasoning, whose early development has already been established. The early development of values might also suggest that children understand, at least implicitly, that pursuing some goals is less compatible with pursuing other goals (e.g., helping others and obtaining resources for oneself), whereas other goals can be achieved simultaneously (e.g., helping others and being like everyone). At approximately 5 years of age, children's tendency to define their self in terms of opposites and in a "black or white" manner increases (Harter, 2006). Future research should examine whether this developmental process relates to the process of constructing a compatible structure of values.

Children's values and behavior

Children's values related to their sharing behaviors, with the strongest relation found between costly sharing and favoring self-transcendence over self-enhancement. Older children tended to share more and to rank self-transcendence as more important. However, when examining the role of both age and values in costly sharing, age was no longer a meaningful predictor. This suggests that the age increase in sharing that was also found in previous studies (e.g., Fehr et al., 2008) is accompanied by increasing importance of self-transcendence values, in line with longitudinal studies showing that values and behaviors affect each other along development (Benish-Weisman, 2015; Vecchione et al., 2016). Other age-related changes, such as improvement in theory of mind, may also explain the covariation of age, values and sharing.

Unlike costly sharing, non-costly giving was not directly related to values. This is compatible with the notion that social norms, or "strong situations" as called in the values literature (Roccas & Sagiv, 2010), constrain the level to which individual differences can influence people's decisions (Bardi & Schwartz, 2003). Another possibility is that costly sharing dilemmas do carry with them a social norm of sharing, and the difference stems from the conflicting nature of these dilemmas. Costly sharing dilemmas comprise a higher temptation to act selfishly and, thus, may demand children to exert more self-control. Indeed, self-control was related to higher prosocial behavior (Eisenberg et al., 2006). In such situations, children may balance competing motivations differently and place more emphasis on self-needs even when there are norms that say otherwise. High self-transcendence values may provide children with a strong motivation to overcome the temptation and act in a prosocial manner. Future studies that disentangle between the two explanations would be highly informative.

Interesting relations between values and sharing emerged when considering sex differences. Valuing self-transcendence over self-enhancement predicted boys', but not girls', non-costly giving. It may be that boys are less subjected to the norms of prosociality than girls and, thus, can act more according to their values. Indeed, preschool caregivers encourage comforting and helping behaviors in girls more than in boys (Chick, Heilman-Houser, & Hunter, 2002). Boys may be less influenced not only by prosocial norms but also by norms in general. Thus, when presented with a conflict between rules and personal preferences regarding made-up non-existing behaviors, girls tended to predict others' motivations and behaviors according to rules, whereas boys tended to emphasize others' preferences (Kalish & Shiverick, 2004).

Another possibility is that non-costly dilemmas raise the accessibility of the competition concept and are driven by the will to have more resources compared with another child. Indeed, the only benefit one gets from choosing the non-prosocial option in non-costly giving is knowledge that the "other" is not getting resources. Boys are more competitive than girls starting from a very young age (Sutter & Rützler, 2010). Accordingly, their personal standards for behaviors in competitive situations may be stronger. When people's personal standards are strong, they may be less likely to take the general norm into account (Schwartz & Fleishman, 1978). It may be that boys prefer to act according to their personal values and not according to the general norm in competitive, non-costly giving situations.

Valuing openness to change over conservation predicted girls' costly sharing but not boys' costly sharing. Children in our study were asked to decide whether to share chocolate with an unknown child. Whether the other person is known or not may be important given that sharing resources may be driven not only by altruistic motivations but also by the motivation to interact with the person with whom we share. Girls are more inhibited and less surgent than boys (Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006) and so are less likely to approach a stranger. Openness to change values could be important in motivating them to meet the unknown child.

Age moderated the relation between children's self-transcendence versus self-enhancement values and non-costly giving. Although this relation was not significant within each group, it increased from 5 to 12 years of age, suggesting that the relations between values and behaviors are strengthened during childhood. In contrast, age did not moderate the relation between values and costly sharing. In a previous study, it was found that 5-year-olds put more emphasis on rules than on preferences when predicting others' motivations, whereas the opposite pattern was found for older children and adults (Kalish & Shiverick, 2004). Children may move during development from making decisions according to norms to relying on both norms and preferences. Therefore, age may have a stronger moderation effect on decisions in situations with strict norms.

The current study examined children's sharing with an unknown other. It is highly important to also examine the relation between values and children's sharing with a known person because such a dilemma reflects many of the decisions children are required to make in their daily lives. Indeed, in the face of costly sharing dilemmas, children shared more with known recipients than with unknown recipients (e.g., Moore, 2009). The values that drive these types of sharing may be different. For example, it could be that sharing with close people relates to benevolence, whereas sharing with unknown others relates more to universalism (Lönnqvist et al., 2013; Sanderson & McQuilkin, in press). Indeed, although we performed the analysis with the four global dimensions of values due to our sample size, we note that when examined separately, the relation between costly sharing and universalism ($r = .31$, $p < .001$) was a bit higher than that of costly sharing and benevolence ($r = .21$, $p = .01$). Studies that examine specific values and sharing with different recipients could widen our understanding of value–behavior relations.

It is important to replicate the current findings not only across behaviors and contexts but also across cultures. Because prosocial behaviors are considered value-expressive behaviors of self-transcendence (Bardi & Schwartz, 2003; Schwartz, 2010), sharing should relate to self-transcendence values across cultures, as found in a study on adults' values and helping in four countries (Daniel et al., 2015). In contrast, the relation between sharing, especially with strangers, and openness to change versus conservation values may be more culture specific. Helping strangers is less likely in conservative cultures, perhaps because helping strangers sometimes comes at the expense of in-group members (Knafo, Schwartz, & Levine, 2009). In such cultures, preferences of openness to change may have a special importance in individuals' decision to share resources. Israel is relatively average in conservatism (Knafo et al., 2009) and also very heterogeneous in terms of people's religiosity, which associates with people's conservation values (Saroglou, Delpierre, & Dernelle, 2004; Uzefovsky et al., 2016). Thus, it is difficult to ascribe our findings to any culture-specific pattern. It would be highly interesting to compare our findings with studies from cultures considered high or low in conservation.

Strengths and limitations

One of the most important strengths of this study is the use of observed measures of sharing behaviors, thereby complementing other studies that used self- or other-reported questionnaires (Lönnqvist et al., 2013). Moreover, by using observed measures of behavior, we were able to manipulate rewards and test how values related to behavior under different circumstances. Our wide range of ages also served as a major strength because it allowed us to generalize results across the period from middle childhood to pre-adolescence.

An important limitation of our study is that our sample was overly represented by families from high socioeconomic status. The large majority of children in the sample (91.6%) had at least one parent with an academic degree. In contrast, the proportion of parents to minor children with an academic

degree in the overall Jewish Israeli population is 37.9% (according to Israel's Central Bureau of Statistics, http://www.cbs.gov.il). Parents' education relates to children's values (Uzefovsky et al., 2016). Therefore, additional research with samples more diverse in parent education is needed to generalize results to other populations.

Conclusions

Children's values are an important aspect of their developing personalities that predict their actual prosocial behaviors toward others. Children's decisions of whether to share, like adults', are complex and bear with them many considerations, both situational (what is the prevalent norm in the current case?) and personal (what do their values instruct them to do?). To promote research of prosocial and normative development and our understanding of individual differences in children's behaviors, more attention should be paid to children's values.

Acknowledgments

This research was supported by a grant from the Israel Science Foundation (1670/13). The authors thank Inbal Arnon for initiating, and Limor Raviv and Tamar Johnson for coordinating, the Living Lab project, and they thank Auriane Hanhart, Yarden Meerovitch, Yasmin Shmuel, Alice Topolovsky, Adi Aharon, Shelly Goldberg, Tikva Ysashar, Orr Hercky, and Dana Katsoty for their help in collecting the data. The authors express great appreciation to all the families who participated in the study and to the Bloomfield Science Museum Jerusalem management, which supported *the Living Lab in Memory of Noam Knafo*.

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