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The Interplay of Self-Certainty and Prosocial Development in the Transition from Late
Adolescence to Emerging Adulthood

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Abstract

The transition from late adolescence to emerging adulthood is a period of the life span that offers young people the possibility to consolidate their self-certainty and prosociality. Both aspects are of core importance for increasing personal and societal well-being. The purpose of this longitudinal study was twofold: (a) to examine patterns of change and stability in self-concept clarity and prosociality; and (b) to unravel over time associations between these constructs in the transition from late adolescence to emerging adulthood. In addressing both aims, we explored the moderating effects of gender. Participants were 244 Dutch emerging adults (46% males; mean age at T1 = 16.73 years) who completed six waves of data collection (mean age at T6 = 22.7 years). Findings highlighted that (a) self-concept clarity developed non-linearly, with an initial decline from T1 to T2 followed by an increase thereafter, while prosociality increased linearly over time and both self-concept clarity and prosociality were characterized by high rank-order consistency; (b) self-concept clarity and prosociality were positively related over time, with the effect of prosociality on self-concept clarity being stronger than the reciprocal effect of self-concept clarity on prosociality. Gender differences were detected in mean levels of self-concept clarity and prosociality (males reported higher self-concept clarity and lower prosociality than females) but not in their developmental pathways nor in their reciprocal associations.

Keywords: Self-concept clarity; Prosociality; Longitudinal; Late adolescence; Emerging adulthood; Gender.

The Interplay of Self-Certainty and Prosocial Development in the Transition from Late Adolescence to Emerging Adulthood

Introduction

Adolescence and emerging adulthood represent core formative periods of the life span, in which young people face multiple challenges that are crucial for self and prosocial development. As outlined in Erikson's (1950, 1968) psychosocial theory and Havighurst's (1952) conceptualization of developmental tasks, in each phase of the life span individuals are confronted with specific tasks defined by biological, social, and cultural factors and the extent to which they succeed in addressing these tasks influences their development and future adjustment (see also Hutteman, Hennecke, Orth, Reitz, & Specht, 2014). The biological (e.g., pubertal development), cognitive (e.g., acquisition of formal thinking), and social (e.g., changes in family, peer, romantic, and institutional relationships) changes that occur in adolescence stimulate young people to think intensively about themselves, the kind of person they want to become, and the place they want to obtain in the society (e.g., Lerner & Steinberg, 2009). Thus, in adolescence young people struggle with finding their own identity and developing a clear and coherent self-concept in which multiple commitments and choices become well-organized and integrated (Crocetti, Scrignaro, Sica, & Magrin, 2012). At the same time, adolescents are strongly embedded in the social context and enlarge their social horizon, increasing their network of relationships and their interpersonal skills. Doing so, they become better able to understand others' needs (Van der Graaff, Branje, De Wied, Hawk, Van Lier, & Meeus, 2014) and they increase their propensity to show prosocial and cooperative behaviors that might pose the basis for their active participation in the civil society (Carlo, Padilla-Walker, & Nielson, 2015). Thus, self and prosocial development represent two main pillars of the adolescent phase.

These aspects continue to be highly relevant also in the transition from late adolescence to emerging adulthood. The delayed transition to adulthood, which has been progressively observed around the world, have led several scholars (e.g., Erikson, 1968; Keniston, 1968; more recently see Arnett, 2000; Arnett, Kloep, Hendry, & Tanner 2011) to focus on the third decade of life as a

specific developmental phase, in which self and social development continue to be of key importance. Main developmental tasks of emerging adulthood (Hutteman et al., 2014) regard romantic, family, job, and social life. Examples of main tasks include learning to live with a partner, forming a family, finding a job, becoming involved with the community and assuming civic responsibilities. All these tasks have strong implications for self and prosocial development as young people have the possibility to explore self-relevant information in multiple life domains in order to find their own place in the society (Luyckx, Goossens, & Soenens, 2006) and have opportunities to increase their prosociality both in close relationships (e.g., toward their partner and new family) and the society at large (e.g., becoming involved in volunteer and civic activities; Arnett, 2007). Hence, self and prosocial development continue to be relevant in emerging adulthood.

Given this importance of self and prosociality in both adolescence and emerging adulthood, it is crucial to better understand how these aspects develop and how they influence each other. So far, evidence shows that self-certainty and prosociality change in adolescence, but there is a dearth of studies on how they develop in the transition from late adolescence to emerging adulthood. Furthermore, theoretically, self-certainty and prosociality might be intertwined: young people who are certain about themselves are likely to be prone to give attention to others (e.g., Erikson, 1968) and those enacting prosocial behaviors are more likely to enhance their self-understanding (e.g., Hart & Fegley, 1995). Building upon the current state-of-the-art, the purpose of this longitudinal study was twofold. First, we examined patterns of change and stability in self-concept clarity (an expression of self-certainty; Campbell, 1990) and prosociality in the transition from late adolescence to emerging adulthood. Second, we unveiled how self-concept clarity and prosociality influence each other over time. In addressing both aims, we further explored the potential moderating effects of gender, as patterns of change and stability in SCC and prosociality can be different for males and females.

Development of Self-Concept Clarity

Self-concept clarity (SCC) refers to the extent to which individuals perceive their self-beliefs to be clearly and confidently defined, internally consistent, and temporally stable (Campbell, 1990; Campbell, Trapnell, Heine, Katz, Lavalley, & Lehman, 1996). SCC belongs to a class of constructs that assess structural aspects of the self-concept. These structural aspects are related to, albeit distinct, from content dimensions of the self-concept, such as knowledge of individual characteristics, commitments, values, and purposes, and evaluation of this knowledge, as expressed by different levels of self-esteem (e.g., Campbell, 1990; Campbell et al., 1996; Campbell, Assanand, & Di Paula, 2003).

A consistent literature has highlighted that SCC provides a clear indication of self-certainty. In fact, SCC is positively associated with enactment of stable identity commitments, whereas it is negatively related to identity crises driven by reconsidering and discarding current commitments that no longer fit individuals' aspirations and potentials (Crocetti, Rubini, & Meeus, 2008; Crocetti, Schwartz, Fermani, & Meeus, 2010; Morsünbül, Crocetti, Cok, & Meeus, 2014, 2016). Thus, SCC can be considered as a clear indicator of self and identity certainty.

Campbell et al. (1996) conceptualized SCC as an individual characteristic that exhibits high levels of temporal stability, although it is susceptible to contextual influences. In particular, SCC might change in response to important life experiences and transitions (Light & Visser, 2013; Lodi-Smith & Roberts, 2010; Lodi-Smith, Cologgi, Spain, & Roberts, 2016; Nezlek & Plesko, 2001). In this respect, the transition from late adolescence to emerging adulthood is a crucial period for studying development of SCC, as well as of other personality dimensions (Roberts, Walton, & Viechtbauer, 2006). In fact, in this phase young people navigate through several changes in their education, work, living conditions, and relationship status (Arnett, 2004; Hutteman et al., 2014) that might impact their SCC. During transitional periods, young people might decrease their SCC since they reconsider their prior commitments, explore more identity alternatives (Crocetti et al., 2008, 2010), and temporally lose their habitual routines and behavioral schemas (Light & Visser, 2013). Then, once transitions have been completed, according to the social investment principle (Roberts,

Wood, & Smith, 2005), experiences with new social roles might enhance maturation and lead to increasing levels of SCC. Taken together, this would suggest that SCC decreases during transitional phases and increases thereafter.

So far, patterns of SCC change and stability have been mainly investigated in adolescence. Existing longitudinal studies documented that SCC is characterized by high levels of rank-order stability, which indicates the degree to which relative differences among individuals in SCC remain the same over time (Crocetti, Rubini, Branje, Koot, & Meeus, 2016; Schwartz et al., 2011; Schwartz, Klimstra, Luyckx, Hale, & Meeus, 2012; Van Dijk, Branje, Keijsers, Hawk, Hale, & Meeus, 2014; Wu, Watkins, & Hattie, 2010) and small increases in SCC mean scores over the course of adolescence (Schwartz et al., 2011; Wu et al., 2010). Thus, in adolescence young people increase in their self-certainty.

Furthermore, in a six-wave longitudinal study with adolescents¹ significant gender differences in indices of change and stability in SCC were detected (Crocetti et al., 2016). Specifically, rank-order stability of girls was significantly higher than rank-order stability of boys, initial levels of SCC of males were higher than those of females whereas mean rates of change were comparable (SCC of girls was stable over the course of adolescence, while SCC of boys slightly increased but then returned to the initial level). Taken together, this evidence suggests the importance of studying patterns of SCC change and stability paying attention to gender differences (Lodi-Smith et al., 2016) that might be driven by differences in timing of pubertal and cognitive development (Kroger, 1997).

Less is known about patterns of change and stability for emerging adult males and females. Preliminary evidence suggests that rank-order stability is high also in college students (Campbell et al., 1996). Furthermore, Slotter, Gardner, and Finkel (2010) found that college freshman generally experience an increase in SCC during the first 6 months of college. In this study,

¹ This study (Crocetti et al., 2016) is based on the RADAR-young study, a prospective ongoing longitudinal study following participants from early adolescence onward. In the current paper, original data from RADAR-old study are used. The RADAR-old study consists of a sample followed from late adolescence onward, completely independent from the RADAR-young cohort.

we sought to further enrich our understanding of development of SCC studying how this dimension develops in the transition from late adolescence to emerging adulthood for both males and females.

Development of Prosociality

Prosociality refers to the tendency to perform voluntary behavior regarded as beneficial to others, including helping, sharing, comforting, guiding, rescuing, and defending others (Padilla-Walker & Carlo, 2014). Prosociality has been related to several positive outcomes, such as high self-esteem, peer popularity, and high quality friendships (e.g., Laible, Carlo, & Roesch, 2004; Wentzel, 2014). Thus, it is very important to further understand prosocial development and how it could be enhanced by self-development.

Theoretically, prosociality is expected to increase in adolescence, when young people increase in moral reasoning and social understanding, dimensions which are significantly associated with prosociality (Carlo, Eisenberg, & Knight, 1992; Estrada, 1995). However, despite these conceptual bases, empirical evidence is inconsistent (Carlo, Crockett, Randall, & Roesch, 2007). A recent longitudinal study monitoring adolescents from 12 to 16 years old shed new light on mean level changes in prosociality, uncovering that both boys and girls reported an initial decrease in prosociality, followed by an increase into middle adolescence (Carlo et al., 2015). This dip in prosociality mirrors a similar developmental trend occurring also in related constructs, such as empathy (Van der Graaff et al., 2014) and aggression (Meeus, van de Schoot, Hawk, Hale, & Branje, 2016). Concerning rank-order consistency, interindividual differences in prosociality are already well-established in adolescence (Carlo et al., 2007). Thus, extant longitudinal studies with adolescents point to increases in prosociality and to stable interindividual differences.

Until now, development of prosociality in emerging adulthood has been less studied (Padilla-Walker & Carlo, 2014). Preliminary evidence from two-wave studies suggests that prosociality is stable (i.e., no mean level changes; Caprara, Alessandri, & Eisenberg, 2012) and characterized by strong interindividual differences (i.e., high rank-order stability; Caprara et al., 2012; Eisenberg et al., 2002). Taken together, the available studies suggest that prosociality might

increase until late adolescence and then stabilize in emerging adulthood. However, more research is needed to confirm this.

Finally, prosociality is largely affected by gender. In fact, a consistent literature suggests that, from early childhood (e.g., Baillargeon et al., 2011; Malti, Gummerum, & Buchmann, 2007) to adolescence and emerging adulthood (e.g., Caprara et al., 2012; Carlo et al., 2015), females display more prosociality than males. Thus, convergent evidence highlights that gender differences in mean levels of prosociality emerge very early in life and persist across the life span. In contrast, less is known about gender differences in the development of prosociality. Thus, in the current study, we sought to expand our understanding of development of prosociality in the transition from late adolescence to emerging adulthood for both males and females.

Developmental Associations between Self-Concept Clarity and Prosociality

How is SCC related to prosociality? Up to now, it is not possible to provide a clear answer to this question since there is a dearth of studies on associations between SCC and prosociality. However, drawing from multiple theoretical perspectives, we can assume that these two aspects might reinforce each other over time, as further detailed below.

Consistent with the self and identity theoretical background (Erikson, 1950, 1968; Ting-Toomey, 2015), we may expect that SCC could foster prosociality. This positive effect might be driven by psychosocial resources that are associated with a well-established self-concept (Back, 2015; Back & Vazire, 2015). In fact, young people who are more sure about themselves are expected to be more flexible in responding to the social environment (Campbell, 1990), to be better able to understand others' needs and to put themselves in their "shoes" (Smits, Doumen, Luyckx, Duriez, & Goossens, 2011), to have a more accurate relationship perception (Kenny, Kashy, & Cook, 2006; Mund, Finn, Hagemeyer, Zimmermann, & Neyer, 2015), and to become capable of committing to interpersonal relationships in a mature way (Beyers & Seiffge-Krenke, 2010). This is consistent with empirical evidence documenting that high SCC is related to relationship satisfaction and commitment (Lewandowski, Nardone, & Raines 2010), whereas low SCC is associated with

interpersonal problems (Constantino, Wilson, Horowitz, & Pinel, 2006) and loneliness (Frijns and Finkenauer 2009). Thus, self-certainty can predict the likelihood of giving attention to others, caring about their needs, and being prosocial.

Similarly, building upon theories on self-perception (Bem, 1972; Cooley, 1902; Leary, 2005) and social participation (Yates & Youniss, 1996; Youniss, McLellan, & Yates, 1997), prosociality can enhance youth's self in several ways. In fact, according to the "looking glass self" perspective (Cooley, 1902), individuals can understand better who they are by processing the social feedbacks they receive from significant others. In a similar vein, Bem's (1972) self-perception theory emphasizes that individuals can increase their self-understanding observing their own behavior and the circumstances in which this behavior occurs and the sociometer theory (Leary, 2005) proposes that a positive self-view springs from general positive social interactions with relevant others (Mund et al., 2015). In this respect, performing prosocial behavior might elicit positive feedbacks from the environment and, as such, strengthen self-views (Laible et al., 2004). As further theorized by the social participation literature (Yates & Youniss, 1996), youth engaged in activities in favor of other people can perceive a sense of industry that entails feelings of self-efficacy derived from exercising one's agency in activities of societal relevance. Moreover, they can get involved in contexts that might further strengthen their social relationships and provide opportunities to reflect on values that guide the performed activities (Crocetti, Garckija, Gabrielavičiūtė, Vosylis, & Žukauskienė, 2014). Thus, consistent with this, we expected that also prosociality could foster SCC.

Overall, in line with these theoretical backgrounds, we expected positive over time associations between SCC and prosociality. To the best of our knowledge, there are no longitudinal studies relating SCC and prosociality. However, some empirical evidence in support of our hypothesis that SCC and prosociality might reinforce each other can be found in prior cross-sectional studies from the identity literature. For instance, studies with adolescents have documented positive relations between identity achievement and prosocial tendencies (Busch &

Hofer, 2011) and social responsibility (Crocetti, Jahromi, & Meeus, 2012). Likewise, studies with college students have found that identity achievement was positively related, whereas identity diffusion was negatively related, to prosociality (Hardy & Kisling, 2006; Padilla-Walker, Barry, Carroll, Hadsen, & Nelson, 2008). These studies suggest that a condition of identity and self-certainty is positively related to prosociality. However, their cross-sectional design prevents us from drawing conclusions about the directionality of these effects. Furthermore, it is necessary to study if these findings, obtained considering identity achievement, apply also to another indicator of self-certainty, such as SCC. In this respect, some supporting evidence is provided by studies with adults in which SCC was negatively related to aggression (Steffgen, Da Silva, & Recchia, 2007) and positively related to prosocial reactions after an experience of conflict (Bechtoldt, De Dreu, Nijstad, & Zapf, 2010). In the current longitudinal study, we aimed at further unraveling this topic examining associations between SCC and prosociality in the transition from late adolescence to emerging adulthood.

The Present Study

Summing up, in this longitudinal study we sought to address two main purposes. First, we aimed at examining patterns of change and stability in SCC and prosociality in the transition from late adolescence to emerging adulthood. Second, we sought to disentangle reciprocal over time associations between SCC and prosociality. In addressing both aims, we further explored the potential moderating effect of gender. In line with the literature reviewed above, we expected that (a) SCC would decrease in the transition from late adolescence to emerging adulthood and increase thereafter whereas prosociality would increase and then stabilize (mean level changes); (b) both SCC and prosociality would be characterized by strong interindividual differences (rank-order stability); (c) males would score higher on SCC and lower on prosociality than females; (d) SCC and prosociality would be positively associated over time.

Method

Participants

Data for this study were drawn from the ongoing RADAR study (Research on Adolescent Development and Relationships), a population-based prospective cohort study conducted in the Netherlands. The RADAR study includes two independent cohorts: RADAR-young ($N = 497$; mean age at baseline 13 years) and RADAR-old ($N = 244$; mean age at baseline 16.73 years). Since the aim of the current study was to examine the development and the interplay of SCC and prosociality in the transition from late adolescence to emerging adulthood, the sample consisted of all 244 Dutch adolescents (46% males) enrolled in the RADAR-old study². Participants completed six waves of data collection and their mean ages at each wave were 16.7 ($SD = 0.60$), 17.7, 18.7, 19.7, 20.7, and 22.7, respectively. Most of the participants were enrolled in secondary education or tertiary education (all at T1 and still 50.41% at T4). During the study, the number of those who had a (part-time or full-time) job increased (up to 86.48% at T6). The number of those living with their family of origin sharply decreased across the study (23.7% at T6), in favor of independent living arrangements or cohabitation with a partner (75.8% at T6). More information about the RADAR study are provided in Appendix 1.

Of the original sample, 211 participants (86.5%) were still involved in the study at T6, and the average participation rate over the six waves was 90%. Results of Little's (1988) Missing Completely at Random (MCAR) test were not statistically significant, suggesting that data were missing at random, $\chi^2(805) = 829.359$, $p = .268$ ($\chi^2/df = 1.03$). Therefore, all participants were included in the analyses and missing data were handled with the Full Information Maximum Likelihood (FIML) procedure available in *Mplus*.

Procedure

The RADAR study has been approved by the Medical Ethical Committee of Utrecht University Medical Centre (the Netherlands). Before the start of the study, participants received written information about the study and they were all asked to provide their informed consent.

² Development of SCC in the RADAR-young cohort has been reported in Crocetti et al. (2016).

Within each year of the study, trained research assistants made appointments for annual home visits. During these visits, participants completed a battery of questionnaires. Research assistants provided verbal instructions in addition to the written instructions that accompanied the questionnaires. Participants received 30 euros for each wave of data collection.

Measures

Self-concept clarity. Participants rated their own level of SCC by filling the Self-Concept Clarity scale (SCC; Campbell et al., 1996). This measure consists of 12 items, scored on a five-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A sample item is: "In general, I have a clear sense of who I am and what I am" (the complete measure is reported in Appendix 2). Mean scale scores were computed so that higher scores indicate higher SCC. In the current study, Cronbach's alphas ranged across waves from .91 to .92.

Prosociality. Participants rated their own prosociality by filling the subscale 'prosocial behavior' of the Revised Self-Report of Aggression and Social Behavior Measure (Morales & Crick, 1998; reported by Linder et al., 2002). The subscale consists of 11 items, scored on a seven-point scale ranging from 1 (*not at all true*) to 7 (*very true*). Sample items are: "I am willing to lend money to other people if they really need it" and "I try to get others involved in group activities" (the complete measure is reported in Appendix 2). Mean scale scores were computed so that higher scores indicate higher prosociality. In the current study, Cronbach's Alphas ranged across waves from .87 to .92. In addition to high internal consistency, previous research revealed high convergent validity for this measure of prosociality, showing that it was positively related to perspective taking and empathic concern (Hawk et al., 2013) and negatively related to relational aggression (Clark, Dahlen, & Nicholson, 2015). Importantly, the magnitude of these associations was generally moderate, indicating that prosociality was distinct from empathy and relational aggression.

Results³

Preliminary Analyses: Longitudinal Measurement Invariance

As a preliminary step, we examined longitudinal measurement invariance (Little, 2013; Van de Schoot, Lugtig, & Hox, 2012) to ascertain whether SCC and prosociality measurement models were invariant across time. For both constructs, we first tested a configural (baseline) model (M1) with six latent variables (one for each measurement wave) with three observed indicators for each latent variable (in line with statistical recommendations three observed indicators for each latent factor were constructed through the item-to-construct balance parceling method; e.g., Little, Cunningham, Shahar, & Widaman, 2002). Second, we compared the configural model with the metric model (M2), in which factor loadings are constrained to be equal across time. Third, we compared the metric model with the full scalar model (M3), constraining also all intercepts to be equal across time. If full scalar invariance could not be established, we tested for partial scalar invariance, constraining two out of three intercepts for each latent factor to be equal across time (Byrne, Shavelson, & Muthén, 1989).

We conducted analyses in *Mplus* 7.4 (Muthén & Muthén, 1998-2012), using the Maximum Likelihood Robust (MLR) estimator. The model fit was tested by means of multiple indices (Byrne, 2012): the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), with values higher than .90 indicative of an acceptable fit and values higher than .95 suggesting a good fit; and the Root Mean Square Error of Approximation (RMSEA), with values below .08 indicative of an acceptable fit and values less than .05 representing a good fit. We tested differences between models representing the various levels of invariance considering changes in fit indices (e.g., Cheung & Rensvold, 2002). Specifically, a $\Delta\text{CFI} \geq -.010$ supplemented by $\Delta\text{RMSEA} \geq .015$ would be indicative of non-invariance (Chen, 2007).

³ All the data and syntax files used for data analysis are stored in a secure archive in the server of the Utrecht University and can be accessed by any interested researcher upon request.

Results of longitudinal measurement invariance tests (see Table 1) indicated that configural and metric invariance could be established for both SCC and prosociality. For SCC we could establish full scalar invariance whereas for prosociality we could establish partial scalar invariance. Indeed, (partial) scalar invariance is required for making meaningful mean comparisons (Byrne et al., 1989) and metric invariance is required for reliably unveiling over time associations between variables (Little, 2013).

Development of Self-Concept Clarity and Prosociality

The first aim of this study was to examine patterns of change and stability in participants' SCC and prosociality. In order to reach this aim, we examined mean-level changes and rank-order stability. In each analysis we further tested for gender differences.

Mean level changes. Means and standard deviations of the study variables are reported in Table 2. To examine mean level changes in SCC and prosociality we conducted Univariate Latent Growth Curve (LGC; Duncan, & Duncan, 2009; Duncan, Duncan, & Strycker, 2006; Preacher, 2010) analyses in *Mplus*. LGC analyses estimate multiple attributes of change: the intercept refers to the level of a variable and the slope represents the rate of change. The means of intercepts and slopes indicate average developmental trajectories reported by participants, while the variances of intercepts and slopes indicate inter-individual differences in levels and rates of change. To determine which growth curve best captured observed changes, we compared three models: an intercept-only model (i.e., null model; Preacher, 2010); a model with intercept and linear slope (i.e., a model in which change over time is captured by a linear trend); and a free-change model (i.e., a model that allows a parsimonious estimation of non-linear growth by using free slope factor estimation obtained fixing two slope factor loadings for model identification and freely estimating the others; Muthén & Khoo, 1998). Model comparisons were conducted by means of the Satorra and Bentler's (2001) scaled difference chi-square test statistic.

Findings indicated that the models that fitted the data significantly better were the free-change for SCC and the linear model for prosociality (see Table 3). Variances of intercepts and slopes of both SCC and prosociality were statistically significant, indicating inter-individual differences in levels and rates of change. Estimated growth curves are reported in Figures 1 and 2, respectively. As can be seen, participants reported a decrease in SCC from T1 to T2 and an increase thereafter, whereas levels of prosociality increased linearly over the course of the study.

To estimate the magnitude of these changes we computed Cohen's d effect sizes across adjunct time points. D s ranged from $|.03|$ to $|.19|$ and from $|.03|$ to $|.14|$ for SCC and prosociality, respectively. Thus, changes in both SCC and prosociality can be considered small according to Cohen's (1988) benchmarks.

In order to examine gender differences in growth parameters, we tested a multi-group Latent Growth Curve model and we conducted pairwise parameter comparisons by means of the Wald test. Results of intercept comparisons highlighted that males reported higher levels of SCC than females ($p < .01$) and females reported higher levels of prosociality than males ($p < .001$). In contrast, no gender differences emerged on the slopes of SCC ($p = .601$) and prosociality ($p = .145$). Thus, gender differences were found for levels of SCC and prosociality whereas rates of change were comparable across gender groups.

Rank-order stability. To assess rank-order stability, we computed in SPSS Pearson's cross-lagged correlations of SCC (e.g., correlation between SCC at Time 1 and SCC and Time 2) and prosociality. Stability coefficients about or higher .60 can be interpreted as indicating a high degree of continuity (e.g., Mroczek, 2007). Findings (see Table 4) indicated that one-year rank-order stability was high and consistent for both SCC and prosociality.

We further tested for significance of gender differences in rank-order stability. In order to reach this aim, we transformed correlation coefficients into z -scores using Fisher r -to- z transformations, and we then compared these z -scores for statistical significance ($p < .05$). Results

revealed, with only one exception (see Table 4), no gender differences in rank-order stability of SCC and prosociality⁴.

Associations between Self-Concept Clarity and Prosociality

The second main purpose of this study was to examine longitudinal associations between SCC and prosociality. In order to reach this aim, we conducted Multivariate Latent Growth Curve and cross-lagged analyses in *Mplus*.

Multivariate Latent Growth Curve analyses. We examined correlations among intercepts and slopes of SCC and prosociality in a Multivariate Latent Growth Curve (MLGC) model. On the basis of the results described above, the MLGC analysis comprised the free-change model for SCC and the linear model for prosociality. This multivariate model fit the data very well, $\chi^2(60) = 80.726$, CFI = .978, TLI = .976, RMSEA = .038 [.009, .058]. Findings indicated that, in addition to significant intercept-slope correlations within-variables (indicating that individuals with greater values at T1 tended to have lower slope scores over time), the intercepts of SCC and prosociality were positively and significantly related and the intercept of prosociality was significantly and positively associated with the slope of SCC (see Figure 3; complete findings are reported in Appendix 3). Hence, higher levels of prosociality were related to stronger increases in respondents' SCC.

We conducted multi-group analyses to test whether the model applied differently to males and females. Pairwise comparisons conducted with the Wald test indicated that all correlations were not significantly different across gender groups. Therefore, results were consistent for males and females.

⁴ We further computed individual stability coefficients applying the procedure described by Lockenhoff et al. (2008). These coefficients were strongly similar to rank-order stability scores reported in Table 4 (individual stability coefficients $\approx .95$ *rank-order stability; Lockenhoff et al. 2008). To examine gender differences, we performed regression analyses with individual stability coefficients as dependent variables and gender dummy coded as the predictor. Any of the regression analyses yielded significant findings, unveiling that also individual stability coefficients were similar for males and females.

Cross-lagged analyses. Cross-lagged associations between latent variables of SCC and prosociality were analyzed controlling for (one-year and two-years) stability paths and within-time correlations. To model the longitudinal associations as parsimoniously as possible, we tested whether cross-lagged effects (from SCC to prosociality and from prosociality to SCC) and correlated changes (T2-T6 correlations) were time-invariant. Results indicated that the model in which cross-lagged effects were fixed to be time-invariant was not significantly different from the model in which these parameters were allowed to vary across time, $\Delta\chi_{SB}^2(8) = 7.074, p = .529$, nor from the model in which cross-lagged effects in late adolescence were allowed to vary from cross-lagged effects in emerging adulthood, $\Delta\chi_{SB}^2(2) = 0.357, p = .837$. Similarly, the model in which T2-T6 correlations (correlated changes) were fixed to be time-invariant was not significantly different from the model in which these correlations could vary across time, $\Delta\chi_{SB}^2(4) = 4.872, p = .301$. Thus, we could retain the more parsimonious time-invariant model (with cross-lagged effects and T2-T6 correlations fixed to be equal over time) as the final one.

The final model fit the data very well, $\chi_{SB}^2(527) = 669.814, CFI = .978, TLI = .974, RMSEA = .034 [.025, .041]$. One-year stability effects ranged from .54 to .77 for SCC and from .33 to .57 for prosociality; two-year stability paths ranged from .09 to .24 for SCC and from .17 to .42 for prosociality (all values are reported in Appendix 4). Within-time correlations were not statistically significant (see Appendix 4), whereas all cross-lagged effects were statistically significant and positive (see Figure 4). However, results of the Wald test indicated that the cross-lagged effect from prosociality to SCC was significantly stronger ($p < .05$) than the cross-lagged effect from SCC to prosociality. Finally, the model explained significant portion of variance (R^2) on all latent variables, with values comprised between 52% and 61% for SCC and between 31% and 50% for prosociality.

We conducted multi-group analyses to test whether the model applied differently to males and females. Pairwise comparisons conducted with the Wald test indicated that all cross-lagged

effects and correlations were not significantly different across gender groups. Thus, also in analyses, results were similar for males and females.

Discussion

The transition from late adolescence to emerging adulthood is a period of the life span that offers to young people the possibility to consolidate their self-certainty and prosociality (Arnett, 2000, 2007; Erikson, 1968; Havighurts, 1952; Keniston, 1968). Both aspects are of core importance for augmenting maturity both at the individual and the societal level. In this study, we sought to further deepen our understanding of self and prosocial development by examining patterns of change and stability of SCC and prosociality and their reciprocal interplay in the transition from late adolescence to emerging adulthood. We found that SCC developed non-linearly, with an initial decline from T1 to T2 followed by an increase thereafter while prosociality increased linearly over time. Both SCC and prosociality were characterized by high rank-order consistency. Importantly, results highlighted that SCC and prosociality were positively related over time, with the effect of prosociality on SCC being stronger than the reciprocal effect of SCC on prosociality. Gender differences were detected only in mean levels of SCC and prosociality (males reported higher SCC and lower prosociality than females) but not in their developmental pathways nor in their reciprocal associations. This evidence provides novel insight in our understanding of self and prosocial development from late adolescence to emerging adulthood.

Patterns of Change and Stability in Self-Concept Clarity and Prosociality in Emerging Adulthood

Our findings that SCC developed non-linearly, with a decline from age 17- to 18 and an increase thereafter, until age 23, fill an important gap in the literature (Schwartz et al., 2011; Slotter et al., 2010; Wu et al., 2010) showing how SCC changes, on average, during the transition from late adolescence to emerging adulthood. Importantly, our current results build a bridge between prior evidence showing that SCC might decline from middle-to-late adolescence (Crocetti et al., 2016) and increase in early emerging adulthood (Slotter et al., 2010). A look at the effect sizes of these

changes revealed that they were small, however. This non-linear pattern might be interpreted in light of developmental tasks faced by young people in this phase of their life. In fact, as late adolescents navigate through multiple transitions (from school-to-university, or from school-to-work; from living with family to independent or semi-independent living; from being single to being in steady partnerships) typical of this period they might increase exploration of identity alternatives and reconsideration of their prior commitments. This increase in exploration can explain the temporary drop in SCC, as exploration and reconsideration of identity choices negatively affect SCC (Crocetti et al., 2008, 2010; Morsünbül et al., 2014, 2016). In fact, young people might find it difficult to integrate current commitments and future possibilities (e.g., current education and future potential university choices) in a coherent sense of identity when they face the transition; while they might find it easier once they have made a choice (e.g., choosing a university area of study) and decided to pursue a specific pathway. This reasoning is supported by Light and Visser (2013), who documented that role exits lead to a decrease in SCC, since they produce a temporary increase in social isolation and a reduction in stability of behavioral routines (see also Lodi-Smith et al., 2016, for negative effects of role limitations imposed by health-related problems on SCC), and by Slotter et al. (2010), who found that romantic breakup reduces SCC. Overall, we can conclude that when young people are in a period in which they are likely to navigate through multiple changes, such as the transition from late adolescence to emerging adulthood, they can temporarily decrease their SCC.

While SCC showed this non-linear change, prosociality linearly increased over the course of the study. Thus, these results suggest that prosociality, after showing a decline in early adolescence and then an increase up to age 16 (Carlo et al., 2015), continues to increase from late adolescence to emerging adulthood. This trend is mirrored in data showing that also some behavioral expressions of prosociality, such as participation in volunteer activities, increase in this period (Arnett, 2007).

Finally, indices of rank-order stability, referring to the degree to which interindividual differences remain the same over time, were high (Mroczek, 2007) for both SCC and prosociality.

These indices were comparable to those found for other personality dimensions (e.g., the Big Factor) in young adult as well as in adult age groups (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; Lockenhoff et al. 2008; Roberts, & DelVecchio, 2000). Overall, based on the current study and available evidence, we can conclude that rank-order stability of SCC (Campbell et al., 1996; Lodi-Smith et al., 2016; Wu et al., 2010) and prosociality (Eisenberg et al., 2002) are already well-settled in adolescence and continue to be high in emerging adulthood.

Disentangling Associations between Self-Concept Clarity and Prosociality

The second main purpose of this study was to shed new light on associations between SCC and prosociality in the transition from late adolescence to emerging adulthood. In line with the literature on self and identity (Erikson, 1950, 1968; Ting-Toomey, 2015), social participation (Yates & Youniss, 1996; Youniss et al., 1997), and self-perception (Bem, 1972; Leary, 2005), we found that reciprocal longitudinal associations between SCC and prosociality were significant and positive. Specifically, the cross-lagged analyses indicated that participants who scored higher on prosociality relative to their peers also scored higher on SCC relative to their peers one year later and those who scored higher on SCC also scored higher on prosociality later on. These findings are consistent with prior cross-sectional studies showing that other indices of self and identity stability (e.g., identity achievement) were positively related to prosociality (Busch & Hofer, 2011; Hardy & Kisling, 2006; Padilla-Walker et al., 2008). Thus, this study further enriches the host of positive correlates of SCC and prosociality.

This result advances prior literature, in unraveling the relational correlates of SCC. In fact, SCC has been found to be positively related to warm family relationships (Davis, 2013; Perry et al., 2008; Van Dijk et al., 2014), relationship satisfaction and commitment (Lewandowski et al., 2010), and negatively related to loneliness (Frijns & Finkenauer, 2009) and interpersonal problems (Constantino et al., 2006). The current study further shows that SCC is associated not only to relationship quality but also to willingness to help others unfamiliar or less close to the individual and to be willing to perform behaviors that might be beneficial for them.

Importantly, within this context of reciprocal positive effects between SCC and prosociality, results of both cross-lagged analyses and Multivariate Latent Growth Curves highlighted that beneficial effects of prosociality on SCC were larger than those of SCC on prosociality. This longitudinal evidence adds to a prior in-depth investigation on “care exemplars” (i.e., adolescents who had been nominated by community leaders for having demonstrated remarkable prosociality through their commitments to care for others; Hart & Fegley 1995). These care exemplars, when compared to matched comparison adolescents by means of extensive interviews, differed on a number of factors including viewing themselves as having closer continuity to their pasts and futures. This continuity refers to a structural aspect of the self that resembles SCC.

More specifically, prosociality can enhance youth SCC through several mechanisms. As suggested by Bem’s (1972) self-perception theory, individuals can increase their self-understanding observing their own behavior and the circumstances in which this behavior occurs. In this respect, prosociality can increase young people’s engagement in behaviors that offer opportunities to increase self-reflection on personal characteristics and values that guide their actions (Yates & Youniss, 1996). Furthermore, high prosociality exposes young people to others’ feelings and conditions and this process of self-other comparison can also foster self-understanding. In addition, late adolescents and emerging adults who exhibit high prosociality can receive relevant social feedbacks from people with whom they interact (Leary, 2005; Mund et al., 2015) and, in line with the “looking glass self” perspective (Cooley, 1902), these social experiences can strengthen their self-understanding, leading to a more structured self-concept.

Importantly, prior studies showed that role exits (Light & Visser, 2013) and role limitations (e.g., those imposed by health problems; Lodi-Smith et al., 2016) negatively affected SCC. In this study, we found that higher social engagement with others (as expressed by prosociality) works in the opposite direction, positively influencing SCC. Overall, this set of evidence confirms that the self is embedded in the interaction with significant others (e.g., Cooley, 1902; James, 1890).

Gender (Non) Effects

In this study, we tested whether gender played a role in understanding developmental patterns and reciprocal associations between SCC and prosociality. Interestingly, findings highlighted a unique gender effect: males and females reported differences in mean levels of SCC and prosociality. In line with a wide literature (Baillargeon et al., 2011; Caprara et al., 2012; Carlo et al., 2015; Malti et al., 2007) females reported higher prosociality than males. This finding is also consistent with the stereotypic view that females are more prosocial and other-oriented than males and is convergent with self-reported differences on empathy (van der Graaff et al., 2014). On the other hand, males reported higher SCC than females, showing that this gender difference, documented for both adolescents and adults (Crocetti et al., 2016), holds also in the transition from late adolescence to emerging adulthood. This difference might be driven by the fact that females tend to reflect more on their own commitments (e.g., Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2010) and, as a result, be more critical about their self-structure.

In contrast, gender did not influence developmental pathways (slopes of SCC and prosociality were similar for males and females). This result is also in line with a prior study examining mean level changes in adolescents and their mothers and fathers (Crocetti et al., 2016). Thus, males and females differ only on the mean level of SCC and prosociality while the shape of development is similar. This similarity contributes to maintaining gender differences in mean levels as documented above.

In a similar vein, no gender differences were found on rank-order consistency. This finding suggests that interindividual differences on both constructs are well-established for males and females. This is an important addition to the literature on SCC since in a previous longitudinal study gender differences in rank-order stability were found in adolescence (with girls reporting higher stability than boys) but not in adulthood (Crocetti et al., 2016). The current study completes this picture, by showing that gender differences in rank-order consistency disappear at the end of adolescence, when individual differences in SCC become set for both males and females. These findings advance our understanding of gender differences in adolescence and emerging adulthood,

confirming that most differences in psychosocial development occur in early to middle adolescence and are likely to be triggered by differences in pubertal timing and cognitive development (Kroger, 1997). In fact, in early adolescence girls reach puberty 1-2 years earlier than boys (Beunen et al., 2000) and they tend to be up to a full year ahead of boys in several aspects of brain development (Colom & Lynn, 2004; Giedd et al., 1999). Because of this difference, girls have been shown to mature earlier than boys (see Klimstra et al., 2009 for a discussion of gender differences in personality development of adolescent boys and girls), with boys catching up by late adolescence (Klimstra et al., 2010; Meeus, van de Schoot, Keijsers, Schwartz, & Branje, 2010). The current study further confirms this picture, in showing no gender differences in rank-order consistency in late adolescence to emerging adulthood.

Finally, gender did not affect the pattern of associations between SCC and prosociality, as clearly indicated by results of both multivariate latent growth curve and cross-lagged analyses. This finding is consistent with a wide literature indicating that barely gender moderates the specific ways in which psychosocial dimensions influence each other over the youth phase (e.g., Crocetti et al., 2016; Hale et al., 2016). This underscores that factors that promote or hamper developmental pathways of young people are largely shared by males and females.

Limitations and Suggestions for Future Research

This study should be considered in light of some shortcomings that can suggest venues for future research. First, in this study we highlighted associations between a structural dimension of the self (i.e., SCC; Campbell, 1990; Campbell et al., 1996) and prosociality. From a theoretical point of view, this line of research would benefit from further unravelling how content (e.g., commitment and values) and evaluative (e.g., self-esteem) dimensions of the self are related to prosociality. More specifically, it will be worth adopting a person-centered approach in which different configurations of structural and evaluative dimensions of the self (e.g., configurations characterized by specific combinations of high and low levels of SCC and self-esteem) could be

related to specific trajectories (e.g., increasing, decreasing, or stable) of prosociality. This would enable disentangling how distinct dimensions of the self are related to development of prosociality.

In a similar vein, it is important to further understand how the current findings are specific for associations between self and prosociality or are replicated considering aggressive behaviors. In fact, prosocial and aggressive behaviors should not be simply considered as two sides of the same coin (McGinley, & Carlo, 2007); rather, there are young people who show a combination of aggressive and prosocial behaviors in the relationships with their peers (McDonald, Benish-Weisman, O'Brien, & Ungvary, 2015). Hence, it is important to clarify differential associations between specific dimensions of the self, on the one hand, and prosocial and aggressive behaviors, on the other hand.

Furthermore, it is important to further test whether associations between SCC and prosociality highlighted in this study are consistent for other conceptual factors that are related to prosociality, such as the personality dimension of agreeableness. In this way it would be possible to disentangle effects that are specific for prosociality from effects that are common to other personality factors that share a strong positive social orientation.

Finally, in this study we employed solely self-report measures of SCC and prosociality. As supported by consistent empirical evidence, associations between self-perceptions and actual behaviors can be modest (e.g., Mischel, 2004). Hence, future studies are needed to test whether these findings are replicated, for instance using, in addition to self-reports, multiple observational and experimental measures of prosocial behaviors (e.g., Frimer & Walker, 2009) as well as more direct measures of individual differences in the internal consistency and temporal stability of people's self-concept.

Conclusions

This study shed new light on SCC and prosocial development in emerging adulthood. Emerging adults followed from 16.7 to 22.7 years showed non-linear mean level changes in SCC and a linear increase in prosociality. These developmental trends were similar for males and

females and gender differences emerged only in mean levels. Consistent with extant literature, males reported higher SCC and less prosociality than females. Rank-order stability was high for SCC and prosociality and similar for both males and females, suggesting that interindividual differences were well-settled. Importantly, these findings address a gap in the literature, providing new insights on patterns of change and stability in SCC and prosociality in a transitional phase, such as the passage from late adolescence to emerging adulthood.

In this study, we also disentangled reciprocal associations between SCC and prosociality. These two aspects reinforced each other over time, although the effect of prosociality on SCC was stronger than the reciprocal one of SCC on prosociality. This evidence suggests that the likelihood of being involved in prosocial activities can enhance self-understanding and leading to a more stable and certain self-definition. These findings have strong implications. In fact, prosociality is a core dimension of morality (Carlo, 2014). Thus, boosting youth's prosociality might be a good practice to increase their self-certainty and to foster a moral development of the self (Damon & Gregory, 1997; Damon & Hart, 1992).

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Table 1

Longitudinal Measurement Invariance Tests

	Model fit					Model comparisons		
	χ^2	df	CFI	TLI	RMSEA	Models	Δ CFI	Δ RMSEA
	[90% CI]							
Self-concept clarity								
M1. Configural	106.500	75	.991	.981	.042 [.021, .059]			
M2. Metric	124.243	85	.988	.979	.044 [.026, .060]	M2-M1	-.003	.002
M3. Scalar	167.265	100	.980	.970	.053 [.039, .067]	M3-M2	-.008	.009
Prosociality								
M1. Configural	90.126	75	.994	.988	.029 [.000, .049]			
M2. Metric	101.264	85	.993	.988	.028 [.000, .047]	M2-M1	-.001	-.001
M3. Scalar	146.153	100	.981	.972	.044 [.027, .059]	M3-M2	-.012	.016
M4. Partial Scalar	119.381	95	.990	.984	.033 [.005, .050]	M4-M2	-.003	.005

Note. χ^2 = Chi-Square; *df* = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis

Index; RMSEA = Root Mean Square Error of Approximation and 90% Confidence Interval; Δ =

Change in the parameter.

Table 2

Observed Means (M) and Standard Deviations (SD) of Self-Concept Clarity (SCC) and Prosociality

	T1		T2		T3		T4		T5		T6	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Self-concept clarity												
Males	3.83	0.75	3.76	0.70	3.75	0.74	3.79	0.80	3.93	0.74	3.83	0.77
Females	3.50	0.80	3.47	0.85	3.53	0.85	3.58	0.80	3.74	0.78	3.68	0.80
Total	3.65	0.79	3.61	0.80	3.63	0.80	3.68	0.81	3.83	0.76	3.75	0.79
Prosociality												
Males	5.59	0.79	5.69	0.88	5.83	0.70	5.83	0.66	5.90	0.76	5.87	0.64
Females	5.99	0.70	6.12	0.61	6.11	0.64	6.15	0.78	6.20	0.54	6.16	0.54
Total	5.81	0.77	5.92	0.78	5.98	0.68	6.00	0.74	6.06	0.66	6.03	0.60

Note. T = time point.

Table 3

Latent Growth Curve Analyses

	Growth factors		Model fit					Model comparisons	
	Intercept	Slope	χ^2	df	CFI	TLI	RMSEA [90% CI]	Models	$\Delta\chi_{SB}^2 (\Delta df)$
	$M (\sigma^2)$	$M (\sigma^2)$							
Self-concept clarity									
M1: Intercept only model	3.678*** (.390***)		96.479	19	.863	.892	.131 [.105, .157]		
M2: Linear model	3.600*** (.488***)	.036*** (.012***)	44.919	16	.949	.952	.087 [.057, .118]	M2-M1	48.391 (3)***
M3: Free change model	3.624*** (.445***)	.026*** (.005*)	23.926	12	.979	.974	.064 [.024, .102]	M3-M1	17.690 (4)**
Prosociality									
M1: Intercept only model	5.981*** (.262***)		61.210	19	.795	.838	.096 [.070, .124]		
M2: Linear model	5.873*** (.362***)	.039*** (.007**)	28.823	16	.938	.942	.058 [.020, .091]	M2-M1	38.201 (3)***
M3: Free change model	5.805*** (.458**)	.042*** (.011)	18.592	12	.968	.960	.048 [.000, .088]	M3-M1	8.720 (4)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; M = Mean; σ^2 = Variance. χ^2 = Chi-Square; df = degrees of freedom; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation and 90% Confidence Interval; Δ = change in parameter. $\Delta\chi_{SB}^2$ model comparisons are based on Satorra and Bentler's (2001) scaled difference chi-square test statistic.

Table 4

Rank-Order Stability

	T1-T2	T2-T3	T3-T4	T4-T5	T5-T6
Self-concept clarity					
Males	.72	.67	.68	.69	.66
Females	.72	.76	.72	.72	.67
Total	.73	.73	.71	.71	.67
Prosociality					
Males	.56	.53	.61	.57	.49
Females	.54	.73	.50	.60	.56
Total	.58	.63	.57	.59	.54

Note. All correlations were significant at $p < .001$. T = time point. Correlations in bold are significantly different ($p < .05$) for males and females.

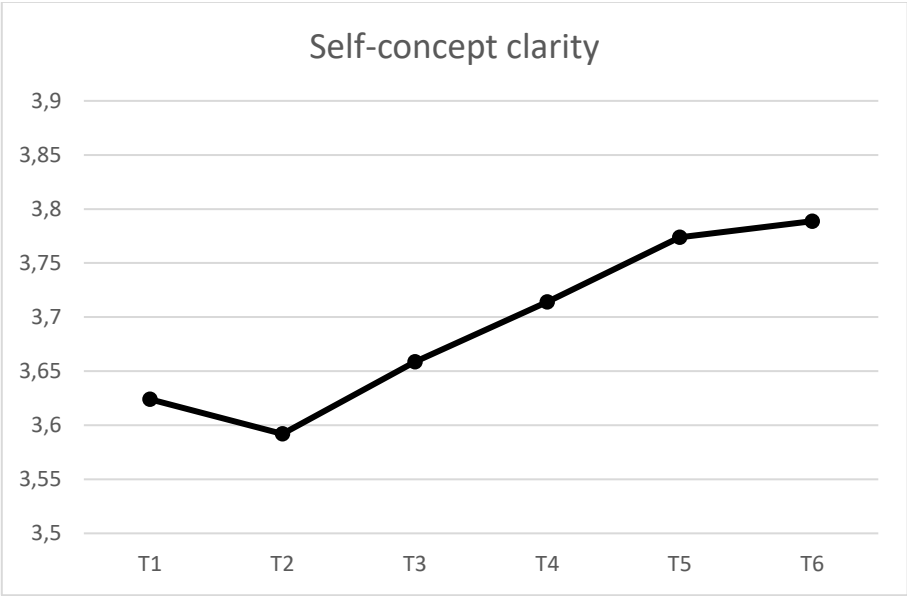


Figure 1. Estimated Growth of Self-Concept Clarity

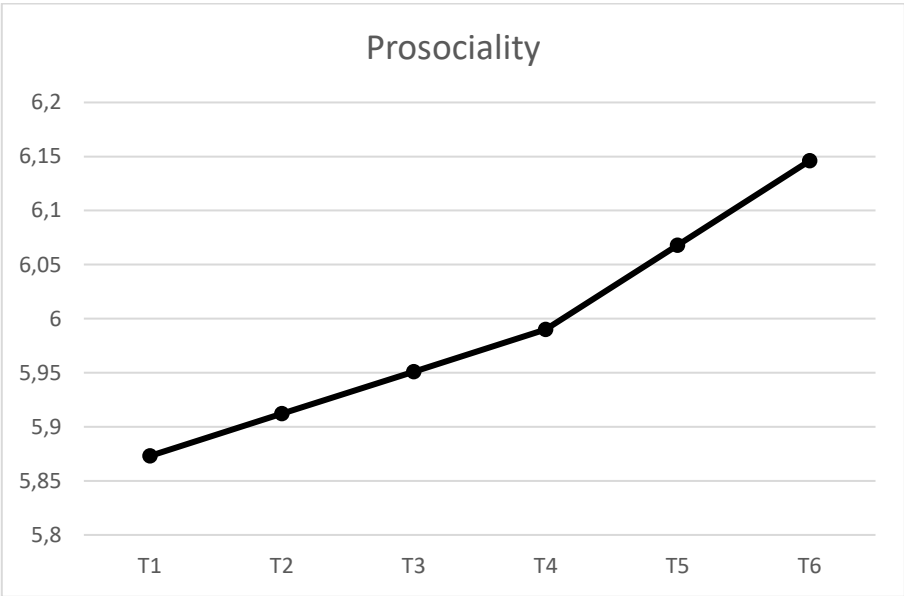


Figure 2. Estimated Growth of Prosociality

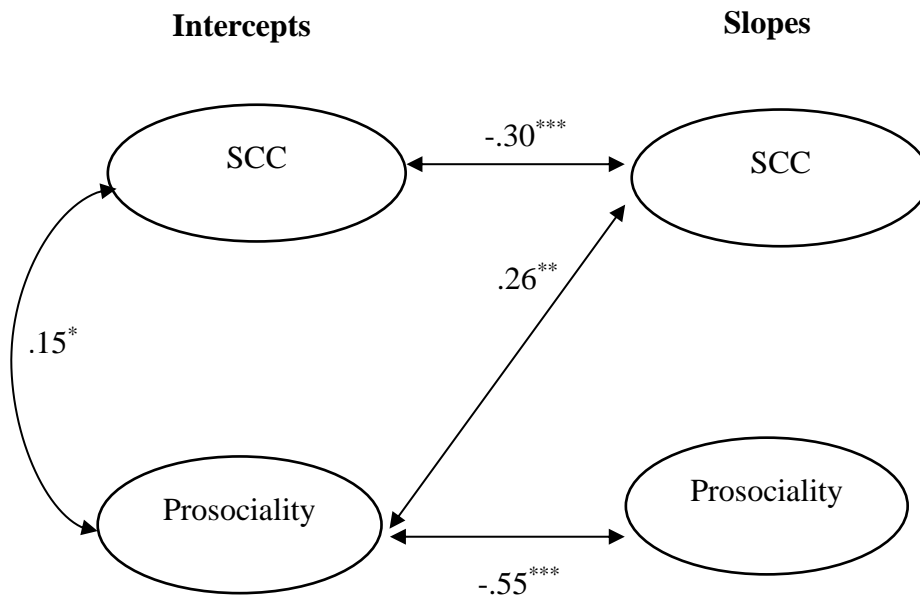


Figure 3. Correlations among intercepts and slopes of SCC and Prosociality

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

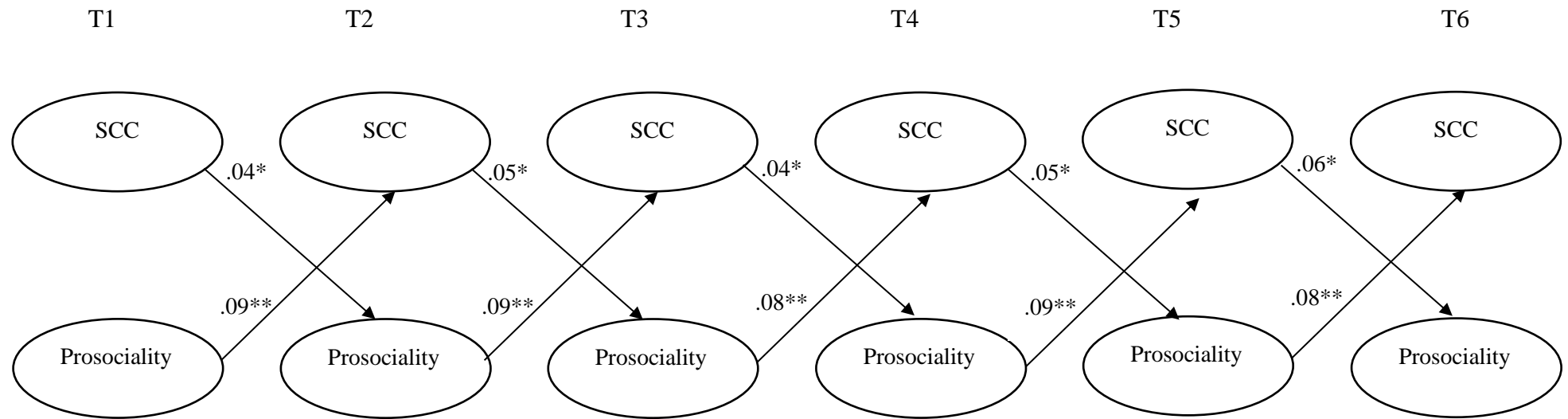


Figure 4. Standardized cross-lagged effects. Stability paths and concurrent correlations were included in the model but are not reported for sake of clarity. * $p < .05$, ** $p < .01$.