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SELF-CONTINUITY IN ADOLESCENCE: A BUFFER AGAINST DECREASES IN SELF-ESTEEM DUE TO VICTIMIZATION

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Abstract

The purpose of this research was to explore how components of self-esteem, such as social, cognitive and physical competence, can explain the buffering effect of self-continuity. Self-continuity explains the associations between individuals themselves in both past and present and perceived sameness, despite growth and development of the self. As self-continuity becomes more complex throughout adolescence, children may find themselves lacking a sense of identity. Previous research shows that negative views of the self may later represent themselves in adulthood. There is evidence that suggests self-continuity protects against the negative effects of peer victimization by providing positive connections between one another. It is still unknown as to how or why self-continuity plays a protective role though. In the current study, we used longitudinal self-report data from a sample of over 300 adolescents from Curitiba, Brazil. Results showed that peer victimization was not significantly correlated with low self-esteem over time. Results showed that self-continuity was positively associated with self-esteem. The study showed that self-continuity did not buffer against the effects of peer victimization on self-esteem. Based on the results, this study revealed the role of self-continuity, and thus self-esteem, is not significant in adolescent development in regards to peer victimization.

Keywords: self-continuity, self-esteem, adolescent development, victimization
In adolescent development, self-esteem serves to quantify how children and teenagers may view themselves and others. Self-esteem has the ability to affect how adolescents behave, as well as their emotional capacity and socialization skills. According to the Oxford University Press (2020), self-esteem is the confidence in one’s own worth or abilities.

The purpose of this research is to explore how components of self-esteem, such as social, cognitive and physical competence, can explain the buffering effect of self-continuity. Negative outcomes that result from a lack of self-continuity can impact the development of identity and self-esteem specifically (Adams et al., 2011). Self-continuity on the other hand is defined by, “a process where an individual explains connections between themselves in the past, present and future, and develops a strategy for perceiving their sameness despite inevitable change” (Chandler et al., 2003). Self-continuity is an important aspect of identity development.

It is hypothesized that peer victimization will be associated with lower self-esteem over time. Furthermore, it is hypothesized that self-continuity will be positively associated with self-esteem. In this research, it will be explored how self-esteem may buffer the negative effects of peer victimization on self-esteem. In order to take this research further, gender and grade differences in the associations listed will also be explored. By looking at adolescents from Brazil, the current project can expand on the research literature that tends to focus on samples from North America and Europe, (Henrich et al., 2010).
While self-esteem is thought to be how an individual feels about themselves and their abilities, its components are much more complex. Huitt (2009) reported that the physical aspects consist of “what one looks like, height, weight, what kind of clothes one wears,” while also reporting on the social aspects, stating that it is how “we relate to other people.” Because adolescents are experiencing a period of their lives in which they are aware of the self, the components of self-esteem have more of an impact on their behavior and into adulthood.

Additionally, according to Arjan and associates (2009), contingent self-esteem refers to “the extent to which self-esteem is contingent upon outcomes and achievements,” (311). The article, Global, Contingent and Implicit Self-esteem and Psychopathological Symptoms in Adolescents, includes physical and social components of self-esteem, arguing that contingent self-esteem exists in “appearance-related comparisons,” more notably in females than in males, while also noting that “college students with high levels of contingent self-esteem were found to be more likely to drink in order to gain social approval or avoid social rejection,” (Arjan et al., 2009). This is evidence that negative views of physical and social aspects of self-esteem present themselves in adolescence, as well as adulthood. Self-esteem is also viewed as an attitude, a feeling toward a certain object, in this case, the thing being the self. Attitudes are described as being composed of cognitive and affective elements. Because attitudes require “thoughts about a particular thing,” (Rosenberg, 1995), it can be inferred that there is a cognitive component to self-esteem, thus a feeling or thought towards the self.

Global self-esteem and specific self-esteem are two concepts developed to organize the psychological and behavioral sides of self-esteem. Global self-esteem is more focused on psychological well-being, while specific self-esteem is more centered on behavior. Global
Self-esteem features concepts such as self-acceptance and self-respect. It is more of how we as individuals feel about ourselves, rather than our competence. The self-enhancement theory states that “self-esteem is a fundamental motive” (Rosenberg, 1995). Essentially, the theory argues that human beings have the drive to improve feelings of self-acceptance and self-respect. Specific self-esteem looks at a more particular component or facet of the self. In this case, it is more related to self-efficacy and competency. It is also reported to be a much better predictor of academic performance and achievement. For one, “Children with poor academic self-concepts are often described as having low self-esteem” (Wylie 1979). This is arguing that if a child feels as though they are a poor student, they are more likely to express low self-esteem.

Self-confidence and self-deprecation are also concepts related to self-esteem. This includes both positive and negative perceptions of the self. According to the self-verification theory, a negative “self-conception” may aid in maintaining a “viable self-system” and predict “orderly social relationships (Rosenberg, 1995). Self-deprecation requires a maintenance of a balanced sense of self and acknowledges both the positive and negative components of one’s self. By judging one’s one self-perception, it allows the individual to focus on the varying levels of competence and ability. Self-confidence has a stronger relationship with global self-esteem. Those with low self-esteem or low self-confidence tend to “generate high emotional arousal, become excessively preoccupied with personal deficiencies and cognitive potential difficulties as more formidable than they really are,” (Bandura, 1982). These individuals become absorbed by
their feelings of inadequacy, believing that they truly are incompetent when generally, that is not
the case.

Academic self-concepts are measured by the internal/external (I/E) frame of reference, developed by Herbert W. Marsh. It is used to “account for the extreme separation of math and verbal self-concepts” and their subsequent achievements (Marsh et al., 1988). These self-concepts were divided in order to measure differences among the range of the two studies. The frame of reference was also developed and studied in order to observe and provide correlations between any and all relationships between verbal and math self-concepts. The internal concepts according to Marsh was described as self-perceived math skills compared to self-perceived verbal skills. External concepts were also described to the comparison between a student’s own perception to those of other students. Academic self-concepts are related to global self-esteem, in that intellectual ability “produces a more powerful effect” in both academic ability and general intelligence (Rosenberg et al., 1995). Intelligence is one variable among several that is used to measure global self-esteem and specific self-esteem.

General academic self-concepts include subjects such as English, history, and math. Compared to nonacademic or general self-concepts, researchers have found that academic achievement “to be more highly correlated with academic self-concepts” (Marsh et al., 1988). Though it is related to global self-esteem, there is a greater relationship between academic achievements and academic self-esteem. This is because academic self-esteem is not an indicator of global self-esteem and self-worth.
Marsh and associates’ (1988) study on I/E framework broke down math and verbal subjects into subcategories. Math subjects were broken down into mathematics, physical sciences, biological sciences, economics, and business. Verbal subjects were broken down into geography, history, foreign languages, and English (Figure 3, 378).

As mentioned previously, academic achievements are a “determinant of academic self-concepts” (Marsh et al., 1988). Previous studies have found that school performance does not change global self-esteem or vice versa. What affects academic performance is academic self-esteem. Rosenberg and associates (1995) found that school marks (i.e. grades, point systems, achievements) “produce an effect on self-esteem,” (153). After drawing data from a previous study from the Youth in Transition study (Bachman 1970), which observed 2,213 tenth-grade boys, these findings were conclusive. Global self-esteem, the overall feeling of self-worth and competence, has little to do with academic marks. More so, specific self-esteem has a much stronger effect on school performance.

Subjective Well-Being (SWB) is said to contain cognitive and emotional elements. While SWB “refers to an individual’s holistic evaluation of his or her life” (Zhang et al., 2019), its relevance to self-esteem is significant. As self-esteem affects how individuals behave, factoring in cognitive and emotional elements to behavior is required. The dimensions of SWB include “life satisfaction,” the cognitive component, as well as “positive affect, and negative affect,” being the affect or emotional components of SWB (Anderson, 2015). The cognitive components of self-esteem include evaluations on the self, such as beliefs, customs, values, etc. The
emotional aspect of SWB, or the affect, are how individuals feel about these things, both positive and negative.

**What affects self-esteem**

High self-esteem and low self-esteem are opposing ends to a spectrum when discussing the concept of how individuals think and feel about themselves. Those with a high self-esteem are said to be more likely to achieve greater academic success and security and closeness in relationships (Trześniowski et al., 2006). Trześniowski and associates (2006) found that high self-esteem promotes things such as goals, coping mechanisms, “behaviors that facilitate productive achievement, and prevent other things such as “mental and physical health problems, substance abuse, and antisocial behavior,” (p. 381). Those with high self-esteem also are able to persist when faced with failures, such as financial or interpersonal failures, and are able to achieve occupational successes (Trześniowski et al., 2006).

On the other side of the spectrum, low self-esteem is associated with negative outcomes in adulthood (Trześniowski et al., 383). Trześniowski, et al., 2006 found that “adolescents with low self-esteem had poorer mental and physical health, worse economic prospects, and higher levels of criminal behavior during adulthood, compared with adolescents with high self-esteem” (p. 381). Those with low self-esteem are more likely to struggle with mental health problems, such as anxiety, depression, and antisocial behavior. Low self-esteem in adolescents manifests itself into negative outcomes in adulthood, such as violent crimes (Trześniowski et al., 383). The same study also reported that cardiorespiratory health is associated with low self-esteem experienced in adolescents (p. 384). This is also evidence that low self-esteem in adolescents can impact physical health (p. 384).
One consistent negative correlate of self-esteem is peer victimization (Fanti & Henrich, 2015). Moreover, low self-esteem has been previously theorized as a “risk factor for aggression and antisocial behavior” (Fanti & Henrich, 2015). Fragile self-concept is associated with weaker social bonds, feelings of inferiority, and aggressive behavior. Additionally, Fanti and Henrich (2015) have also stated that the association between low self-esteem and peer victimization is more consistent, compared to high self-esteem and victimization. This relationship brings feelings of self-blame, as well as loneliness, low self-worth, and anxiety.

**Peer Victimization**

Peer victimization, as mentioned previously, is the experience “among children of being a target of the aggressive behavior of other children” who are typically the same age (Hawker et al., 2000). Previous studies show that children who are victimized will behave in ways that will reinforce victimization. Hodges and associates (1999) argue that children with internalizing difficulties, low self-esteem, crying easily, lack self-confidence reinforce victimization (p. 99). Additionally, Hodges and associates (1999) also argued that externalizing problems, such as disruptive behavior, also reinforce victimization from peers (pg. 99). Research also shows that adolescents who have experienced peer victimization or bullying are at a “significant risk of health problems,” such as depression, anxiety, or sleeplessness (Hong et al., 2019). Bullying is defined as a form of mistreatment Hong et al., 2019), categorized by the repetitive exposure of one person to “physical and/or emotional aggression” which includes behaviors such as “teasing, name calling, mockery, threats, harassment, taunting, hazing, social exclusion or “rumors”” (Hong et al., 2019). Additionally, previous studies show that victimized children were found to be “more vulnerable to many types of psychological difficulties and distress (Attar-Schwartz et
al., 2019). A study conducted by Attar-Schwartz and associates (2019) suggests that both “peer support,” such as classmates and friends, and “parental support,” such as parents or legal guardians, are important protective factors (p. 2342).

**Moderators of the effect of peer victimization**

There are various factors that moderate the effects of peer victimization. Friendships, for example, play a strong role in adolescence, as they are the “context for learning social skills, are information sources for self-knowledge and self-esteem, and provide emotional and cognitive resources for support and coping, as well as practice for later relationships” (Hodges et al., 1999). Interpersonal relationships, or friendships, act as a barrier between victimization and verbal or physical aggression. Hodges and associates (1999) found that friendships protect children at risk for victimization (cite p). Previous studies have also found that internalizing and externalizing problems were “exacerbated” when children had “few friends” but were “minimized” when children had “many friends” (Hodges et al., 1999). This provides support for the notion that friendships are crucial during adolescents for socioemotional development and behavior. Self-blame is another factor that contributes to the moderation of peer victimization. Schater and Juvonen (2015) divide self-blame into two categories: characterological self-blame, “perceptions that negative experiences are attributable to internal, stable, and uncontrollable causes” and behavioral self-blame, “perceptions that such experiences are due to unstable and controllable causes” (841). Behavioral self-blame is more associated with less maladaptive thought patterns, when compared to characterological self-blame. Behavioral self-blame, according to Schater and Juvonen (2015), captures the idea that “things won’t always be like this
and I can change” (841). Coping strategies are also considered to be a moderator of victimization, with researchers arguing that “members of stigmatized or disadvantaged groups also protect their self-esteem by selectively devaluing those domains in which the out-group is advantaged and selectively valuing those domains in which their in-group has advantages” (Major et al., 1993). To elaborate, there are communities that devalue certain aspects of thoughts or behaviors to minimize the impact of victimization. By doing this, the out-group has the advantage over the in-group. Some examples of coping strategies include self-affirmation, self-deprecating humor, and social support. Self-continuity is also a moderator of peer victimization as it helps control “academic performance, number of friends, self-esteem, self-concept clarity, hopelessness, and self-blame” (Santo et al., 2018).

**Self-Continuity**

Self-continuity is the process in which an individual explains associations between their past, present, and future selves and develops methods for “perceiving their sameness despite inevitable change” (Santo et al., 2018). Santo and associates (2018) state that self-continuity becomes more intricate throughout development (p. 876). During times of vulnerability, children and adolescents may find that they identify with a lack of sense of self-continuity (Santos et al., 2018). Studies show that self-continuity acts as a moderator of the effects of peer victimization by providing strong connections to a “supportive social network,” while also protecting “negative psychosocial functioning” (Santo et al., 2018). Santos and associates (2018) found that self-continuity affects adolescents more susceptible to depression affects post-victimization (p. 883). The results from the study conducted by Santos and associates (2018) found that the
association between “peer victimization and depressed affect” was buffered among adolescents who scored higher in self-continuity (p. 882). Santos and associates (2018) also expand on previous research arguing that self-continuity, finding that the association between “victimization and depressed affect” is strongest in adolescence whose identity is “inextricably tied” to current negative circumstances and who unable to “conceive a persistent sense of self” (p. 883).

WEIRD Samples

The concept of self-esteem is more relevant to Western and individualistic cultures (Watkins & Dhawan, 1989). They argued that in more “collectivist contexts,” a model measuring self-concept and self-esteem would be weaker, due to the “cultural emphasis in these groups” (Watkins & Dhawan, 1989), such as religion or collectivism. Cross-cultural tests are not limited to Western, Educated, Industrialized, Rich, and Democratic (WEIRD) samples, but include a more “mixed method design” (Watkins & Dhawan, 1989). North America, including the United States, Canada, and Mexico, currently makes up approximately 4.73 percent of the world population. (WorldoMeter, 2020). In comparison, Brazil alone makes up about 2.73 percent of the world population. (WorldoMeter, 2020). By using data collected from Brazil, researchers are able to account for additional factors in research, such as culture, race, and ethnicity, which otherwise would not be accounted for. In addition, by including more diverse populations, researchers will be able to “capture complex demographic origins of a variety of cultural groups,” which will benefit things such as “biomedical and public health efforts,” (Konkel, 2018). Studying samples outside of North America allows for a more inclusive and diverse understanding of adolescent development.

Current Study
The current project focused on the development of the self and self-continuity in adolescents from Brazil. By focusing on samples outside of North America and Europe, the current project expanded on the literature on adolescent development. With that in mind, the current project used a sample of adolescents from Curitiba, Brazil. Above and beyond the main effects between the study variables, this project was designed to test whether self-continuity can buffer the impact of peer victimization on later self-esteem among Brazilian adolescents. I aimed to test the specific hypotheses below:

**Hypothesis 1a:** Peer victimization will be associated with lower self-esteem over time.

**Hypothesis 1b:** Self-continuity will be positively associated with self-esteem.

**Main hypothesis:** Self-continuity will buffer against decreases in self-esteem over time in association with peer victimization.

**Research question:** Do the specific components of self-esteem (social, cognitive and physical competence) mediate the buffering effect of self-continuity?

**Additional research question (for honors credit):** Does gender and/or grade affect how much the components of self-esteem are associated with self-continuity?

## Method

### Participants

Participants were composed of 352 students, ranging from the sixth grade to tenth grade. Participants were gathered from five public schools in Curitiba, Parana, in 2018. Ages varied between eleven and nineteen years of age. Of the participants, 188 students, or 53 percent of participants, are reported as female, 161 students, or 46 percent of participants are reported as
male, and 3 students chose not to identify. Participants self-reported their ethnic-racial identity. It was found that 54.3 percent of participants identify as white, 35.5 percent as brown, 5.7 percent as black, 2.8 percent as “yellow,” and 1.7 percent as indigenous. Schools were divided into morning, afternoon, and night shifts. 151 participants were in the afternoon shift, 151 in the morning shift, and 50 in the night shift. Student participation was voluntary. The sample gathered was carried out of convenience.

**Procedures**

Participating schools were required to be public, composed of different social classes, and must be located in Curitiba or another metropolitan region. The objective of the sample was to obtain a statistical profile of the adolescent population. In order to obtain the data, questionnaires were carried out, using scales related to the topic of self-esteem and self-continuity. The study was approved by the Research Ethics Committee of the Federal University of Paraná, according to the CAAE protocol 54404616.0.0000.0102. School invitations to participate in the study were conducted over the telephone. Meetings were then scheduled for schools that agreed to participate in order to explain research objectives and procedures, as well as the benefits of the results at the end of the investigation.

Students were then sent invitation letters to participate. By signing the Free and Informed Consent Term (ICT) by a parent or legal guardian students from chosen classes were then authorized to participate. A date was set in place for each school, in order to explain the terms and conditions of the study. Students were reminded that their participation was voluntary, and would only participate upon the return of the signed consent form from responsible parties. The survey was conducted in June of 2018.
Questionnaires were available on tablets provided by the researchers. Using the KoBoToolbox software, questionnaires were distributed among classrooms. Dates and times of the questionnaires were predetermined for both Time 1, at the beginning of the academic school year, and Time 2, at the end of the academic school year. Before data collection, the researcher and at least one research assistant restated the purpose of the study, and all participation was voluntary. Participants were reminded that their participation and data would remain confidential. Data collection lasted approximately 30 minutes. During that period, teachers remained in the classroom. If any of the participants had any questions or doubts regarding the study, research teams were available to answer questions. Three participants withdrew their consent.

After data was collected, the data was then tabulated and descriptive statistics were obtained. Invitations to view the results were sent out to participating schools. Dates and times were scheduled in order to present the results at each school. Teachers and faculty were presented with the results. A group discussion was facilitated. Participants were then able to reflect on their responses in order to determine solutions to their specific school’s challenges.

Measures

*Peer Victimization.* Peer victimization was measured using the EVAP scale (Cunha, et al., 2009). Peer victimization was measured at Time 1. The questionnaire asked for items such as “[Classmates] threatened to hurt me, hit me or other types of threats.” Responses varied between 1 = Never, 2 = Almost Never, 3 = Almost Always, and 4 = Always. The measure is reliable and has acceptable internal reliability (alpha = .85).
General Self-Worth. Self-esteem (Harter Perceived Competence Scale For Children) overall was measured through a Likert scale of 1 to 4, being that 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, and 5 = Strongly agree (e.g. “There are many things about me that I am proud of”). For Time 1, the measure for self-esteem is reliable and has acceptable internal reliability for both Time 1 (alpha = .76) and Time 2 (alpha = .79).

Competencies. The various measures of competence (social, cognitive and physical) were all measured at Time 2 using a similar Likert scale. Social competence was measured at Time 2 (e.g. “I feel accepted by others in my class”). The measure is reliable with acceptable internal reliability (alpha = .84). Cognitive competence was measured at Time 2 (e.g. “I am very good at school”). The measure is reliable with acceptable internal reliability (alpha = .77). Physical competence was measured at Time 2 (e.g. “It is easy for me to learn a new sport or activity”). The measure is reliable with acceptable internal reliability (alpha = .89).

Self-Continuity. Self-continuity was also measured at Time 2 (e.g. “I may look different over time, but I'm really the same inside”) using the same Likert scale as above. The measure is also reliable with acceptable internal reliability (alpha = .71). Appendix A contains the specific items for all of the measures from Time 1. Appendix B contains the specific items from all the measures in Time 2.

Analytic Strategy

To test the hypotheses in the current study, path analysis in structural equation modeling was used (in M-Plus, ver 7.20, Muthen & Muthen, 2012). The first hypothesis (H1a) tested whether earlier peer victimization (i.e.: at Time 1) will be negatively associated with later self-esteem (e.g.: at Time 2). In addition, self-continuity was expected to be related to self-esteem
concurrently above and beyond the effect of peer victimization (H1b). More importantly, the negative association between peer victimization and self-esteem was moderated by self-continuity (main hypothesis). Nevertheless, the potential mediating role of each component of self esteem (social, cognitive and physical competence) was explored as well. Finally, the model was split by gender to identify if there were differences in any of the associations outlined above across groups. Grade differences were also examined.

Results

Means and standard deviations along with zero-order correlations of all of the study variables are presented in Table 1. First, gender and grade differences in the means of the study variables were examined (Tables 2 & 3). Boys reported significantly higher self-esteem than girls at Time 2 \( \left( t_{(346.45)} = -3.08, p < .05 \right) \). Boys also reported significantly higher in social competence \( \left( t_{(350)} = -3.12, p < .05 \right) \) and physical competence \( \left( t_{(350)} = -6.22, p < .05 \right) \) compared to girls.

Regarding grade differences, there were more significant differences across elementary school students and high school students. Elementary school students scored higher self-esteem both at Time 1 \( \left( t_{(351)} = 3.47, p < .05 \right) \) and Time 2 \( \left( t_{(135.36)} = 4.89, p < .05 \right) \) compared to high schoolers. Elementary school students also reported significantly higher in self-continuity \( \left( t_{(351)} = 3.44, p < .05 \right) \), physical self-esteem \( \left( t_{(351)} = 3.12, p < .05 \right) \), and social competence \( \left( t_{(351)} = 3.54, p < .05 \right) \). Interestingly, high school students scored higher in cognitive competence \( \left( t_{(351)} = 3.51, p < .05 \right) \) compared to elementary schoolers.

Structural equation modeling began by examining the association of earlier self-esteem on later self-esteem. To little surprise, children higher in self-esteem at Time 1 reported higher
self-esteem at Time 2 (b = .60, S.E. = .05, z = 12.49, p < .05). Controlling for starting values accounted for 30.70% of the variability in later self-esteem.

Hypothesis testing began by modeling Time 1 victimization scores on Time 2 self-esteem after accounting for earlier self-esteem values. Hypothesis 1a was not supported because there was no significant association (b = -.03, S.E. = .05, z = -.49, p < .05). To explain, earlier victimization was not related to later self-esteem when controlling for starting self-esteem. It’s worth noting that the correlation table does support that there is a link between Time 1 self-esteem and Time 1 victimization however (r = -.42, p < .05). As such, the model was revised to reflect the effect of time victimization on starting self-esteem and testing for the indirect effect on later self-esteem. Sure enough, there was a significant indirect effect of time 1 peer victimization on later self-esteem through earlier self-esteem (b\text{indirect} = -.23, S.E. = .03, z = -7.36, p < .05). In sum, hypothesis 1a was partially supported.

To test hypothesis 1b, self-continuity at Time 2 was added as a correlate of Time 2 self-esteem. As hypothesized, there was a significant relationship between self-continuity and high self-esteem (b = 0.17, S.E. = .04, z = 3.83, p < .05). This means that the more self-continuity an adolescent reports during Time 2, the more self-esteem they will report at Time 2, when controlling for earlier self-esteem and above and beyond the effect of peer victimization. To explain the variability, previous variability was reported at 30.7 percent before, with now a 1.3 percent in variability, summing up to 32 percent. Hypothesis 1b was supported.

To test the main hypothesis that self-continuity will buffer against decreases in self-esteem at Time 2 in association with peer victimization at Time 1, the interaction between two predictors was added to the model. Strictly speaking, the interaction was not significant (b =
-.06, S.E. = .03, z = -1.86, p = .06) as such the main hypothesis was not supported. Regardless, adding the interaction to the model explained an additional 1.3% of the variability in self-esteem at Time 2. Nevertheless, Figure 1 illustrates the negligible moderating effect of self-continuity on the association between Time 1 peer victimization and Time 2 self-esteem. As displayed in the figure, peer victimization was related to lower self-esteem among students with more self-continuity (contrary to expectation). It’s worth noting that the resulting model was a good fit to the data ($\chi^2(2) = 7.84, p < .05, \text{CFI} = .97, \text{RMSEA} = .09, \text{SRMR} = .03$).

Next, the various components of competence were incorporated into the model as mediators of the association between peer victimization and later self-esteem. Figure 2 illustrates this final model. A number of interesting associations emerged. To little surprise, Time 2 self-esteem was associated with more cognitive, physical and social competence ($b$s = .42, .37, .34 respectively, $p$s < .05). However, only cognitive and social competence were positively related to self-esteem at Time 2 ($b$s = .14 & .26 respectively, $p$s < .05), above and beyond the effects of the other significant predictors which included Time 1 self-esteem and self-continuity at Time 2. Finally, whereas self-continuity was related to more physical competence ($b$ = .15, $p$ < .05), there were no significant effects on either cognitive or social competence. A number of additional indirect effects were observed. Specifically, the effect of victimization on later self-esteem was partially indirectly through the relation with Time 1 self-esteem and cognitive competence ($b_{\text{indirect}} = -.03, \text{S.E.} = .01, z = -4.02, p < .05$) and social competence as well ($b_{\text{indirect}} = -.01, \text{S.E.} = .01, z = -2.77, p < .05$). The final model remained a good fit to the data ($\chi^2(8) = 31.41, p < .05, \text{CFI} = .95, \text{RMSEA} = .09, \text{SRMR} = .04$).
To test for potential gender and grade differences in the associations (for honors credit), the models were split separately and each association was constrained to be the same across groups. Regarding gender differences, two associations significantly worsened the models when constrained to be the same between boys and girls (as measured by a change in the chi-square). Specifically, the correlation between physical competence and social competence was stronger among boys ($r = .53, p < .05$) as opposed to girls ($r = .23, p < .05$). More interesting however, the association between self-continuity and self-esteem at time 2 was significant for girls ($b = .19, S.E. = .04, z = 4.60, p < .05$) but not boys ($b = .00, S.E. = .04, z = .01, p > .05$). Otherwise, the model with every other effect constrained to be the same across genders was a good fit to the data ($\chi^2_{(31)} = 56.08, p < .05, CFI = .95, RMSEA = .07, SRMR = .05$). It’s interesting to note that this same association also differed across grades being significant for elementary school students ($b = .14, S.E. = .03, z = 4.13, p < .05$) but not high school students ($b = -.03, S.E. = .06, z = .51, p > .05$). Finally, the grade differences model with every other effect constrained to be the same was a good fit to the data as well ($\chi^2_{(31)} = 55.83, p < .05, CFI = .95, RMSEA = .07, SRMR = .06$).

Discussion

In summary, the results showed that hypothesis 1a was not supported, in that peer victimization was not significantly correlated with lower self-esteem over time. However, hypothesis 1b was supported, by showing that self-continuity was in fact correlated with higher self esteem over time. The main hypothesis was not supported, as self-continuity did not show a significant buffering effect against decreases in self-esteem over time when associated with peer victimization. Results from the study showed that cognitive, social, and physical competence were associated with self-esteem at Time 1, while cognitive and social competence were
positively associated with self-esteem at Time 2. The study revealed that self-continuity was more associated with physical competence, with no significant relationship between self-continuity and cognitive or social competence. Indirect correlations in the study show that the effects of victimization on self-esteem at Time 2 were caused by the relationship between Time 1 self-esteem and cognitive and social competence. Results from the study showed that physical competence and social competence was stronger among boys, compared to girls. In addition, the study revealed that the relationship between self-continuity and self-esteem at Time 2 was significant for girls, as well as elementary schoolers, as opposed to boys, and middle schoolers.

The study did not support the hypothesis that peer victimization is associated with lower self-esteem over time. The study did however support the hypothesis that self-continuity will be positively associated with self-esteem. The current research is not new, however it is partially consistent with previous literature that shows self-continuity is adaptive in adolescent development, with researchers having stated that it “becomes more intricate throughout development,” (Santo et al., 2018). Results from the study were expected to show that self-continuity buffers against decreases in self-esteem over time in association with peer victimization, however that was not the case. What is new about this research is self-continuity as an outcome due to peer victimization, while other studies have focused on depression, such as Santo and associates (2018) who focused on the depression affects post-victimization in relation to self-continuity (p. 883). Gender and grade differences were expected to reveal no significant effect on the components of self-esteem or its association with self-continuity. Results showed that physical competence and social competence were significant among gender differences,
affecting boys more than girls and the relationship between self-continuity and self-esteem was significant among both gender and grade differences. The importance of observing gender and grade differences suggested that the effects of peer victimization are consistent across both gender and grade, however not all components of self-esteem were equally responsible for shifts in self-esteem or self-continuity.

This study showed that self-continuity is positively associated with self-esteem. Based on previous literature, this supports the idea that adolescents with higher self-esteem will experience a higher sense of self-continuity as well. Studies have shown that with higher self-esteem, adolescents experience a higher sense of success and security (Trześniewski et al., 2006). As the literature states that students will achieve a higher sense of self, the results of the study coincide with this hypothesis.

Self-continuity did not show any significant buffering effects on the role of victimization on adolescents with low self-esteem. Compared to the study conducted by Santo and associates (2018), the results of this study did not find any ties between those with low self-esteem and victimization as expected. The results from the study conducted by Santo and associates (2018) found that the association between “peer victimization and depressed affect” was buffered among adolescents who scored higher in self-continuity (p. 882). The current study did not find that to be the case, however. Results from the current study also showed that peer victimization itself is not significantly correlated with lower self-esteem, when controlling earlier values. This changes the way that researchers may view the relationship between victimization and self-esteem, by considering other factors that may cause low self-esteem, that may be unrelated to victimization earlier on. Examples of other factors that could affect self-esteem and its
components could include socioeconomic status, culture barriers, socialization skills, abilities, body image, etc. The results of the study not supporting the hypothesis could imply that victimization may not be as significant enough to affect adolescent development as previously thought.

Implications

This study is important because adolescents who experience peer victimization, and thus, lower self-esteem, may experience negative feelings about themselves in adulthood (Trześniewski et al., 383). As mentioned previously, adults who experienced low self-esteem and victimization in adolescence were more likely to experience physical health problems, as well as depression and anxiety (Trześniewski et al., 383). Additionally, adults with low self-esteem were also more likely to participate in deviant behaviors, such as substance abuse and antisocial behaviors (Fanti & Henrich, 2015). By observing the associations between high self-esteem and self-continuity, researchers and experts will be able to identify ways to prevent low self-esteem, and implement programs in schools and youth centers to discourage things such as bullying. Future studies may also use things such as positive friendships as a means of observing its role in peer victimization, thus enabling schools and programs to encourage more interpersonal relationships among students.

Strengths

There are a number of strengths that the current study can boast. For example, this study includes a Brazilian sample as the participant pool. By using a sample outside of Northern America, researchers will be able to have a more diverse view of adolescent development. As such, the data on self-esteem and self-continuity will be more inclusive of things such as culture
and ethnic differences (Watkins & Dhawan, 1989). Additionally, the range of grade levels allows for viewing the different responses that may occur across grades. By looking across grade levels, the study will be able to interpret any developmental differences in the event that there are significant differences. The study also used structural equation modeling. This aided in our understandings of the relationships between each variable while simultaneously accounting for other shared associations.

Limitations

One limitation of the study is the use of peer victimization as a whole, rather than dividing it between physical and relational victimization. Dividing the two different types of peer victimization has the potential to reveal nuanced differences in the effects, possibly that physical peer victimization occurs more often than relational victimization, or vice versa. Alternatively, relational victimization may be more harmful than physical victimization. Another limitation of the study could be that the components of self-esteem, such as social, cognitive, and physical, were only measured at Time 2, rather than at both Time 1 and Time 2. By including data from both times, views of self-esteem may have seen a greater variance on one component, but not the others, allowing researchers to control for those earlier effects.

Concluding Remarks

In conclusion, this study hypothesized that peer victimization will be associated with lower self-esteem over time, and that self-continuity will be positively associated with self-esteem. This study found self-continuity was positively associated with self-esteem, but did not support the hypothesis that peer victimization was not associated with lower self-esteem over time. Additionally, it was hypothesized that self-continuity will buffer against decreases in
self-esteem over time in association with peer victimization, which was not supported. Due to the findings of this study, future researchers will be able to conduct further research into understanding the psychological and social development of adolescents. This research emphasizes the need and future implementation of anti-bullying programs in schools and a much larger emphasis on mental health programs for adolescents, as a way to combat low-self esteem and encourage self-continuity.

This study explored how components of self-esteem are associated with the buffering effect of self-continuity. Negative outcomes were found to impact the development of identity and self-esteem. The study also examined the role of self-continuity in adolescence. Self-esteem plays a large role in adolescent development by affecting how they behave, their emotional capacity, and socialization skills. The study observed how components of self-esteem, gender, and class grades play a role in self-continuity. The examination of the components of self-esteem add on to previous research and allow for the opportunity to explore each component in depth. The hope is that future research is able to find new ways to combat negative outcomes and behaviors due to low-self esteem and a lack of self-continuity. This study has gone beyond the current scope of research in order to better understand adolescents as they grow and develop their emotional and social capacities.
References


[https://doi-org.leo.lib.unomaha.edu/10.1007/s10826-019-01502-9](https://doi-org.leo.lib.unomaha.edu/10.1007/s10826-019-01502-9)


[https://doi.org/10.1289/ehp.123-A297](https://doi.org/10.1289/ehp.123-A297)


Table 1. Means, Standard Deviations and zero-order correlations

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<th>M</th>
<th>SD</th>
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<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
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<td>.70</td>
<td>.79</td>
<td>.55**</td>
<td>-.25**</td>
<td>.25**</td>
<td>.37**</td>
<td>.31**</td>
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<td>2.</td>
<td>T1 General Self-worth</td>
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<td>.55**</td>
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<td>-.42**</td>
<td>.15**</td>
<td>.31**</td>
<td>.26**</td>
</tr>
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<td>3.</td>
<td>T1 Victimization</td>
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<td>-.42**</td>
<td>.85</td>
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<td>-.17**</td>
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<td>.15**</td>
<td>-.10**</td>
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<td>5.</td>
<td>T2 Cognitive Comp.</td>
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<td>.37**</td>
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*p < .05; **p < .01

Notes. Internal consistency estimates for each scale shown on the diagonal.
Table 2. Means, Standard Deviations and differences as a function of gender

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<td>SD</td>
<td>M</td>
<td>SD</td>
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<td>3. T1 Victimization</td>
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<td>.67</td>
<td>1.75</td>
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<td>4. T2 Self-continuity</td>
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* p < .05; ** p < .01
Table 3. Grade differences

Table 3. Means, Standard Deviations and differences as a function of grade level

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<td>SD</td>
<td>M</td>
<td>SD</td>
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<td>.71</td>
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<td>3.04</td>
<td>.72</td>
<td>4.89**</td>
<td>135.36</td>
</tr>
<tr>
<td>3. Victimization T1</td>
<td>1.76</td>
<td>.64</td>
<td>1.87</td>
<td>.63</td>
<td>1.38</td>
<td>351</td>
</tr>
<tr>
<td>4. Self-continuity T2</td>
<td>2.87</td>
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<td>2.58</td>
<td>.64</td>
<td>3.44**</td>
<td>351</td>
</tr>
<tr>
<td>5. Cognitive Self-esteem T2</td>
<td>3.30</td>
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<td>3.00</td>
<td>.73</td>
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<td>351</td>
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<td>6. T2 Physical Comp.</td>
<td>3.14</td>
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<td>1.03</td>
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<td>7. T2 Social Comp.</td>
<td>3.55</td>
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<td>3.54**</td>
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</table>

* p < .05; ** p < .01
Figure 1. *Relationship between victimization and self-esteem as moderated by self-continuity.*
Figure 2. Final model estimates.
Appendix A

Questionnaires at Time 1

Peer Victimization

The classmates provoked me.

I was pushed, punched and/or kicked by classmates

Classmates threatened to hurt me, hit me or other types of threats

Classmates stole, messed or ruined my stuff

I was cursed by classmates

Classmates excluded me from groups and/or games

Classmates put me nicknames that I didn't like

Classmates said things about me to make others laugh

General Self-Esteem

There are several things about me that I would change if I could (reversed)

I am sure about myself

I feel good about the way I act

I don't think I'm a good person (reversed)

I am happy with who I am

I don't like the way I do a lot of things (reversed)

I am generally sure that what I do is right
If I could, I would change many things about myself (reversed)

There are many things about me that I am proud of
Appendix B

Questionnaires at Time 2

General Self-Esteem

There are several things about me that I would change if I could

I am sure about myself

I feel good about the way I act

I don't think I'm a good person

I am happy with who I am

I don't like the way I do a lot of things

I am generally sure that what I do is right

If I could, I would change many things about myself

There are many things about me that I am proud of

Social Competence

I have a hard time making friends

I have a lot of friends

The students in my class like me and are good to me

Other kids in my class like me for who I am

I am popular with others my age

I feel accepted by others in my class

I get along with others
It is easy for me to make new friends

**Cognitive Competence**

I am very good at school

I am as smart as other people my age

I am slow to finish my schoolwork

I forget what I have learned often

I'm doing well at school

It is difficult for me to understand the right answers at school

I complete my homework quickly

**Physical Competence**

I am good at all types of sports

It is easy for me to learn a new sport or activity

I am better at sports than others my age

I'd rather watch than participate in sports

I am not so good at new sports

I am a good athlete

Sports are easy for me

**Self-Continuity**

Outside I change, but inside I don't change

I remain the same more than I change
I am the same person today as I was five years ago

As an adult, I will be the same person I am today

I may look different over time, but I'm really the same inside

In five years, I will be the same person I am today

I am always the same person, no matter what