
Developmental Trajectories of Social Justice Values in Adolescence: Relations with Sympathy and Friendship Quality

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Abstract

This study examined developmental trajectories of social justice values (SJV) in a representative sample of Swiss adolescents (N = 1258) at 15 (Time 1), 18 (Time 2), and 21 years of age (Time 3). SJV and friendship quality were measured via self-reports. Sympathy was assessed via self- and mother-reports. Latent class growth analysis revealed three developmental trajectories of SJV: high-stable (80 percent), moderate-decreasing (17 percent), and low-increasing (3 percent). Adolescents with low levels of self- and mother-reported sympathy were more likely to be members of the low-increasing than the high-stable or moderate decreasing trajectory groups. Adolescents who reported low levels of sympathy and friendship quality at 15 years of age were more likely to be members of the moderate-decreasing trajectory group than the high-stable trajectory group. Results are discussed with respect to the potential significance of sympathy and friendship quality for understanding the development of SJV during adolescence.

Keywords: social justice values; sympathy; friendship quality; longitudinal study; latent class growth analysis

Introduction

Social justice values (SJV) pose a special challenge in adolescent development. On the one hand, SJV are moral values, and define the individual's role within the

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social world (in contrast, e.g., to values of protecting nature) (Schwartz et al., 2012). As such, SJV are likely founded on moral principles that develop since childhood (Smetana, 2006). On the other hand, SJV are abstract, and describe principles of justice toward the entire social group, and not only close others (in contrast, e.g., to benevolence values) (Schwartz, 1992). Therefore, these values are likely to only be fully differentiated and understood by adolescence.

SJV development is important because values are believed to bridge the judgment-behavior gap by promoting the use of moral judgement to induce moral behavior (Benish-Weisman & McDonalds, in press; Hardy & Carlo, 2011; Vecchione, Doing, Marsicano, Alessandri, & Bardi, in press). When SJV are important to the self, they have been found to reduce prejudice and enhance tolerance across ages (Davidov, Meuleman, Billiet, & Schmidt, 2008; Killen & Smetana, 2010). For these reasons, we decided to study mean-levels and intraindividual trajectories of SJV, as well as their correlates, in adolescence. Developmental scientists have argued that moral emotions, such as sympathy, are childhood antecedents of SJV (Döring, Daniel, & Knafo-Noam, in press; Krettenauer, 2011; see Daniel, Dys, Buchmann, & Malti, 2014), and previous research has confirmed these relations concurrently (Myry, Juuvarvi, & Pessa, 2010; Silfver, Helkama, Lönnqvist, & Verkasalo, 2008). In addition, previous work has shown that sympathy in middle childhood predicts the importance of SJV at 12 years of age (Daniel et al., 2014). At the same time, it has been suggested that peer and friendship relationships play an important role in moral development because of their egalitarian qualities (Piaget, 1977/1995). In line with this notion, friendship quality has been positively associated with moral emotions and moral reasoning (Malti & Buchmann, 2010; McDonald, Malti, Killen, & Rubin, 2014). However, few if any studies have examined how sympathy and friendship quality are related to SJV longitudinally. Our study aimed to fill this research gap, in part, by examining the developmental trajectories of SJV from middle adolescence to early adulthood, as well as the relations between sympathy and friendship quality with these trajectories. We utilized a large scale, nationally representative sample from Switzerland to investigate our research questions.

Developmental Trajectories of SJV

SJV are defined as beliefs evaluating the desirable end state of justice in the social treatment of individuals (Killen & Smetana, 2010; Marini, 2000). The importance adolescents assign to SJV reflects their regard for social justice, and their commitment to pursuing it. Within the refined Schwartz value theory, SJV are a central component of universalism values (alongside other components, i.e., protecting nature and tolerance) (Schwartz et al., 2012). Moreover, universalism values were previously associated with a moral orientation of justice (Helkama, 2011). Research indicates that adults typically value universalism, and specifically SJV, highly when compared to other values, across cultures (Schwartz et al., 2012). Similarly, children in middle childhood were found to value values of care for others, such as universalism, more than other values (Cieciuch, Davidov, & Algesheimer, in press).

The importance of SJV is founded on principles of fair and just treatment of others. These principles are acquired through processes of socialization as well as individual exploration and reasoning (Smetana, 2006). By middle adolescence, individuals are likely to hold a mostly internalized understanding of moral principles

within the interpersonal domain. Developments in social justice importance are likely to take the form of further differentiation and integration (Nucci, 2001). The little existing cross-sectional research that has been conducted supports a model of mean-level stability in SJV importance during adolescence (Krettenauer, 2011). Schwartz (2005), for example, showed that the importance of universalism values (including SJV) was comparable across ages in a sample of 10- to 17-year-olds. Similarly, large, representative samples of adolescents from 30 countries across Europe showed no difference in the importance of universalism values between ages 15–17 and 18–21 (Schwartz, 2012). Lastly, no age differences in the importance of moral values were found between 12-, 14-, 16-, and 19-year-olds in a Canadian sample. A subsample of these adolescents showed no change in value importance over 1 year (Krettenauer, 2011). One longitudinal study found a decrease in values of care for others, such as SJV, in middle childhood, however, this decline was followed by stability in early adolescence (Ciecuch et al., in press).

At the same time, stability in mean importance of SJV across adolescence may mask intraindividual developments in value importance, and differences between individuals in these development patterns. The development of SJV importance during adolescence may reflect a process of crystallization of individual differences; while many adolescents are likely to show stability in value importance, others may experience gains or losses (Krettenauer, 2011). Increases and decreases in SJV importance may reflect changes at the individual level, such as the ones derived by changes in circumstances (Bardi, Buchanan, Goodwin, Slabu, & Robinson, 2014; Döring et al., in press). However, they are more likely to be reflective of developmental processes, in which adolescents explore their identity, and the society in which they live (Meeus, van de Schoot, Keijsers, Schwartz, & Branje, 2010).

Although intraindividual development and stability in SJV during adolescence have not been previously studied, such patterns have been found in other aspects of moral development. For example, research has shown that positive youth development (e.g., caring, confidence) developed in four trajectories from early to middle adolescence, including high-stable, medium high-stable, increasing and decreasing trajectories (Zimmerman, Phelps, & Lerner, 2008). Three to four stable and declining developmental trajectories of prosocial behavior were found between early and mid-adolescence (Nantel-Vivier et al., 2009), and high, medium, and low developmental trajectories of prosocial behavior were found between early and late-adolescence (Flynn, Ehrenreich, Beron, & Underwood, 2015). Lastly, research has provided evidence for high-stable, increasing, and low-stable/decreasing trajectories of moral emotions and cognitions across middle childhood (Malti, Eisenberg, Kim, & Buchmann, 2013; see Malti & Ongley, 2014). The aforementioned aspects of moral development are conceptually and empirically associated with SJV (Schwartz, 2010; Silfver et al., 2008). We, therefore, expected to find differential trajectories of SJV importance between middle adolescence and early adulthood.

The Role of Sympathy and Friendship Quality in Trajectories of SJV

In the process of moral identity formation, values develop on the basis of individual and socialization antecedents (Daniel et al., 2014; Malti & Buchmann, 2010). Specifically, we hypothesize that intra-individual value development will be associated with other-oriented feelings of sympathy, as well as close friendships.

Sympathy is an emotional response of sorrow or concern for someone else and requires the apprehension or comprehension of another's emotional state or condition. Unlike empathy, sympathy is not necessarily an identical emotional response to what the other person is feeling or is expected to feel. For that reason, sympathy is not likely to lead to personal distress, a negative affective reaction that is self-focused (Eisenberg, Spinrad, & Morris, 2014). We hypothesized sympathy to be an important motive for holding and abiding by justice principles because adolescents who are more sensitive to the negative effects of injustices on their victims may be more likely to judge these injustices as wrong, and as a result increasingly value justice. For example, an adolescent's sympathy for a person in need may lead to resentment toward the social institution they deem responsible for not meeting this need (Hoffman, 2000). In support of this notion, sympathy has been shown to be concurrently associated with SJV in both adolescence and early adulthood (Silfver et al., 2008). Moreover, sympathy in middle childhood has been shown to predict the importance of SJV in early adolescence (Daniel et al., 2014).

We also investigated the socializing role of perceived quality of friendship with a best friend on trajectories of SJV. According to the social constructivist perspective, individuals learn abstract moral values in the context of cooperative, close relationships (Müller & Carpendale, 2000). Friendship relationships, characterized by egalitarian roles, are especially important for moral development, as they offer opportunities for social perspective-taking, discursive exchanges, negotiations, and support (Keller, 1996; Piaget, 1977/1995). Consequently, early adolescents who held a mutual high quality friendship were concurrently more likely to use moral reasoning in their discussion of social and moral dilemmas (McDonald et al., 2014). The qualities of close, trusting relationships may also be related to positive expectations related to interpersonal connectedness, which may include concern for others (Rotenberg, McDonald, & King, 2004). The warmth and support provided by high quality friendship relationships has been found to concurrently foster the motivation to act fairly and morally in a sample of 21-year old Swiss young adults (Malti & Buchmann, 2010). Thus, close friendships may provide a milieu which enables adolescents to regularly and concretely apply their other-orientation in a manner that they find satisfying (Carlo, Randall, Rotenberg, & Armenta, 2010; Rubin, Malti, & McDonald, 2012), ultimately facilitating the generalization of their concern for others from those they know to all individuals (Daniel et al., 2014; Wray-Lake & Syvertsen, 2011).

Taken together, these studies provide support for a link between sympathy and friendship quality with SJV across adolescence. However, these studies have been primarily concurrent and have not examined the relations between sympathy and friendship quality with SJV trajectories, which is noteworthy because conceptually they are deemed essential for the development of values (Lapsley & Narvaez, 2004).

The Current Study

In summary, the aims of this study were twofold: first, we aimed to investigate trajectories of SJV from 15 to 21 years of age. In line with previous cross-sectional research (Schwartz, 2012), we hypothesized that adolescents will show no mean-level age-related trends in SJV. Establishing this mean-level stability in a large, representative, longitudinal sample would extend previous findings. We also extended previous research by using a person-centered approach, which could identify patterns of development that were previously masked by aggregating across individuals

(Laursen & Hoff, 2006). We expected that individual differences will be found in the pattern of development (Krettenauer, 2011), forming three developmental trajectories. Based on studies showing stability in SJV importance across time (Schwartz, 2012), we hypothesized that these trajectories will include a large high-stable trajectory group. At the same time, because moral emotions, cognitions, and behaviors, which are conceptually and empirically associated with SJV (Schwartz, 2010; Silfver et al., 2008), were found to develop intra-individually over time (Flynn et al., 2015; Malti et al., 2013), we hypothesized that smaller increasing and decreasing trajectory groups will be found.

Second, we aimed at examining the role of sympathy and friendship quality at 15 years of age in trajectories of SJV. We assumed that both high levels of sympathy and friendship quality would be associated with a high-stable trajectory group, or an increasing trajectory group. In light of previous findings indicating that sympathy and friendship quality are concurrently associated with justice values (Malti & Buchmann, 2010; Silfver et al., 2008), we also hypothesized that low sympathy and low friendship quality would be associated with a trajectory group with low initial or decreasing levels of SJV.

Previous studies revealed that universalism values, including SJV, are typically more valued by females than males (Schwartz & Rubel-Lifschitz, 2009; Uzefovsky, Döring, & Knafo, in press). Moreover, sympathy and high friendship quality are more prevalent among girls than boys in adolescence (Malti & Buchmann, 2010; Daniel et al., 2014). We, therefore, hypothesized that girls would report higher levels of sympathy, friendship quality and SJV, but would not necessarily show different developmental trends than boys. Also, since socioeconomic status (SES) has been associated with higher levels of adolescents' moral emotions and SJV (e.g., Eisenberg, Zhou, & Koller, 2001; Uzefovsky et al., in press), we controlled for SES at T1 and sex in all multivariate analyses.

Method

The data were taken from the first three waves of the Swiss Survey of Children and Youth, including representative samples of three age cohorts (6, 15, and 21 years at the first time point) in the German- and French-speaking parts of Switzerland. The present study is based on the data of the 15-year olds, who were reassessed at ages 18 and 21.

Participants

The sample was drawn from the population by a two-stage process in which 131 communities (divided by community type and size) were first selected. Using information provided by the official community register, residents were then randomly sampled. The response rate was 63 percent (i.e., based on a number of 1997 initially selected addresses). The final sample consisted of 1258 adolescents (683 girls) with an average age of 15.30 years ($SD = .21$) at the first assessment (T1). The primary caregiver (89 percent mothers, henceforth termed 'mothers') of 1056 participants participated at this assessment as well. At the second assessment (T2), 952 (76 percent) adolescents participated (M age = 18.49, $SD = .22$), while 814 (65 percent) adolescents (M age = 21.39, $SD = .22$) participated at the third assessment (T3).

We analyzed sample attrition in terms of demographic variables (i.e., sex, SES) and primary study variables (i.e., SJV, sympathy, friendship quality). We contrasted adolescents of the T1 sample who participated at T3 ($n = 813$) with the adolescents who did not participate at T3 ($n = 445$). In line with previous samples, (e.g., Carlo, Mestre, Sampler, Tur, & Armenta, 2011), the T3 non-responders had lower levels of SES than the T3 responders $t(1148) = -2.98, p < .01$, Cohen's $d = .18$. In addition, the mothers reported that the T3 non-responders had lower levels of sympathy than the T3 responders $t(1047) = -2.98, p < .01$, Cohen's $d = .19$.

Procedure

In all assessments (in spring 2006, spring 2009, and spring 2012), the adolescents were individually interviewed in a quiet room at their home using a computer-assisted personal interview (CAPI) for about 60 min regarding their social and moral development and socialization conditions. At T1, mothers completed a questionnaire regarding their adolescent's social and moral development, returned by mail. Both the participant and the mother supplied written informed consent for participation. The interviews were conducted by 42 interviewers at T1, 41 at T2, and 37 at T3, recruited from a professional research institute specializing in social science interviews. They had been trained extensively by the research team on interview techniques.

Measures

All of the measures were translated from German to French by bilingual native speakers and then back-translated to correct ambiguous meanings. The adolescents were interviewed in their native language. A pilot study was conducted with 236 15-year-old adolescents to ensure the adequacy of the interview techniques and to test the validity of the vignettes and other items.

Social Justice Values. Adolescents' SJV were reported using a three-item scale taken from the German Youth Survey (DJI). The DJI is a representative, large-scale survey; the SJV scale has shown to be reliable and valid in the DJI (Gille, Sardei-Biermann, Gaiser, & de Rijke, 2006) and our pilot study. The scale asks how important it is to 'interact with others in a fair way', 'treat all humans equally', and 'minimize inequalities between humans'. Responses were given on a 10-point Likert scale, ranging from *not important at all* to *extremely important*. Mean scale scores were computed, with higher scores indicating greater importance of SJV. Internal consistency was derived from CFA model parameters, using Hancock and Mueller's (2001) coefficient H . The coefficient H for the value scale was .68 at T1, .77 at T2, and .77 at T3. We compared a model in which paths were constrained to equality in the three time points to a model in which paths varied freely. The models did not differ significantly $\chi^2(6) = 11.47, p = .07$, indicating invariance in structure across time. We correlated SJV with parent- and teacher-reported prosocial behavior at T1. The correlations within time and across time were positive and significant, ranging between $r = .09$ and $r = .15$, all $ps < .01$, indicating that the scale was valid.

Sympathy. At T1, adolescents' sympathy was assessed via self- and mother-reports. The adolescents' scale consisted of five items from Zhou, Valiente, and Eisenberg (2003). A sample item was 'When I see another child who is hurt or upset, I feel

sorry for him or her'. Items were rated using a 6-point scale ranging from *not at all like me* to *very much like me*. The coefficient H for the self-reported sympathy scale was .81.

In addition, at T1, the mothers rated their children's sympathy on three items from Zhou et al. (2003). A sample item was 'My child usually feels sorry for other adolescents who are being teased'. Items were rated using a 6-point scale ranging from *not at all like my child* to *very much like my child*. The coefficient H for the mother-reported sympathy scale was .73.

Perceived Quality of Friendship. Friendship quality was measured using revised versions of four items from Parker and Asher (1993) (see Malti & Buchmann, 2010). Good relationships were characterized as involving help and intimacy. We included two items from the help subscale (e.g., 'My friend and I trust each other's advice') and two items from the intimate exchange subscale (e.g., 'My friend and I tell each other private things'). The questions were asked only if the participant had a best friend (>99 percent did). The items were rated on a 6-point scale ranging from *never* to *always*. The coefficient H for the friendship quality scale was .81.

Socioeconomic Status. The SES of participants' families was measured at T1 using the Socio-Economic Index of Occupational Status (ISEI). This is an international index of occupational prestige that was constructed in order to maximize the role of occupational prestige in mediating the association between education and income (Ganzeboom, De Graaf, & Treiman, 1992). The occupations were coded based on mother-reported information on current or last profession of both caregivers. The mean SES score in the sample was 52.80 ($SD = 15.78$), and the scores ranged between 16 and 88.

Treatment of Missing Data

The percentage of missing data due to attrition was 24 percent at T2 and 35 percent at T3. Little's MCAR test was significant, $\chi^2(43) = 306.81$, $p < .01$, indicating that the variables were not missing completely at random. We chose to use multiple imputations to account for missing data, using Mplus version 6.11 (Muthén & Muthén, 2010), as this method is suggested as a golden standard to unbiased longitudinal analysis (Enders, 2013).

Results

Descriptive Statistics

Table 1 shows the mean scores of the study variables by sex. Independent samples t -tests indicated that girls assigned higher importance to SJV at T1–T3 than boys, Cohen's $d = .45$, $.48$, and $.45$, respectively. Girls also showed higher sympathy at T1, according to mother- and self-reports (Cohen's $d_s = .38$ and $.54$, respectively), and reported higher quality friendships at T1 (Cohen's $d = .90$).

The correlations among the study variables are presented in Table 2. Stability in SJV was moderate at first, and increased over time $r_{T1-T2} = .27$, $p < .01$; $r_{T1-T3} = .24$, $p < .01$; $r_{T2-T3} = .54$, $p < .01$.

Table 1. Means and Standard Deviations of the Main Study Variables by Sex

Variable	Girls (n = 683)		Boys (n = 574)		<i>t</i>	<i>p</i> <	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Social justice values T1 ^a	8.90	1.11	8.38	1.19	8.00	.01	.45
Social justice values T2 ^a	8.94	1.02	8.39	1.28	7.53	.01	.48
Social justice values T3 ^a	8.87	.94	8.38	1.18	6.50	.01	.45
Mother-reported sympathy T1 ^b	5.08	.91	4.67	1.18	6.32	.01	.38
Self-reported sympathy T1 ^b	4.99	.70	4.59	.78	9.50	.01	.54
Friendship quality T1 ^c	5.68	.51	5.10	.75	16.24	.01	.90

Notes: T1 = Time 1, T2 = Time 2, T3 = Time 3.

^aPossible range = 1–10. ^bPossible range = 1–6. ^cPossible range = 1–6.

Table 2. Correlations Matrix of the Study Variables

Variables	1	2	3	4	5	6
1. Social justice values T1	—	.25**	.27**	.20**	.32**	.16**
2. Social justice values T2	.27**	—	.45**	.13**	.18**	.06
3. Social justice values T3	.24**	.54**	—	.15**	.19**	.02
4. Mother-reported sympathy T1	.16**	.15**	.12**	—	.17**	.02
5. Self-reported sympathy T1	.41**	.22**	.23**	.21**	—	.21**
6. Friendship quality T1	.14**	.10**	.02	.08	.24**	—

Notes: Correlations for girls are above the diagonal. Correlations for boys are below the diagonal. T1 = Time 1, T2 = Time 2, T3 = Time 3.

***p* < .01.

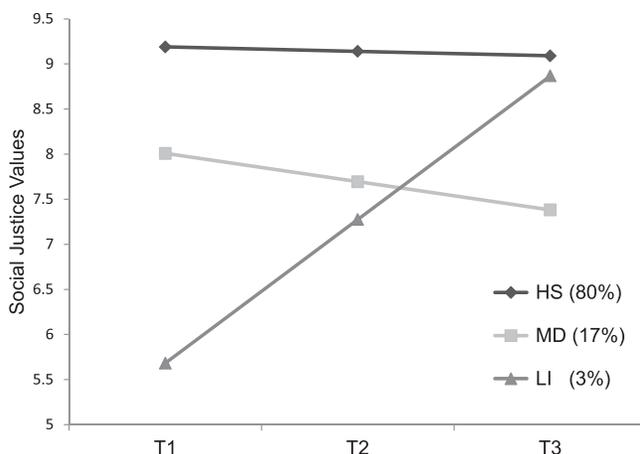
Developmental Trajectories of SJV

To test our hypothesis regarding distinct developmental trajectories of SJV, we ran a Latent Class Growth Analysis (LCGA; Jung, & Wickrama, 2008) using Mplus 6.11 (Muthén & Muthén, 2010). The objective of LCGA is to identify homogenous clusters of developmental trajectories within a sample (Nagin, 1999). We used the Bayesian Information Criterion (BIC), the Vuong-Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT), and the Bootstrap Likelihood Ratio Test (BLRT) to determine the number of trajectory groups and whether the intercept only (stable), linear, or quadratic shape fit the data best. The model fit the data best when BIC scores were closest to zero, and when LMR-LRT and BLRT scores were significant. In addition to the fit indices, we used parsimony, theoretical justification and interpretability to determine the number of classes (Jung & Wickrama, 2008).

We first estimated a one class model. An insignificant linear slope indicated that the intercept only model described the data best, BIC = 11155.89, Intercept = 9.05, *p* < .01, slope = $-.03$ *p* = .71. Thus, there was no change in value

Table 3. Fit Indices of Latent Class Growth Analysis Models

Models	<i>BIC</i>	<i>LMR-LRT</i>	Δdf	<i>p</i>	<i>BLRT</i>	Δdf	<i>p</i>
Two class	11185.19	447.95	4	<.001	447.95	4	<.001
Three class	11110.99	102.74	4	=.05	102.75	4	=.10
Four class	11020.22	113.43	4	=.14	113.43	4	<.001

*Figure 1.* Fitted Mean Trajectories for SJV.

HS = High-stable group, MD = Moderate-decreasing group, LI = Low-increasing group.

T1 = Time 1, T2 = Time 2, T3 = Time 3.

importance over time, across participants. Second, we estimated two-, three- and four-class models. The fit indices (Table 3) indicated that the one- and two-class models did not fit the data well. The three- and the four-class models improved the fit to the data according to two indices each. However, the three-class model provided the most parsimonious solution. In the three-class model, each class captured a distinct developmental pattern. In contrast, the four-class model showed two groups starting in initial moderate levels and decreasing significantly. We, therefore, chose to use the three-class model.

In Figure 1, the largest group (80 percent, $n = 1009$) showed high-stable levels of SJV over time. The second group (17 percent, $n = 214$) followed a developmental trajectory characterized by moderate levels of SJV, which decreased significantly over time. The last and smallest group of the sample (3 percent, $n = 34$) followed a trajectory characterized by low initial levels of SJV, but increased significantly over time. Adding quadratic terms did not improve the model based on the criteria described above. The mean assignment probabilities were good (.84, .83, .95, respectively).

SES did not predict SJV at T1, $b = .00$, $p = .33$. Sex predicted the intercept of SJV, $b = -.39$, $p < .001$, and membership in the moderate-decreasing trajectory group vs. the high-stable trajectory group $b = .78$, $p = .01$, with girls reporting

Table 4. Sympathy and Friendship Quality as Predictors of Group Membership in the Moderate-decreasing and the Low-increasing vs. the High-stable Group

Variable	Moderate-decreasing group vs. high-stable group		Low-increasing group vs. high-stable group	
	Estimate	SE	Estimate	SE
Intercept	5.54**	1.32	7.13**	2.37
Mother-reported sympathy T1	-.19	.16	-.60**	.20
Self-reported sympathy T1	-.35*	.17	-.99**	.34
Friendship quality T1	-.86**	.22	-.56	.35

Notes: The high-stable group was the reference group.

* $p < .05$, ** $p < .01$.

T1 = Time 1.

higher initial SJV, and being less likely to belong to the moderate-decreasing vs. the high-stable group. In contrast, sex did not predict the slope of SJV, membership in the low-increasing group vs. the high-stable trajectory group, the low-increasing group vs. the moderate-decreasing group.

Sympathy and Friendship Quality as Predictors of Trajectories of SJV

To test our hypotheses regarding the role of sympathy and friendship quality in SJV group membership, we used multinomial logistic regression models. Specifically, we investigated whether adolescents with high scores in mother- and self-reported sympathy, as well as friendship quality at T1, were overrepresented in specific trajectory groups. The logistic regression coefficients obtained express the log-odds of belonging to a specific trajectory group relative to the reference group of the high-stable SJV (Table 4). In contrasting the high-stable group with the moderate-decreasing group, we found the log-odds of belonging to the latter vs. the former decreased by .70 with one unit increase in self-reported sympathy, and by .42 with one unit increase in friendship quality. In contrasting the high-stable and low-increasing groups, we found that the log-odds of belonging to the latter vs. the former decreased by .55 with one unit increase in mother-reported sympathy, and by .37 with one unit increase in self-reported sympathy.

Finally, we contrasted the low-increasing and the moderate-decreasing trajectory group (Table 5). We found that the log-odds of belonging to the low-increasing SJV group vs. the moderate-decreasing group decreased by .57 with one unit increase in mother-reported sympathy, and by .39 with one unit increase in self-reported sympathy.

All models controlled for participants' SES at T1 and for sex. SES did not predict SJV at T1 $b = -.002$, $p = .21$. Sex did not predict the intercept or slope of SJV development $b = -.39$, $p = .24$; $b = .04$, $p = .04$, respectively.

Table 5. Sympathy and Friendship Quality as Predictors of Group Membership in the Low-increasing vs. the Moderate-decreasing Group

Variable	Low-increasing group vs. moderate-decreasing group	
	Estimate	SE
Intercept	6.96**	2.03
Mother-reported sympathy T1	-.56**	.21
Self-reported sympathy T1	-.95**	.31
Friendship quality T1	-.31	.30

Notes: The moderate-decreasing group was the reference group.

** $p < .01$. T1 = Time 1.

Discussion

The present study investigated developmental trajectories of SJV over the course of 6 years from middle adolescence to early adulthood in a large-scale, representative sample from Switzerland. We also tested the role of sympathy and friendship quality in the development of SJV. Most adolescents (80 percent) reported high and stable levels of SJV between middle adolescence and early adulthood. These findings extend previous cross-sectional findings by demonstrating stability in values longitudinally. Ciecuch et al. (in press) documented increases in intra-individual stability of values between 7 and 13 years of age, which may substantiate the high stability depicted in middle adolescence. Similarly, it has been suggested that the socio-cognitive skills underlying sympathy are fairly developed by mid-adolescence. After this age, sympathy levels may be more related to dispositions than age-related skills (Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005). Value stability may also be explained by the genetic underpinning of values (Uzefovsky et al., in press). Genetic differences may contribute to stable individual differences in value importance.

Despite the overall stability of SJV, some adolescents reported changes in SJV across time. Specifically, a smaller group of adolescents (17 percent) showed moderate-decreasing levels of SJV. This may be the result of adolescents' tendency to embrace self-focused, hedonistic values, which stand in opposition to the goals motivating SJV (Schwartz, 1992, 2012). This focus can be evident in high levels of sensation seeking and risk taking found in adolescence (Collado, Felton, MacPherson, & Lejuez, 2014). Due to the value structure, the increased pursuit of self-focused values may be accompanied by a decreased pursuit of SJV (Bardi, Lee, Hofmann-Towfigh, & Soutar, 2009; Ciecuch et al., in press; Döring et al., in press). Even to the extent that value priorities show age-specific trends, the pace and timing of any development may differ among individuals, making some adolescents more likely to show decreases in value importance during late adolescence than others.

Decreases in the importance of SJV during adolescence may also be attributed to a process of context differentiation. Adolescents increasingly judge moral transgressions differently according to their context, using factors such as severity of

moral transgressions, level of need, merit, and intentions (Chaparro, Kim, Fernandez, & Malti, 2012; Smetana, 2006). Similarly, adolescents were previously found to increasingly differentiate their value importance across contexts, judging some values as more important in one context than another (Daniel, Schiefer, Moellering et al., 2012). As a result, adolescents may not value social justice in specific contexts, for example, when disadvantaged persons have caused their own poor conditions. Consequently, some adolescents may interpret this increased contextualization of values as a decrease in value importance. Nevertheless, research indicates that although values are increasingly contextualized, individual differences in values remain meaningful (Daniel, Schiefer, & Knafo, 2012).

Interestingly, we found a very small group of adolescents (3 percent) who showed low levels of SJV at 15 years of age but increased in value importance until it was comparable to those of the high-stable group, displaying a pattern of late emergence. Related moral skills, like needs-oriented moral reasoning, have been found to increase between middle adolescence and early adulthood. These increases have been attributed to age-related developments in sophisticated perspective taking (Eisenberg et al., 2005). Additionally, given that SJV are typically promoted by sympathy and moral understanding (Daniel et al., 2014; Döring et al., in press), it is possible that adolescents who lack sympathy at early ages compensate for it at later ages through the development of cognitive aspects of morality, such as advanced perspective taking.

It is important to note that across trajectory groups and ages, individuals reported high levels of SJV. These results stand in line with previous studies, indicating SJV to be of high importance to individuals across cultures (Schwartz et al., 2012). Despite this consistently high level, individual differences in universalism values have been found to predict attitudes and behaviors in a meaningful way (Schwartz, 2005).

We also examined the role of sympathy and perceived friendship quality in trajectories of SJV. As expected, high levels of self- and mother-reported sympathy in mid-adolescence were associated with lower likelihood of membership in the initially low (and increasing) SJV group, vs. the high-stable and the moderate-decreasing SJV groups. These findings are in line with previous related studies which have documented the role of sympathy in the development of prosocial behavior (Eisenberg et al., 2014). They support the notion that sympathy is associated with a commitment to social justice, as individuals who feel concern for the distress of injustice victims are more likely to feel committed to such principles (Hoffman, 2000). At the same time, sympathy in the current study was related to higher initial levels of SJV. It was not related to increases in SJV, as the low-increasing group reported lower levels of sympathy than the high-stable and the moderate-decreasing groups. The finding that sympathy relates to starting levels, but not growth, of SJV may be due to the extensive development of sympathy during childhood (Eisenberg et al., 2005; Hoffman, 2000).

Interestingly, an association between sympathy and membership in the high-stable vs. moderate-decreasing trajectory group was found with self-reported sympathy, but not mother-reported sympathy. However, sympathy predicted membership in the high-stable and moderate-decreasing trajectory groups vs. the low-increasing trajectory group. Support children felt from their parents has been found to predict their development of sympathy and moral reasoning (Malti et al., 2013). It may be that mothers who identify their children as having low sympathy begin to socialize

their children toward an other-orientation (Hardy, Padilla-Walker, & Carlo, 2008), a socialization pattern associated with increases in SJV importance between middle adolescence and early adulthood.

Our findings also revealed that low friendship quality was associated with higher likelihood of inclusion in the moderate-decreasing SJV trajectory group. Thus, friendship quality was associated with changes in SJV, and not only their initial level. Close, egalitarian social interactions are believed to promote the construction of fairness and equality principles, due to the opportunities they offer to cooperate and negotiate (Keller, 1996; Müller & Carpendale, 2000). Furthermore, it may motivate children to increasingly consider the well-being of others and eventually facilitate the generalization of other-oriented concerns to broader social values (Rubin, Bukowski, & Laursen, 2011). Consistent with this idea, previous studies have found that friendship quality was positively associated with moral motivation and reasoning, concurrently (Malti & Buchmann, 2010; McDonald et al., 2013). The current study extended these findings and demonstrates that the lack of a high-quality friendship may be associated with the development of value importance. Adolescents without a very close friendship are exposed to fewer opportunities to develop advanced perspective taking skills (Stiller & Dunbar, 2007), as well as need-based moral reasoning (McDonald et al., 2014), and trust (Rotenberg, Boulton, & Fox, 2005), which in turn may be related to decreases in SJV. Based on the current results, interventions that aim at SJV promotion during middle adolescence may be advised to focus on opportunities to practice principles of fairness and justice within peer groups.

In line with previous literature (e.g., Malti & Buchmann, 2010) we found that girls showed higher levels of SJV, mother- and self-reported sympathy, and friendship quality, as compared to boys. These differences may result from social expectations, directing girls to express more caring feelings and behaviors than boys. Interestingly, before controlling for sympathy and friendship quality, we found that boys were more likely to have lower initial levels of SJV, and to decrease in their SJV from middle adolescence to early adulthood. However, no differences between the genders were found in the likelihood of belonging to the low-increasing group vs. the high-stable group. These findings are in line with previous cross-sectional findings documenting growing gender differences in adolescents' moral values from early to late adolescence (Schwartz, 2005).

Despite several strengths, this study was not without limitations. First, due to the large-scale nature of the study, our assessment of SJV was limited to three items. However, typical value scales (Schwartz et al., 2001) employ a similar number of items to measure each value. In addition, the SJV scale showed modest reliability. It also showed high means and low standard deviations, limiting the ability to detect strong findings pertaining to inter-individual differences. However, the current measure has been shown to be a reliable and valid measure in previous large-scale longitudinal studies (Gille et al., 2006). Moreover, the SJV scale was equivalent in meaning across time, stable across 6 years of development, and meaningfully related to external scales, such as parent- and teacher-reported prosocial behavior. In addition, the reliability found here was higher than those found in previous value studies which employed a similar number of items (e.g., Verkasalo, Lönnqvist, Lipsanen, & Helkama, 2009). The typically lower reliabilities of value scales have been attributed to the small number of items, as well as the broadness of the concept (Schwartz et al., 2001). Lastly, previous studies indicate that values of care for

others are highly endorsed across cultures and individuals (Schwartz & Bardi, 2001), yet form meaningful individual differences, predictive of behavior (Schwartz, 2010). Second, most of our measures relied on self-reports, which can be subject to a social desirability bias. However, self-report measures are an invaluable tool for the study of moral development, as it is difficult to observe or gather by other-report. Moreover, social desirability has been shown to not be a bias which interferes with the report of values, but a personality trait that is meaningfully related to value importance (Schwartz, Verkasalo, Antonovsky, & Sagiv, 1997). Third, as previously mentioned, our measure of SJV was abstract, and context-free. Although stable individual differences in values were found across contexts (Daniel, Schiefer, Moellering, 2012), future studies would benefit from measuring changes in value importance across different contexts. Fourth, the current study examined the development of a specific value, SJV. Other values may also show patterns of intra-individual change that should be studied in the future. Lastly, the current study used Time 1 sympathy and friendship quality to predict value development. Future studies may look at the joint development of the concepts, and inspect whether changes in sympathy and friendship quality were associated with changes in SJV.

Despite these limitations, this study provides fruitful insights into the developmental trajectories of SJV between middle adolescence and early adulthood, and the role of sympathy and friendship quality in differential trajectories of SJV. These findings suggest that mean-level patterns of value development may conceal different trajectories of value development. The results also suggest that individual and social factors may promote value development, and that these elements may exert their influence at different points in development.

References

- Bardi, A., Buchanan, K. E., Goodwin, R., Slabu, L., & Robinson, M. (2014). Value stability and change during self-chosen life transitions: Self-selection versus socialization effects. *Journal of Personality and Social Psychology, 106*, 131–147, doi: 10.1037/a0034818
- Bardi, A., Lee, J. A., Hofmann-Towfigh, N., & Soutar, G. (2009). The structure of intraindividual value change. *Journal of Personality and Social Psychology, 97*, 913, doi: 10.1037/a0016617
- Benish-Weisman, M., & McDonald, K. L. (in press). Private self-consciousness and gender moderate how adolescents' values relate to aggression. *Social Development*, doi: 10.1111/sode.12122
- Carlo, G., Mestre, M., Samper, P., Tur, A., & Armenta, B. (2011). The longitudinal relations among dimensions of parenting styles, sympathy, prosocial moral reasoning, and prosocial behaviors. *International Journal of Behavioral Development, 35*, 116–124, doi: 10.1177/0165025410375921
- Carlo, G., Randall, B. A., Rotenberg, K. J., Armenta, B.E. (2010). A friend in need is a friend indeed: Exploring the relations among trust beliefs, prosocial tendencies, and friendships. In K. Rotenberg (Ed.), *Interpersonal trust during childhood and adolescence*. New York: Cambridge University Press.
- Chaparro, M. P., Kim, H., Fernández, A., & Malti, T. (2012). The development of children's sympathy, moral emotion attributions, and moral reasoning in two cultures. *European Journal of Developmental Psychology, 10*, 495–509, doi: 10.1080/17405629.2012.742008
- Cieciuch, J., Davidov, E., & Algesheimer, R. (in press), Development of value priorities in childhood: A longitudinal study. *Social Development*.
- Collado, A., Felton, J. W., MacPherson, L., & Lejuez, C. W. (2014). Longitudinal trajectories of sensation seeking, risk taking propensity, and impulsivity across early to middle adolescence. *Addictive Behaviors, 39*, 1580–1588, doi: 10.1016/j.addbeh.2014.01.024

- Daniel, E., Dys, S. P., Buchmann, M., & Malti, T. (2014). The development of moral emotions, moral reasoning, and social justice values from childhood to early adolescence. *Journal of Adolescence*, *37*, 1201–1214, doi: 10.1016/j.adolescence.2014.08.009
- Daniel, E., Schiefer, D., & Knafo, A. (2012). One and not the same: The consistency of values across contexts among majority and minority members in Israel and Germany. *Journal of Cross-Cultural Psychology*, *43*, 1167–1184, doi: 10.1177/0022022111430257
- Daniel, E., Schiefer, D., Moellering, A., Benish-Weisman, M., Boehnke, K., & Knafo, A. (2012). Value differentiation in adolescence: The role of age and cultural complexity. *Child Development*, *83*, 322–336, doi: 10.1111/j.1467-8624.2011.01694.x
- Davidov, E., Meuleman, B., Billiet, J., & Schmidt, P. (2008). Values and support for immigration: A cross-country comparison. *European Sociological Review*, *24*, 583–599, doi: 10.1093/esr/jcn020
- Eisenberg, N., Cumberland, A., Guthrie, I. K., Murphy, B. C., & Shepard, S. A. (2005). Age changes in prosocial responding and moral reasoning in adolescence and early adulthood. *Journal of Research on Adolescence*, *15*, 235–260, doi: 10.1111/j.1532-7795.2005.00095.x
- Eisenberg, N., Spinrad, T. L., & Morris, A. (2014). Empathy-related responding in children. In J. G. Smetana & M. Killen (Eds.), *Handbook of moral development* (2nd ed., pp. 184–207). New York: Psychology Press.
- Eisenberg, N., Zhou, Q., & Koller, S. (2001). Brazilian adolescents' prosocial moral judgment and behaviour: Relations to sympathy, perspective taking, gender-role orientation and demographic characteristics. *Child Development*, *72*, 518–534, doi: 10.1111/1467-8624.00294
- Enders, C. K. (2013). Dealing with missing data in developmental research. *Child Development Perspectives*, *7*, 27–31, doi: 10.1111/cdep.12008
- Flynn, E., Ehrenreich, S. E., Beron, K. J., & Underwood, M. K. (2015). Prosocial behavior: Long-term trajectories and psychosocial outcomes. *Social Development*, *24*, 462–482, doi: 10.1111/sode.12100
- Ganzeboom, H. B. G., De Graaf, P. M., & Treiman, D. J. (1992). A standard international socio-economic index of occupational status. *Social Science Research*, *21*, 1–56, doi: 10.1016/0049-089X(92)90017-B
- Gille, M., Sardei-Biermann, S., Gaiser, W., & de Rijke, J. (2006). *Jugendliche und junge erwachsene in deutschland [adolescents and young adults in germany]*. Wiesbaden, Germany: Verlag fuer Sozialwissenschaften.
- Hancock, G. R., & Mueller, R. O. (2001). Rethinking construct reliability within latent variable systems. In R. Cudeck, S. Du Toit, & D. Sörbom (Eds.), *Structural equation modeling: Present and future—a festschrift in honor of karl jöreskog* (pp. 195–216). Lincolnwood, IL: Scientific Software International, Inc.
- Hardy, S. A., & Carlo, G. (2011). Moral identity: What is it, how does it develop, and is it linked to moral action? *Child Development Perspectives*, *5*, 212–218, doi: 10.1111/j.1750-8606.2011.00189.x
- Hardy, S. A., Padilla-Walker, L. M., & Carlo, G. (2008). Parenting dimensions and adolescents' internalization of moral values. *Journal of Moral Education*, *37*, 205–223, doi: 10.1080/03057240802009512
- Helkama, K. (2011). Social psychology of morality and moral development: A functional system approach. In J. P. Valentim (Ed.), *Societal approaches in social psychology* (pp. 133–149). Frankfurt am Main: Peter Lang.
- Hoffman, M. L. (2000). *Empathy and moral development: Implications for caring and justice*. New York: Cambridge University Press.
- Jung, T., & Wickrama, K. A. S. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, *2*, 302–317, doi: 10.1111/j.1751-9004.2007.00054.x
- Keller, M. (1996). *Moralische Sensibilität: Entwicklung in freundschaft und familie [Moral sensitivity: Development in friendship and family]*. Weinheim, Germany: Psychologie Verlags Union.
- Killén, M., & Smetana, J. G. (2010). Future directions: Social development in the context of social justice. *Social Development*, *19*, 642–657, doi: 10.1111/j.1467-9507.2009.00548.x
- Krettenauer, T. (2011). The dual moral self: Moral centrality and internal moral motivation. *The Journal of Genetic Psychology*, *172*, 309–328, doi: 10.1080/00221325.2010.538451

- Lapsley, D. K., & Narvaez, D. (2004). A social-cognitive approach to the moral personality. In A. Blasi, D. K. Lapsley, & D. Narvaez (Eds.), *Moral development, self, and identity* (pp. 189–212). Mahwah, NJ: Lawrence Erlbaum Associates.
- Laursen, B., & Hoff, E. (2006). Person-centered and variable-centered approaches to longitudinal data. *Merrill-Palmer Quarterly-Journal of Developmental Psychology*, *52*, 377–389, doi: 10.1353/mpq.2006.0029
- Malti, T., & Buchmann, M. (2010). Socialization and individual antecedents of adolescents' and young adults' moral motivation. *Journal of Youth and Adolescence*, *39*, 138–149, doi: 10.1007/s10964-009-9400-5
- Malti, T., Eisenberg, N., Kim, H., & Buchmann, M. (2013). Developmental trajectories of sympathy, moral emotion attributions, and moral reasoning: The role of parental support. *Social Development*, *22*, 773–793, doi: 10.1111/sode.12031
- Malti, T., & Ongley, S. F. (2014). The development of moral emotions and moral reasoning. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 163–183). New York: Psychology Press.
- Marini, M. M. (2000). Social values and norms. In E. F. Borgatta & R. J. V. Montgomery (Eds.), *Encyclopedia of sociology* (2nd ed., pp. 2828–2840). Detroit: Macmillan Reference.
- McDonald, K. L., Malti, T., Killen, M., & Rubin, K. H. (2014). Best friends' discussions of social dilemmas. *Journal of Youth and Adolescence*, *43*, 233–244, doi: 10.1007/s10964-013-9961-1
- Meeus, W., van de Schoot, R., Keijsers, L., Schwartz, S. J., & Branje, S. (2010). On the progression and stability of adolescent identity formation: A five-wave longitudinal study in early-to-middle and middle-to-late adolescence. *Child Development*, *81*, 1565–1581, doi: 10.1111/j.1467-8624.2010.01492.x
- Müller, U., & Carpendale, J. I. M. (2000). The role of social interaction in piaget's theory: Language for social cooperation and social cooperation for language. *New Ideas in Psychology*, *18*, 139–156, doi: 10.1016/S0732-118X(00)00004-0
- Muthén, L. K., & Muthén, B. O. (1988–2010). *Mplus User's guide* (6th ed.). Los Angeles, CA: Muthén & Muthén.
- Myrsky, L., Juujärvi, S., & Pessa, K. (2010). Empathy, perspective taking and personal values as predictors of moral schemas. *Journal of Moral Education*, *39*, 213–233, doi: 10.1080/03057241003754955
- Nagin, D. S. (1999). Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods*, *4*, 139–157, doi: 10.1037/1082-989X.4.2.139
- Nantel-Vivier, A., Kokko, K., Caprara, G. V., Pastorelli, C., Gerbino, M. G., Paciello, M., et al. (2009). Prosocial development from childhood to adolescence: A multi-informant perspective with Canadian and Italian longitudinal studies. *Journal of Child Psychology and Psychiatry*, *50*, 590–598, doi: 10.1111/j.1469-7610.2008.02039.x
- Nucci, L. P. (2001). *Education in the moral domain*. New York: Cambridge University Press.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, *29*, 611–621, doi: 10.1037/0012-1649.29.4.611
- Piaget, J. (1995). *Sociological studies* (L. Smith Ed.). London: Routledge. (Original work published 1977).
- Rotenberg, K. J., Boulton, M. J., & Fox, C. L. (2005). Cross-sectional and longitudinal relations among children's trust beliefs, psychological maladjustment and social relationships: Are very high as well as very low trusting children at risk? *Journal of Abnormal Child Psychology*, *33*, 595–610, doi: 10.1007/s10802-005-6740-9
- Rotenberg, K. J., MacDonald, K. J., and King, E. V. (2004). The relationship between loneliness and interpersonal trust during middle childhood. *Journal of Genetic Psychology*, *165*, 233–249, doi: 10.3200/GNTP.165.3.233-249.
- Rubin, K. H., Bukowski, W., & Laursen, B. (Eds.). (2011). *Handbook of peer interactions, relationships, and groups*. New York: Guilford.
- Rubin, K. H., Malti, T., & McDonald, K. L. (2012). Civic development in relational perspective. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 188–208). Cambridge: Cambridge University Press.

- Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology*, *25*, 1–65, doi: 10.1016/S0065-2601(08)60281-6
- Schwartz, S. H. (2005). Robustness and fruitfulness of a theory of universals in individual human values. In A. Tamayo & J. Porto (Eds.), *Valores e trabalho [values and work]* (pp. 56–95). Brasilia: Editora Universidade de Brasilia.
- Schwartz, S. H. (2010). Basic values: How they motivate and inhibit prosocial behavior. In P. Mikulincer & P. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 221–241). Washington: American Psychological Association Press.
- Schwartz, S. H. (2012). Values and religion in adolescent development: Cross-national and comparative evidence. In G. Trommsdorff & X. Chen (Eds.), *Values, religion, and culture in adolescent development* (pp. 97–122). Cambridge: Cambridge University Press.
- Schwartz, S. H., & Bardi, A. (2001). Values hierarchies across cultures: Taking a similarities perspective. *Journal of Cross-Cultural Psychology*, *32*, 268–290.
- Schwartz, S. H., Cieciuch, J., Vecchione, M., Davidov, E., Fischer, R., Beierlein, C., et al. (2012). Refining the theory of basic individual values. *Journal of Personality and Social Psychology*, *103*, 663–688, doi: 10.1037/a0029393
- Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., Harris, M., & Owens, V. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. *Journal of Cross-Cultural Psychology*, *32*, 519–542, doi: 10.1177/0022022101032005001
- Schwartz, S. H., & Rubel-Lifschitz, T. (2009). Cross-national variation in the size of sex differences in values: Effects of gender equality. *Journal of Personality and Social Psychology*, *97*, 171–185, doi: 10.1037/a0015546
- Schwartz, S. H., Verkasalo, M., Antonovsky, A., & Sagiv, L. (1997). Value priorities and social desirability: Much substance, some style. *British Journal of Social Psychology*, *36*, 3–18, doi: 10.1111/j.2044-8309.1997.tb01115.x
- Silfver, M., Helkama, K., Lönnqvist, J., & Verkasalo, M. (2008). The relation between value priorities and proneness to guilt, shame, and empathy. *Motivation and Emotion*, *32*, 69–80, doi: 10.1007/s11031-008-9084-2
- Smetana, J. G. (2006). Social-cognitive domain theory: Consistencies and variations in children's moral and social judgments. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral development* (pp. 119–154). Mahwah, NJ: Lawrence Erlbaum Associates.
- Stiller, J., & Dunbar, R. I. M. (2007). Perspective-taking and memory capacity predict social network size. *Social Networks*, *29*, 93–104, doi: 10.1016/j.socnet.2006.04.001
- Uzefovsky, F., Döring, A. K., & Knafo, A. (in press). Values in middle childhood: Social and genetic contributions. *Social Development*.
- Vecchione, M., Doeing, A. K., Marsicano, G., Alessanri, G., & Bardi, A. (in press). Reciprocal relations across time between basic values and value-expressive behaviors: A longitudinal study among children. *Social Development*.
- Verkasalo, M., Lönnqvist, J., Lipsanen, J., & Helkama, K. (2009). European norms and equations for a two dimensional presentation of values as measured with Schwartz's 21-item portrait values questionnaire. *European Journal of Social Psychology*, *39*, 780–792, doi: 10.1002/ejsp.580
- Wray-Lake, L., & Syvertsen, A. K. (2011). The developmental roots of social responsibility in childhood and adolescence. *New directions for child and adolescent development*, *134*, 11–25, doi: 10.1002/cd.308
- Zhou, Q., Valiente, C., & Eisenberg, N. (2003). Empathy and its measurement. In S. J. Lopez, & C. R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 269–284). Washington, DC: American Psychological Association.
- Zimmerman, S. M., Phelps, E., & Lerner, R. M. (2008). Positive and negative developmental trajectories in US adolescents: Where the positive youth development perspective meets the deficit model. *Research in Human Development*, *5*, 153–165, doi: 10.1080/15427600802274001