



Good can be stronger than bad: the daily relationship among maternal warmth, mother-teen conflict and adolescents' self-esteem

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Abstract

Self-esteem is associated with adaptive adolescent outcomes but tends to decline in adolescence. Parent-teen warmth has been linked to concurrent increases in adolescents' self-esteem while adolescents' conflict with parents is detrimental to their self-esteem in cross-sectional or longitudinal studies. However, it is unknown how adolescents experience of maternal warmth and conflict with mothers are correlated with their daily self-esteem, and whether these associations vary in adolescents' gender, age and family subjective socioeconomic status (SES) from the perspective of Process-Person-Context-Time (PPCT) theory. To address this gap, 293 adolescents ($M_{\text{age}} = 13.88$ years, $SD = .62$) were recruited from a school, reporting their daily experience of maternal warmth, conflict with mothers and self-esteem by answering checklists for up to 7 days. Multilevel analysis showed that adolescents reported significantly higher self-esteem on days they experienced more warmth or less conflict with mothers than usual. Moreover, maternal warmth was linked to next-day self-esteem positively, yet mother-teen conflict not shown this spill-over effect. Gender, age and subjective SES did not moderate all the daily associations among mother-teen warmth, conflict and self-esteem. Findings suggest that mother-teen interactions play both protective and detrimental role in adolescents' daily self-image and that "good" interaction goes a longer way than "bad" one.

Keywords Self-esteem · Maternal warmth · Mother-teen conflict · PPCT theory

Introduction

Self-esteem is the core of self and reflects one's global evaluation or appraisal of his or her value (Rosenberg, 1965). The findings from existing literature show that self-esteem is closely associated with a variety of important life outcomes. For instance, individuals who exhibit high levels of self-esteem are more likely to engage in better interpersonal relationship (Cameron & Granger, 2019) and show better academic performance (McClure et al., 2010). Besides, longitudinal research shows self-esteem negatively predicts later psychological problems like depression (Maselink et al., 2018) and anxiety (Sowislo & Orth, 2013).

However, although individuals usually show relatively high self-esteem in their childhood, their self-esteem usually decreases when they enter adolescence (Chung et al., 2017; Robins & Trzesniewski, 2005). The apparent importance and long-term impact of self-esteem provoke the question of what factors influence (both positively and negatively) individuals' self-esteem in their adolescence. A large body of research has claimed that parenting is a vital influencing factor to individuals' self-esteem development (Khaleque, 2013; Orth, 2018). Therefore, based on Process-Person-Context-Time (PPCT) Model (Bronfenbrenner, 1995), the current study using a daily diary method aims at examining associations between daily self-esteem and perceived maternal warmth and mother-teen conflict.

The state component of self-esteem

Self-esteem was recognized as a relatively stable and trait-like component for a long time. However, subsequent evidence indicates that self-esteem is less steady than other personality traits (e.g., extroversion) (Conley, 1984). More recent evidence suggests that self-esteem should be

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considered as a construct comprising both stable (trait-like) and variable (state-based) components (Anusic & Schim-mack, 2016). And considerable variation has been found in daily self-esteem within one week among adolescents (Fuller-Tyszkiewicz et al., 2015). The temporal fluctuations of self-esteem are believed to reflect situation-based, temporary self-worthiness (Kernis, 2005). What is more, the state part of self-esteem, over and above the role of global self-esteem, is related to multiple psychological adjustments such as depression (Zeigler-Hill & Wallace, 2012), envy (Vrabel et al., 2018) and perceived aggression (Zeigler-Hill et al., 2014).

Although these findings have recognized the importance of state self-esteem, little is known about the within-person correlations between mother-teen relationships and self-esteem. Self-esteem research and theory have generally emphasized that adolescents' experience of parental warmth and conflict with parents as influencing factors of their trait self-esteem (Davis et al., 2018; Kiviruusu et al., 2014; Leung Ling et al., 2020). These between-person associations at the dispositional level provide initial evidence for proposing the within-person relationships among maternal warmth, mother-teen conflict and self-esteem at daily level. However, considering the trait and state components of self-esteem are independent (Nezlek, 2001), it is unknown whether adolescents' daily self-esteem covaries with mother-teen interactions.

Mother-teen interactions and teenagers' self-esteem under PPCT Model's perspective

Maternal warmth and mother-teen conflict are central to adolescents' daily self-esteem adherent to PPCT model. This model provides a framework for understanding development by proposing that individuals' development is driven by proximal process, which refers to the reciprocal interactions with people, objects and symbols in one's the immediate environment (Bronfenbrenner, 1995). A typical proximal process for adolescents is the interactions with their mothers, as mothers usually have more time being accessible to teenagers and also spend much time directly interacting with them (Phares et al., 2009). This critical proximal process may contribute to the development of adolescents' self-esteem. The immediate interactions with mothers might make teenagers develop a definition about themselves that mimics the form and content conveyed by the interactions. For instance, when mothers express love and appreciation to their children through warm and kind behaviors, adolescents may tend to feel emotionally secured and worthy. On the contrary, conflicts and quarrels implying mothers' anger and disapproval could make teenagers experience denied and rejected. Therefore, maternal warmth is hypothesized to be

associated with adolescents' high daily self-esteem, while conflict with mothers is thought to be linked with low daily self-esteem.

These assumed relationships have gained supports from the other theoretical and empirical evidence. The notion that maternal warmth may link to higher self-esteem while mother-teen conflict may link to lower self-esteem in adolescents is supported by sociometer theory (Leary & Baumeister, 2000), which claims that perceived positive social relationship is related to high self-esteem and negative interpersonal relationship plays an opposite role. In addition, empirical evidence indicates that mother-teen interactions may have universal effect on adolescents' self-esteem. Although Tadayon and Khodi (2017) have pointed out that people grow up in different cultures have different constructions about themselves, and their self-constructions may change under the new cultural background through learning and using new language. Therefore, it is possible that mother-teen interactions influence teenagers' sense of self differently in different cultures. However, empirical studies from different countries and cultural backgrounds demonstrated that mothers' supportive and loving behaviors are positively related to their children's self-esteem (Koutika et al., 2021; Leung Ling et al., 2020; Martinez -

outcomes. For instance, Cheon and Chung (2020) found a greater sensitivity to fathers' emotional support among teenagers in less affluent family than more affluent family. The current study hypothesized a similar pattern that adolescents who perceive higher subjective socioeconomic status (SES) might show less self-esteem fluctuations due to interactions with mother. Additionally, since this study is focused on short-term processes, whether time affect the relationship between mother-teen interactions and adolescents' self-esteem is not tested. However, it is worth noticing that this research was conducted during COVID-19 epidemic, during which period teenagers' mental health is greatly threatened by pandemic and family shows especially importance to teenagers' well-being (Wang et al., 2021). Therefore, this study focused on whether personal features and environmental characteristics moderate the daily relationships between maternal warmth, parent-teen conflict and self-esteem.

The current study

Within the framework of the PPCT model, the current study examines the role of maternal warmth and mother-teen conflict in adolescents' same-day and next-day self-

Table 1 Means, standard deviations, ICC, reliability and correlations of variables

	Mean	SD	ICC	α_w	α_b	1	2	3	4	5
Self-esteem	3.71	0.69	0.45	0.519	0.817					
Warmth	3.68	0.96	0.58	0.611	0.987	0.61**				
Conflict	1.56	0.63	0.29	0.658	0.982	-0.39**	-0.43**			
Gender						0.11	-0.05	-0.06		
Age						-0.01	-0.03	-0.09	0.12*	
Subjective SES						0.16**	0.02	-0.06	0.08	0.02

* $p < 0.05$, ** $p < 0.01$. ICC represents intraclass correlation; α_w and α_b represents within-and between-level reliability, respectively; correlations of variables are analyzed with mean values

et al. (2020). Items consisted of “my mom got mad at me today.”, “I was angry at my mom today.” And “my mom punished me today.” Responses of three items were averaged to obtain adolescents’ daily conflict with their mothers. The higher scores indicated more conflict between adolescents and their mother. The reliability was 0.658 at the between-person level and 0.982 at the within-person level.

Daily self-esteem Adolescents’ daily self-esteem was assessed with three items adapted from Nezlek and colleagues (Nezlek et al., 2019). Items consisted of “Today, I felt that I was a valuable person, at least as good as others.”, “Today, I felt like a failure.”, and “Today I’m satisfied with myself.” Responses on the second item was reversed and then three items were averaged to create adolescents’ daily self-esteem. The higher scores indicated adolescents’ higher self-esteem on a given day. The reliability was 0.519 at the between-person level and 0.817 at the within-person level.

Demographic moderators Demographic variables were assessed using the single-item scales at the first day of this dairy study. Subjective SES was measured with the Chinese version of MacArthur Scale of Subjective Social Status (Adler et al., 2000).

Analysis

The two-level data structure that daily measures nested within individuals was analyzed with hierarchical linear modeling in HLM 6.08 (HLM; Raudenbush & Bryk, 2002). For all of the analyses, missing values were handled with restricted maximum likelihood estimation. The first analyses were unconditional models that had no predictors to estimate the mean and the variances at the within- and between-level. The intraclass correlation coefficient (ICC) of daily self-esteem could be obtained in this model, providing information about whether self-esteem varied from day to day.

Then, we tested the daily association between maternal warmth and adolescents’ self-esteem using two models. One model examined the same-day relationships, and the second examined lagged relationships to evaluate the spillover effect

of maternal warmth and self-esteem. Both models treated daily maternal warmth as a random effect and the score of this predictor was group-mean centered. Group-mean centering for daily predictor was necessary for estimate within-person associations (Bolger & Laurenceau, 2013). In these analyses, adolescents’ gender, age and socioeconomic status (SES) were added at level 2 to control these variables and entered to the slope of maternal warmth to evaluate the two-way interactions. We split the sample by the mean age to compare whether younger and older adolescents in this sample varied in the daily relationship between maternal warmth and their self-esteem.

The model we used to examine same-day relationships between maternal warmth and adolescents’ self-esteem was presented below:

Level 1 Model:

$$Y(\text{daily self-esteem}) = P0 + P1 * (\text{daily maternal warmth}) + E(\text{error term})$$

Level 2 Model:

$$(\text{intercept}) P0 = B00 + B01 * (\text{Gender}) + B02 * (\text{age}) + B03 * (\text{SES}) + R0$$

$$(\text{slope}) P1 = B10 + B11 * (\text{Gender}) + B12 * (\text{age}) + B13 * (\text{SES}) + R1$$

The next model tested lagged relationships between maternal warmth and adolescents’ self-esteem. Daily self-esteem was predicted by previous day’s maternal warmth and self-esteem on previous day was controlled. This model was presented below:

Level 1 Model:

$$Y(\text{daily self-esteem}) = P0 + P1 * (\text{previous day's maternal warmth})$$

$$+ P2 * (\text{previous day's self-esteem}) + E(\text{error term})$$

Level 2 Model:

$$(\text{intercept}) P0 = B00 + B01 * (\text{Gender}) + B02 * (\text{age}) + B03 * (\text{SES}) + R0$$

$$P2 = B20 + R2$$

$$(\text{slope}) P1 = B10 + B11 * (\text{Gender}) + B12 * (\text{age}) + B13 * (\text{SES}) + R1$$

After that, the daily associations between mother-teen conflict and adolescents’ self-esteem were estimated using the same procedures by replacing daily maternal warmth with daily mother-teen conflict. And the first model

examined the same-day relationships while the second tested lagged relationships between mother-teen conflict and self-esteem.

Results

Descriptive statistics

The results of descriptive statistics were presented in Table 1. The mean value for all variables across 7 days were calculated. The mean level of daily maternal warmth was positively correlated with 7-day mean of adolescents' self-esteem, while mean parent-teen conflict was negatively related to adolescents' self-esteem, meaning that higher levels of maternal warmth and lower levels of mother-teen conflict were related to more positive self-esteem. In addition, the ICC for the daily measures ranged from 0.29 to 0.56. And the ICC of self-esteem was 0.45, indicating there was substantial within-person variability in adolescents' daily self-esteem and a multilevel analysis was necessary. The mean of daily self-esteem across 7 days was significantly correlated with maternal warmth positively and with mother-teen conflict negatively, meaning that higher level of warmth and lower level of conflict were related to more positive self-esteem.

Daily relationships between maternal warmth and adolescents' self-esteem

The results of daily relationships between maternal warmth and adolescents' self-esteem were summarized in Table 2. We first tested the same-day association between perceived maternal warmth and adolescents' self-esteem. As shown in Table 2, daily maternal warmth was significantly and positively associated with adolescents' self-esteem ($b = 0.27$, $SE = 0.05$, $p < 0.001$) at the same day after controlling for

adolescents' gender, age and family SES at level 2. This result was consistent with our expectations, suggesting that on days when adolescents experienced more maternal warmth than usual, they evaluated their value more positively. In addition, adolescents' self-esteem was associated with SES ($b = 0.08$, $SE = 0.03$, $p = 0.020$), but not with gender or age ($ps > 0.125$), as the intercept model shown. These results indicated that adolescents enjoyed the higher level of overall self-esteem when their SES was higher, while teenagers' gender or age had no relationship with their self-esteem in this sample. Lastly, none of the moderating effect of all these variables were not significant ($ps > 0.436$), suggesting adolescents in different gender, age and SES enjoyed the same benefit of maternal warmth in their daily self-esteem.

Then, the spillover effect of maternal warmth on adolescents' self-esteem was examined. Results about this relationship was like the same-day relationship between maternal warmth and adolescents' self-esteem reported above (see Table 2). First, daily maternal warmth was positively associated with adolescents' next-day self-esteem ($b = 0.12$, $SE = 0.05$, $p = 0.015$), with models' intercept and slope included all moderators. This association supporting the spillover effect of maternal warmth on adolescents' self-esteem, suggesting that adolescents had higher level of self-esteem than usual when they experienced more warmth with their mother previous day. Additionally, self-esteem was associated with SES ($b = 0.08$, $SE = 0.03$, $p = 0.014$) but not with gender or age ($ps > 0.190$). Lastly, the moderating effect of age on the association between maternal warmth and adolescents' next-day self-esteem was marginally significant ($b = -0.10$, $SE = 0.04$, $p = 0.064$), while neither gender nor SES showed moderating effect ($ps > 0.465$). That was, the spillover effect of maternal warmth on adolescents' self-esteem was not varied by gender or SES, though younger adolescents might benefit more from maternal warmth than older adolescents.

Table 2 The relationship between maternal warmth and adolescents' self-esteem

variables	Same day			Lagged day		
	beta	SE	p	beta	SE	p
Intercept	3.65	0.10	0.000	3.60	0.10	0.000
× gender	0.12	0.08	0.125	0.11	0.08	0.190
× age group	<0.01	0.10	0.964	0.04	0.07	0.936
× SES	0.08	0.03	0.020	0.08	0.03	0.014
SE(d-1)				-0.10	0.03	0.002
Maternal warmth	0.27	0.05	0.000	0.12	0.05	0.015
× gender	-0.01	0.06	0.825	0.04	0.06	0.465
× age group	-0.05	0.07	0.436	-0.10	0.04	0.064
× SES	<0.01	0.02	0.859	<0.01	0.017	0.850

Daily relationships between mother-teen conflict and adolescents' self-esteem

The results of daily relationships between mother-teen conflict and adolescents' self-esteem were summarized in Table 3. We first reported the same day correlation between mother-teen conflict and adolescents' self-esteem. The main finding was that daily mother-teen conflict was negatively associated with adolescents' self-esteem ($b = -0.18$, $SE = 0.05$, $p = 0.001$), with this model adding adolescents' gender, age and SES at the intercept and slope part. Consistent with our expectations, on days when adolescents experienced more conflict with their mothers than the average day, they evaluated their self-value more negatively. In addition, average self-esteem was related to SES ($b = 0.08$, $SE = 0.03$, $p = 0.020$) but not with gender or age ($ps > 0.115$), suggest-

self-esteem at daily level. These findings are in line with previous empirical studies reporting that supportive, warm parent-teen relationship correlates with positive psychological adjustment including positive self-esteem (Khaleque, 2013). On the contrary, adolescents reported more negative emotions on days when they experienced greater family conflict (Armstrong-Carter & Telzer, 2020). Our findings expand the associations between mother-teen relationships and self-esteem to daily and naturalistic situations, mirroring the role of family interactions in adolescents' positive psychological adjustment in everyday life.

What's more, our findings suggest that maternal warmth is related to adolescents' self-esteem at the next day, whereas mother-teen conflict does not contribute to self-esteem on the following day. These results do not fit with the bad-is-stronger-than-good phenomenon (Baumeister et al., 2001), which holds that bad events generally exert more influence over individual's life and people react to bad events more strongly than good things. However, we found that maternal warmth, compared to mother-teen conflict, plays an enduring role in adolescents' self-esteem. Our findings extend Baumeister's et al. (2001) perspective by demonstrating that good can be stronger than bad, at least in terms of the role of mother-teen relationships in teenagers' self-value. A possible reason for this might be that, though individuals' motivation is susceptible to external factors like others' personalities (Khalilzadeh & Khodi, 2021), people are strongly motivated to perceive and evaluate themselves favorably (Zell et al., 2020). Adolescents hold strong motivation of self-enhancement and thus tend to pay more attention to positive information (e.g., maternal warmth) that helps to maintain self-view. They may also hold motivation of self-protection and then tend to avoid or neglect information that may threaten their self-image (Sedikides et al., 2016). Supporting this proposal, Schmidt and colleagues (Schmidt et al., 2020) found that for school-aged children, it is social inclusion, not exclusion that predicts their evening self-esteem.

Within the framework of the PPCT model, we have tested whether person-level characteristics including gender, age, and subjective SES influence proximal processes in the association between mother-teen interactions and teenagers' self-esteem. We found teenagers with higher subjective SES showed higher self-esteem, which is consistent with the popular notion reported by large-sample study (Kiviruusu et al., 2014). However, our findings showed that subjective SES did not moderate the relationship between mother-teen interactions and adolescents' self-esteem, unlike the moderating effect of financial condition on the association between fathers' emotional support and teenagers' self-evaluation in roles reported by previous studies (Cheon & Chung, 2020). The pattern between mother-teen interactions and teenagers' self-esteem also appears consistent across teenagers' gender, suggesting that mother-teen interactions have the same role

in girls' and boys' self-esteem. However, our investigation of age-related variation revealed a marginally significant moderation, suggesting that the association between maternal warmth and daily self-esteem on following day may be stronger for younger adolescents than older adolescents. Indeed, Wilkinson (2006) also reported that the quality of adolescent attachment with mothers affects young teenagers more. Future research can further probe age-related differences when exploring the role of parent-teen interactions in individuals' developmental outcomes. Together, our results show that mother-teen interactions have both protective and detrimental roles in adolescents' self-esteem in daily life, regardless of family socioeconomic status and children's personal characteristics.

We proposed that mother-teen interactions predict adolescents' next-day self-esteem based on the PPCT model. However, an alternative is that adolescent's daily self-esteem is predictive of the next-day maternal warmth, given that maternal warmth and adolescent's daily self-esteem exhibit strong association in this study and prior literature also suggests the possibility that the predictive relationship between teenagers' self-esteem and parenting behaviors may be bidirectional (Bates et al., 2012). Thus, we reciprocally tested the prediction direction between maternal warmth and teenagers' self-esteem. The results demonstrate that only maternal warmth predicts adolescents' self-esteem on next day ($p = 0.015$), not vice versa. These findings highlight the central role of interactions with mothers in adolescents' daily self-esteem. Maternal warmth is not changed when their youth's self-esteem is high or low, but when mothers show more warmth to their adolescents, this positive behavior can buffer the same-day and next-day self-esteem in youth.

Taken together, this daily diary study contributes to research and theory of self-esteem development. First, we tested the PPCT theory in daily settings and found that the proximal processes of mother-teen interactions were related to adolescents' self-esteem at a daily level in natural circumstances. We believe that our daily diary design captures the concept of proximal processes proposed by PPCT theory, which highlights a frequent exposure to everyday interactions with persons or objects in the immediate environment. Understanding the way how proximal processes work provides insights into the underlying mechanisms that shape self-esteem development. Second, our findings indicate that good can be stronger than bad in terms of self-image, at a minimum. Our study shows that, in terms of self-view, positive daily activities (i.e., maternal warmth) have longer influence than negative events (i.e., mother-teen conflict). These findings extend the notion that bad is stronger than good, which posits that the effect of bad events generally lasts longer and are easier to bring detrimental outcomes in developmental process (Baumeister et al., 2001).

Identifying the role of parent-teen interactions in youths' self-esteem is not merely of theoretical importance. Parent-child relationships and self-esteem is changing as children enter adolescence. For adolescents, parental warmth to them generally declines and conflict with their parents tend to increase (Mastrotheodoros et al., 2020; Shanahan et al., 2007). These changes in parent-teen relationships have been used to explain youth's adaptation like well-being (Silva et al., 2020). This study further found that mother-teen interactions co-occur, or even predict adolescents' self-esteem in real-world circumstances, which might explain the declines in teenagers' self-esteem (Chung et al., 2017). As change of parent-child relationship occurred in adolescence provide opportunities to have better developmental outcomes (Branje, 2018), the findings are informative to the development of youths' healthy self-image. Parents' showing more kind and warm interactions is expected to benefit their youth to form high self-esteem, which may further contribute to youths' psychological adjustments. Fortunately, warmth parents' behaviors are equally effective and beneficial to girls and boys, regardless of their current family financial condition.

Limitations and future research

Our study has potential limitations which might provide angles for future research to dig in. Firstly, we used convenient sampling method because of the restricted research circumstance. And when extending the results obtained in our study, it should be kept in mind that the study's conclusions need to be restrained accordingly. Future studies employing random sampling method may further improve the generalization of the research.

Secondly, our micro-longitudinal study cannot clarify the effect of maternal warmth and mother-teen conflict in long term. Thus, whether the positive parenting has stronger influence on adolescents' self-esteem than negative ones on a larger time scale needs future studies to illuminate, which would help understanding adolescents' development of self.

Besides, this study focused on general maternal warmth and mother-teen conflict, and did not differentiate the specific aspects over these variables. However, specific aspects of maternal warmth or mother-teen conflict may play different roles in impacting teenagers' self-esteem. For example, Chinese parents generally concern much more about their children's academic performance than mundane household stuff. Thus, adolescents may have more increases in self-esteem when their mothers show warmth interactions with them for their school performance than housecleaning. And further exploration about which aspect impact teenagers' self-esteem more could shed light on the key influencing factor to teenagers' self-esteem.

Additionally, to further deepen the understanding of the PPCT model, other personal and environmental factors beyond sociodemographic factors could be taken into consideration in future studies, like the consistency of mothers' behaviors, adolescents' and mothers' personalities, family values. The research unveiling the effect of those factors could provide broader picture to understand how teenagers develop their sense of self.

Lastly, fathers' role in children's self-esteem was not included within the scope of this study. Whether fathers' supportive behaviors also affect teenager's self-esteem stronger than father-teen conflict? And interactions between mother's and father's behaviors are worthy inquiring. For example, can mothers' warm behaviors buffer fathers' negative effect on teenager's self-esteem? The answer to those questions will contribute to the existing knowledge about parent-teenager relationship and are of useful application value.

Conclusion

The current study extends long-standing interest in understanding how mother-teen interactions impact adolescents' self-esteem and development. Prior researches have shown that maternal warmth and conflict with mothers are influencing factors of individuals' trait self-esteem. This study extends former researches to the daily level and captures proximal processes in the way Bronfenbrenner defined. We found daily maternal warmth was related to adolescents' self-esteem positively while mother-teen conflict was related to self-esteem negatively. What is more, maternal warmth affects adolescents' self-esteem longer than conflict. Our findings confirm PPCT model and to some extent extend bad-is-stronger-than-good theory. Our results provide opportunities to understand the development of adolescents' healthy self-image and suggest possible interventions for parents to help their youth obtain better psychological adjustments.

Author contribution All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Wu Yingshengnan and Yuan Rong. The first draft of the manuscript was written by Wu Yingshengnan and Yuan Rong. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Data availability The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval This study was approved by approved by the Committee for Protecting Human and Animal Subjects in the School of the Psychological and Cognitive Sciences, Peking University.

Consent to participate All participants gave written informed consent before the study.

Competing interests On behalf of all authors, the corresponding author states that there is no conflict of interest.

References

- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, 19(6), 586–592. <https://doi.org/10.1037/0278-6133.19.6.586>
- Anusic, I., & Schimmack, U. (2016). Stability and change of personality traits, self-esteem, and well-being: Introducing the meta-analytic stability and change model of retest correlations. *Journal of Personality and Social Psychology*, 110(5), 766–781. <https://doi.org/10.1037/pspp0000066>
- Armstrong-Carter, E., & Telzer, E. H. (2020). Family meals buffer the daily emotional risk associated with family conflict. *Developmental Psychology*, 56(11), 2110–2120. <https://doi.org/10.1037/dev0001111>
- Bates, J. E., Schermerhorn, A. C., & Petersen, I. T. (2012). Temperament and parenting in developmental perspective. In M. Zentner & R. L. Shiner (Eds.), *Handbook of temperament* (pp. 425–441). The Guilford Press.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323–370. <https://doi.org/10.1037/1089-2680.5.4.323>
- Bolger, N., & Laurenceau, J. P. (2013). *Intensive longitudinal methods: An introduction to diary and experience sampling research*. Guilford press.
- Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, 54, 579–616. <https://doi.org/10.1146/annurev.psych.54.101601.145030>
- Branje, S. (2018). Development of parent-adolescent relationships: Conflict interactions as a mechanism of change. *Child Development Perspectives*, 12(3), 171–176. <https://doi.org/10.1111/cdep.12278>
- Branje, S., Laursen, B., & Collins, W. A. (2012). Parent-child communication during adolescence. In *The Routledge Handbook of Family Communication* (pp. 271–286). Taylor and Francis. <https://doi.org/10.4324/9780203848166>
- Bronfenbrenner, U. (1995). Developmental ecology through space and time: A future perspective. In P. Moen, G. H. Elder, Jr., & K. Lüscher (Eds.), *Examining Lives in Context: Perspectives on the Ecology of Human Development* (pp. 619–647). American Psychological Association. <https://doi.org/10.1037/10176-018>
- Cameron, J. J., & Granger, S. (2019). Does self-esteem have an interpersonal imprint beyond self-reports? A meta-analysis of self-esteem and objective interpersonal indicators. *Personality and Social Psychology Review: An Official Journal of the Society for Personality and Social Psychology, Inc.*, 23(1), 73–102. <https://doi.org/10.1177/1088868318756532>
- Cheon, Y. M., & Chung, G. H. (2020). Adolescents' daily experience of fathers' emotional support and self-evaluation in Korea. *Journal of Research on Adolescence: The Official Journal of the Society for Research on Adolescence*, 30(1), 142–157. <https://doi.org/10.1111/jora.12507>
- Chung, J. M., Hutteman, R., van Aken, M. A. G., & Denissen, J. J. A. (2017). High, low, and in between: Self-esteem development from middle childhood to young adulthood. *Journal of Research in Personality*, 70, 122–133. <https://doi.org/10.1016/j.jrp.2017.07.001>
- Collins, W. A., & Steinberg, L. (2006). Adolescent development in interpersonal context. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 1003–1067). John Wiley & Sons Inc.
- Conley, J. J. (1984). The hierarchy of consistency: A review and model of longitudinal findings on adult individual differences in intelligence, personality and self-opinion. *Personality and Individual Differences*, 5(1), 11–25. [https://doi.org/10.1016/0191-8869\(84\)90133-8](https://doi.org/10.1016/0191-8869(84)90133-8)
- Davis, A. N., Rudy, D., Su-Russell, C., & Zhang, C. Y. (2018). Chinese and European American undergraduates' perceptions of maternal warmth and negativity as predictors of self-esteem and life satisfaction. *Cross-Cultural Research*, 52(2), 192–212. <https://doi.org/10.1177/1069397117718812>
- De Goede, I. H., Branje, S. J., & Meeus, W. H. (2009). Developmental changes in adolescents' perceptions of relationships with their parents. *Journal of Youth and Adolescence*, 38(1), 75–88. <https://doi.org/10.1007/s10964-008-9286-7>
- Fuller-Tyszkiewicz, M., McCabe, M., Skouteris, H., Richardson, B., Nihill, K., Watson, B., & Solomon, D. (2015). Does body satisfaction influence self-esteem in adolescents' daily lives? An experience sampling study. *Journal of Adolescence*, 45, 11–19. <https://doi.org/10.1016/j.adolescence.2015.08.009>
- Jiang, J., Lu, R., Jiang, B., & Xu, Y. (2010). Revision of the short-form Egna Minnen av Barndoms Uppfostran for Chinese. *Psychological Development and Education*, 26(1), 94–99.
- Kernis, M. H. (2005). Measuring self-esteem in context: The importance of stability of self-esteem in psychological functioning. *Journal of Personality*, 73(6), 1569–1605. <https://doi.org/10.1111/j.1467-6494.2005.00359.x>
- Khaleque, A. (2013). Perceived parental warmth, and children's psychological adjustment, and personality dispositions: A meta-analysis. *Journal of Child and Family Studies*, 22(2), 297–306. <https://doi.org/10.1007/s10826-012-9579-z>
- Khalilzadeh, S., & Khodi, A. (2021). Teachers' personality traits and students' motivation: A structural equation modeling analysis. *Current Psychology*, 40(4), 1635–1650. <https://doi.org/10.1007/s12144-018-0064-8>
- Kiviruusu, O., Huurre, T., Aro, H., Marttunen, M., & Haukkala, A. (2014). Self-esteem growth trajectory from adolescence to mid-adulthood and its predictors in adolescence. *Advances in Life Course Research*, 23. <https://doi.org/10.1016/j.alcr.2014.12.003>
- Koutra, K., Paschalidou, A., Roumeliotaki, T., & Triliva, S. (2022). Main and interactive retrospective associations between parental rearing behavior and psychological adjustment in young adulthood. *Current Psychology*. <https://doi.org/10.1007/s12144-022-03011-3>
- Kwak, K. (2003). Adolescents and their parents: A review of intergenerational family relations for immigrant and non-immigrant families. *Human Development*, 46(2–3), 15–136. <https://doi.org/10.1159/000068581>
- Leary, M. R., & Baumeister, R. F. (2000). The nature and function of self-esteem: Sociometer theory. In *Advances in Experimental Social Psychology* (Vol. 32, pp. 1–62). Academic Press. [https://doi.org/10.1016/S0065-2601\(00\)80003-9](https://doi.org/10.1016/S0065-2601(00)80003-9)
- Leung Ling, M. T. W., Chen, H. F., & Chiu, K. C. N. (2020). Parental warmth and involvement and the self-esteem of young people in

- Hong Kong. *Child Indicators Research*, 13(3), 801–817. <https://doi.org/10.1007/s12187-019-09645-3>
- Li, Y., & Warner, L. A. (2015). Parent-adolescent conflict, family cohesion, and self-esteem among Hispanic adolescents in immigrant families: A comparative analysis. *Family Relations: An Interdisciplinary Journal of Applied Family Studies*, 64(5), 579–591. <https://doi.org/10.1111/fare.12158>
- Martinez, I., Garcia, F., Veiga, F., Garcia, O. F., Rodrigues, Y., & Serra, E. (2020). Parenting styles, internalization of values and self-esteem: A cross-cultural study in Spain, Portugal and Brazil. *International Journal of Environmental Research and Public Health*, 17(7), 2370. <https://doi.org/10.3390/ijerph17072370>