

# Social Anxiety as a Mediator of the Association Between Adolescents' Self-esteem and Loneliness

Masterthesis

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06-07-2020

## **Abstract**

It is known that self-esteem predicts loneliness and social anxiety, and that social anxiety predicts loneliness. Whether social anxiety mediates the relationship between self-esteem and loneliness is unknown. Gender differences were found in social anxiety and self-esteem. This thesis therefore examined the mediating role of social anxiety in the relationship between self-esteem and loneliness, and the moderating effect of gender in these associations. This was researched using data from 444 adolescents, 251 male and 193 female. Self-report questionnaires were used to measure self-esteem (Rosenberg Self-esteem Scale), social anxiety (Social Anxiety Scale), and loneliness (Loneliness and Aloneness Scale for Children and Adolescents). It can be concluded from the results that social anxiety significantly reduces the direct effect of self-esteem on loneliness. Gender did not moderate these associations. This can be explained through the fact that females use protective mechanisms to increase self-esteem, and through the measures used.

Loneliness, the feeling of having fewer close interpersonal relationships than desired (Peplau & Perlman, 1979), is an important factor in our development, especially in early adolescence (Vancampfort et al., 2019). Self-esteem seems to be a predictor for loneliness, with people reporting lower self-esteem also tending to report more loneliness (Creemers, Scholte, Engels, Prinstein, & Wiers, 2013). Social anxiety is related to both loneliness and self-esteem. People with lower self-esteem tend to be more socially anxious (Ran, Zhang, & Huang, 2018), and socially anxious people tend to be lonelier (Danneel et al., 2019). While the associations between loneliness, self-esteem, and social anxiety have been well-documented, it remains unclear whether social anxiety explains the link between self-esteem and loneliness. This thesis will address this by testing social anxiety as a mediator of the association between self-esteem and loneliness using data from a longitudinal questionnaire study administered on early adolescents. Gender differences are found in self-esteem and social anxiety. Females tend to have lower self-esteem and higher social anxiety than males. This could lead to gender differences on the association between self-esteem and social anxiety, and could therefore also have an effect on the relationship between self-esteem and loneliness (Ranta et al., 2007; Abdollahi, Abu Talib, Reza Vakili Mobarakeh, Momtaz, & Kaviani Mobarakeh, 2016). For this reason, this thesis will also look at gender moderation in

these factors.

Loneliness is very common among early adolescents. According to the Dutch Central Bureau of Statistics, 57 percent of children ages 13-18 report some feelings of loneliness, and 4 percent report strong feelings of loneliness (Van Beuningen & de Witt, 2016). Early adolescents start to get increasingly more independent from their parents, and they start to experience fear of exclusion from their friend group, increasing their chance of feeling lonely (Corsano, Grazia, & Molinari, 2019). Borys and Perlman (1985) have found that it's unclear whether or not there are gender differences in loneliness. Men tend to have less emotional and intimate relationships, making them more prone towards feeling lonely, while it is more socially accepted for women to feel lonely than it is for men, so they tend to show their loneliness more often.

According to Weiss (1973), loneliness can be divided into two different components: emotional and social loneliness. Emotional loneliness occurs when someone lacks an intimate personal relationship and it's characterized by feelings of anxiety and isolation. Social loneliness occurs when a person lacks a social network with people with similar interests and is characterized by feelings of aimlessness and boredom. It has been shown that reassurance of self-esteem predicts social loneliness. When people's skills and abilities are acknowledged in a relationship, they feel more confident about themselves and more satisfied with their relationship. Social integration is also linked to social loneliness. People that struggle with integrating themselves into friend groups are more likely to have less friends with similar interests and will therefore be less satisfied with their social networks (Russell, Cutrona, Rose, & Yurko, 1984). It can be concluded that there are various predictors for loneliness, relating to self-esteem and social integration. It is important to look at possible predictors for loneliness in adolescents, because it could lead to anxious and depressive symptoms later in life (Vancampfort et al., 2019). By knowing these predictors, it's possible to identify adolescents at risk for anxious and depressive symptoms, and these symptoms could be prevented by trying to reduce their loneliness through the underlying mechanisms.

One of the predictors for loneliness is self-esteem. Self-esteem is the evaluation one makes of their own worth, and how one chooses to consciously express that confidence (Kernis, 2013). As previously mentioned, when people do not feel reassured of their self-esteem, they do not feel satisfied with their relationship and will therefore feel lonelier (Russell et al., 1984). Males and females differ in self-esteem. Females, more often than males, have a damaged body-esteem. Body-esteem is how one feels about the way their body looks, and is closely linked to self-esteem. Females tend to have a damaged body-esteem

more often than men because of the sociocultural pressure to have an ideal body shape. When do not have this ideal body, their body-esteem lowers (You, Shin, & Kim, 2018). This lower body esteem in women leads to an overall lower self-esteem than men (Abdollahi et al., 2016).

According to Creemers et al. (2013), self-esteem is a predictor for amount of loneliness, meaning that people with lower self-esteem are more vulnerable for feelings of loneliness. Considering that females tend to have a lower overall self-esteem (Abdollahi et al., 2016) it would be expected that this relationship is moderated by gender, with females also reporting more feelings of loneliness. While is no concrete evidence to support this specific moderation, Moksnes and Espnes (2013) did find gender to moderate the relationship between self-esteem and life satisfaction. Life satisfaction is seen as a person's subjective judgment of overall well-being taking various life aspects, including loneliness, into account. They found that females score lower on both self-esteem and life satisfaction, indicating that they might be feeling lonelier too. It is however not clear what the underlying mechanisms behind this relationship are. As mentioned earlier, social integration predicts social loneliness. When people struggle to integrate into their friend group, they are less satisfied with their social network (Russell et al., 1984). Struggling to socially integrate is often seen in people with social anxiety. These people tend to avoid social situations or endure them with a lot of anxiety. When you do not engage in many social activities, it becomes more difficult to integrate in a friend group (Bögels et al., 2010). This thesis will shed more light on a possible underlying mechanism by looking at social anxiety.

Social anxiety is defined as a fear in one or more different social situations, leading to avoidance of these social situations. People with social anxiety fear being judged and scrutinized by others, and acting in an embarrassing way (Bögels et al., 2010). People with low self-esteem often have dysfunctional evaluations about themselves, and tend to evaluate interactions with other people more negatively, which are main factors in the development of social anxiety. These people also tend to be more shy than people with higher self-esteem, and therefore will not engage in social interactions as often, which contributes to the maintenance of social anxiety (Ran et al, 2018). In conclusion, self-esteem seems to be a predictor for social anxiety. People with lower self-esteem are generally more socially anxious.

Gender differences are also found in social anxiety. Early adolescent females tend to have higher social anxiety scores than males. This is likely because females generally have higher anxiety levels than males. From childhood, males are more often than females encouraged to confront and thus extinguish fears, whereas it seen as more normal for females

to have fears. This is also seen in social anxiety (Ranta et al., 2007). According to Abdollahi et al. (2016), gender is a moderator for the relationship between self-esteem and social anxiety. Females scored lower on self-esteem, and higher on social anxiety.

Social anxiety also seems to be related to loneliness. Social anxiety in early adolescence often precedes feelings of loneliness later in adolescence and in adulthood. It is also often seen as a vicious cycle (Danneel et al., 2019). Socially anxious people tend to have less peer contact, since that requires social interactions, which they tend to avoid. This leads to increased feelings of loneliness, which leads to less peer contact, and increases socially anxious feelings (Corsano et al., 2019). There is no concrete evidence whether or not this is moderated by gender. Females do tend to have higher social anxiety (Ranta et al., 2017) but the gender differences in loneliness are unclear (Borys & Perlman, 1985). Since self-esteem predicts social anxiety (Abdollahi et al., 2016; Ran et al., 2018), and social anxiety predicts loneliness (Danneel et al., 2019), social anxiety could possibly be a mediator in the relationship between self-esteem and loneliness.

Ravery and Baldwin (2018) have looked at the relationship between self-esteem and social rejection biases. They suggested that when people are reminded of a self-perceived flaw, it'll cue a rejection bias in which they are more focused on social rejection, which lowers people's self-esteem. People with social anxiety tend to show social rejection biases (Kernis, 2013). When they're reminded of a perceived flaw regarding their social skills, they will direct more attention towards stimuli suggesting a rejection bias. A dot-probe task with cue words was used to measure the rejection bias, and the Rosenberg Self-Esteem Scale was used to measure self-esteem. Results show that people with low self-esteem show rejection bias when confronted with their self-perceived flaws. This suggests that low self-esteem can precede social anxiety, since it shows a bias towards social rejection.

Inderbitzen-Pisaruk, Clark, and Solano (1992) researched different correlates for loneliness in adolescents age 15 using concurrent measures, among which are social anxiety and self-esteem, using different questionnaires to measure each construct. The questionnaires were given to the students in school, during class. Both social anxiety and self-esteem are significantly correlated with loneliness. Both are predictors for the levels of loneliness; higher social anxiety predicts more loneliness, and lower self-esteem predicts more loneliness. Erözkan (2009) also looked at correlates for loneliness in 600 high school students and found significant relationships between loneliness and self-esteem, and between loneliness and social anxiety. Erözkan also suggested that educating adolescents on interpersonal relationships, personal goals, and academic achievements could be useful in reducing social

anxiety and loneliness, and increase self-esteem.

Riggio, Throckmorton, and Depaola (1990) looked at relations between social skills and self-esteem, by administering multidimensional self-report questionnaires among undergraduate students, measuring self-esteem, social skills and anxiety, loneliness, and other aspects of general wellbeing. They found that people with higher social anxiety have lower self-esteem and reported more feelings of loneliness. It seems that social anxiety might have a mediating role in the relationship between self-esteem and loneliness: People with low self-esteem tend to be more socially anxious, since they show more rejection biases (Ravery & Baldwin, 2018), and because people are more socially anxious, they tend to experience more loneliness (Danneel et al., 2019).

The current study addresses two research questions. First, does social anxiety mediate the relationship between self-esteem and loneliness in early adolescents? Based on previous results (Danneel et al., 2019, Ravery & Baldwin, 2018, and Inderbitzen-Pisaruk et al., 1992), I expect that people with low self-esteem will have high social anxiety, which will lead to more loneliness. The inclusion of social anxiety as a predictor of loneliness will reduce the association between self-esteem and loneliness. Second, does gender moderate these associations? Gender differences are found in self-esteem and social anxiety. Females tend to have lower overall self-esteem (Abdollahi et al., 2016) and higher social anxiety (Ranta et al., 2007). No clear differences were found in loneliness (Borys and Perlman, 1985). I expect that females will have lower scores on self-esteem and higher scores on social anxiety than men. I also expect females to have a stronger link between self-esteem and loneliness (Mosknes & Espnes, 2013), and between self-esteem and social anxiety (Abdollahi et al., 2016). The current study will answer these questions using data from self-report questionnaires measuring self-esteem, social anxiety, and loneliness among early adolescents.

## **Methods**

### **Participants and Procedure**

The current study derived its data from the Kandinsky Longitudinal Study (KLS: Stoltz, Cillessen, van den Berg, & Gommans, 2016). This is a longitudinal study measuring the risk of social and emotional problems in Dutch students following secondary education. In this study, I selected data from 444 students, 251 males (56.5%) and 193 females (43.5%), ranging in age between 11.53 and 15.52 years ( $M = 12.86$ ,  $SD = .60$ ) who completed three annual assessments.

The KLS includes annual assessments of students at the Kandinsky high school in

Nijmegen. Parental consent was obtained before administering the surveys to the students. The students completed the assessment on a computer in the classroom, during school hours. Researchers explained the procedure before the assessment, and assured participants that their data would be used anonymously and confidentially. Students were asked not to share answers with their fellow students. The procedure took about 45 to 60 minutes.

## **Measures**

Self-esteem is measured at time point 1 with the Rosenberg Self-Esteem Scale (Rosenberg, 1979). This is a self-report questionnaire consisting of 10 items, half of which measure satisfaction with oneself, and half of which measure dissatisfaction. These are answered on a 4-point Likert scale, ranging from ‘completely disagree’ to ‘completely agree’. An example of an item is ‘sometimes I feel useless’. The dissatisfaction items will be reverse coded, and the score on each item is then added up to make a total score. So, a high score indicates a high level of self-esteem. Cronbach’s alpha for this questionnaire is .93

Social anxiety is measured at time point 2 using the Social Anxiety Scale (Olivares, Ruiz, Hidalgo, García-López, Rosa, & Piqueras, 2005). This is an 18-item self-report questionnaire which are answered on a 5-point Likert scale, ranging from ‘never’ to ‘always’. An example of an item is ‘I worry about what others think of me’. An average is made of the scores on each item to make a total score ranging from 1-5, with higher scores indicating more social anxiety. Cronbach’s alpha for this questionnaire is .89

Loneliness is measured at time point 3 using The Loneliness and Aloneness Scale for Children and Adolescents (LACA: Goossens, Lasgaard, Luyckx, Vanhalst, Mathias, & Masy, 2009). The KLS study uses 12 items from this instrument describing ‘loneliness in peer relations’. The items are answered on a 4-point Likert scale, ranging from ‘never’ to ‘often’. An example of an item is ‘making friends is difficult for me’. A higher score indicates higher degrees of loneliness. Cronbach’s alpha for this questionnaire is .81.

## **Data Analysis**

First, descriptive statistics and correlations were calculated for self-esteem, loneliness, and social anxiety, separated for males and females. Both research questions were analyzed using longitudinal mediation analyses in SPSS 25, in the PROCESS tool by Hayes (2017). To address the first research question one mediation model, consisting of multiple linear regression analyses, was performed. Self-esteem at time 1 was used as the predictor of social anxiety and loneliness. Social anxiety at time 2 was used as the mediating factor, reducing the association between self-esteem and loneliness. Loneliness at time 3 was used as the outcome

measure. To address the second research question, the sample was then split into males and females, and the analysis was repeated to assess possible gender differences. Bootstrapping was used in all of the analyses to calculate standards errors, and the statistical significance of the direct and indirect effects was based on bias-corrected confidence intervals.

## Results

### Descriptive Statistics and Correlations

Descriptive statistics and correlations were calculated separately for both males and females. The mean score for males on the Rosenberg Self-esteem Scale in the current sample is 3.29 ( $SD = .40$ ), and is not significantly higher than the females' score ( $M = 3.16$ ,  $SD = .42$ ) ( $t(442) = 3.20$ ,  $p = .419$ ). This means that the overall sample reports quite high levels of self-esteem. The mean scores on the Social Anxiety Scale are quite low for males ( $M = 1.91$ ,  $SD = .57$ ), and slightly higher for females ( $M = 2.11$ ,  $SD = .65$ ). This difference is significant ( $t(442) = -3.42$ ,  $p = .009$ ). This means that while the overall sample does not report much social anxiety, females tend to be more socially anxious than males. The mean scores on the LACA for both males ( $M = 1.35$ ,  $SD = .37$ ) and females ( $M = 1.39$ ,  $SD = .44$ ) are quite low and do not differ significantly ( $t(442) = -1.14$ ,  $p = .139$ ), indicating that the males and females in the current sample do not experience a lot of feelings of loneliness.

The correlations can be found in Table 1. Self-esteem at time point 1 is negatively correlated with social anxiety at time point 2, which indicates that a lower level of self-esteem is associated with higher levels of social anxiety. Social anxiety at time point 2 is positively correlated with loneliness at time point 3. This means that higher levels of social anxiety are associated with higher levels of loneliness. Lastly, self-esteem at time point 1 is negatively correlated with loneliness at time point 3, meaning that lower levels of self-esteem are associated with higher levels of loneliness. A similar pattern of correlations emerged for both males and females.

Table 1

*Correlations Between Self-esteem at Time Point 1, Social Anxiety at Time Point 2, and Loneliness at Time Point 3, Separated for Males and Females.*

|       |                 | Self-esteem<br>(1) | Social<br>Anxiety (2) | Loneliness<br>(3) |
|-------|-----------------|--------------------|-----------------------|-------------------|
| Males | Self-esteem (1) | -                  | -.41                  | -.31              |

|         |                    |   |      |      |
|---------|--------------------|---|------|------|
|         | Social Anxiety (2) |   | -    | .46  |
|         | Loneliness (3)     |   |      | -    |
| Females | Self-esteem (1)    | - | -.44 | -.27 |
|         | Social Anxiety (2) |   | -    | .47  |
|         | Loneliness (3)     |   |      | -    |

*Note:* all associations are significant ( $p < .01$ ).

### Mediation Models

The first mediation analysis included the entire sample, both males and females. Self-esteem at time point 1 is found to be a significant predictor for loneliness at time point 3 ( $B = -.10, SE = .05, p = .023, CI [-.19, -.01]$ ). Lower self-esteem leads to more feelings of loneliness. Self-esteem at time point 1 is also found to be a significant predictor for social anxiety at time point 2 ( $B = -.62, SE = .06, p < .001, CI [-.75, -.50]$ ). This means that lower self-esteem leads to higher social anxiety. Social anxiety at time point 2 was also found to be a significant predictor for loneliness at time point 3 ( $B = .29, SE = .03, p < .001, CI [.23, .35]$ ). This means that a high level of social anxiety leads to more feelings of loneliness. The results also found a significant indirect effect of self-esteem on loneliness through social anxiety ( $B = -.18, SE = .03, CI [-.24, -.13]$ ). This shows that, for the entire sample, social anxiety mediates the relationship between self-esteem and loneliness. Lower self-esteem in early adolescents predicts higher social anxiety, which in turn predicts more feelings of loneliness.

The second mediation analysis focused on the males in the sample. Self-esteem at time point 1 is found to be a significant predictor for loneliness at time point 3 ( $B = -.12, SE = .06, p = .037, CI [-.22, -.01]$ ). Lower levels of self-esteem lead to more feelings of loneliness for males. Self-esteem at time point 1 is also found to be a significant predictor for social anxiety at time point 2 ( $B = -.58, SE = .08, p = .000, CI [-.74, -.42]$ ). This means that lower self-esteem leads to higher social anxiety for males. Social anxiety at time point 2 was also found to be a significant predictor for loneliness at time point 3 ( $B = .27, SE = .04, p = .000, CI [.20, .35]$ ). This means that a high level of social anxiety leads to more feelings of loneliness for males. The results also found a significant indirect effect of self-esteem at time point 1 on

loneliness at time point 3 through social anxiety at time point 2 ( $B = -.16, SE = .04, CI [-.23, -.10]$ ). This shows that, for males, social anxiety mediates the relationship between self-esteem and loneliness. Lower self-esteem predicts higher social anxiety, which in turn predicts more feelings of loneliness. Social anxiety seems to reduce the association between self-esteem and loneliness.

The third mediation analysis focused on the females in the sample. Self-esteem at time point 1 is not a significant predictor for loneliness at time point 3 ( $B = -.09, SE = .08, p = .26, CI [-.23, .06]$ ). Lower self-esteem does not lead to more feelings of loneliness for females. Self-esteem at time point 1 is also found to be a significant predictor for social anxiety at time point 2 ( $B = -.67, SE = .10, p = .000, CI [-.87, -.47]$ ). This means that lower self-esteem leads to higher social anxiety for females. Social anxiety at time point 2 was also found to be a significant predictor for loneliness at time point 3 ( $B = .30, SE = .05, p = .000, CI [.20, .40]$ ). This means that a high level of social anxiety leads to more feelings of loneliness for females. The results also found a significant indirect effect of self-esteem on loneliness through social anxiety ( $B = -.20, SE = .04, CI [-.30, -.12]$ ). This shows that, for females, social anxiety mediates the relationship between self-esteem and loneliness. Lower self-esteem predicts higher social anxiety, which in turn predicts more feelings of loneliness. Social anxiety seems to reduce the association between self-esteem and loneliness. Even though the indirect effect was found, the results indicate that the direct effect of self-esteem on loneliness is not found for females, meaning that lower self-esteem does not lead to more loneliness for females.

## Discussion

The current study investigated the mediating role of social anxiety in the relationship between self-esteem and loneliness in early adolescents. It was hypothesized that adolescents who reported lower self-esteem would report higher social anxiety, and therefore report more feelings of loneliness (Danneel et al., 2019; Ravery & Baldwin, 2018; Inderbitzen-Pisaruk et al., 1992). This hypothesis has been confirmed. The main mediation analysis showed that self-esteem is a significant predictor for social anxiety and loneliness, and social anxiety is a significant predictor for loneliness. Social anxiety reduces the link between self-esteem and loneliness.

Secondly, the current study investigated whether or not there were differences between males and females in these associations. It was hypothesized that females would have lower self-esteem and higher social anxiety scores than males (Abdollahi et al., 2016; Ranta et al.,

2017). Females would also have a stronger link between self-esteem and loneliness, and between self-esteem and social anxiety (Mosknes & Epnes, 2013; Abdollahi et al., 2016). This hypothesis can be partly confirmed. The descriptive statistics show slightly higher scores for females on social anxiety, but not on self-esteem or loneliness. Considering the similar correlation patterns for males and females, it does not seem that females have stronger links between any of the variables. The mediation models for males and females both showed the mediating role of social anxiety in the relationship between self-esteem and loneliness.

The results concerning the direct effects of the first research question are in line with other research, and the indirect effect is an extension on current literature, since the mediating role of social anxiety had not yet been tested. Social anxiety has a mediating role in the relationship between self-esteem and loneliness. This means that self-esteem is a predictor for loneliness. Damaged self-esteem leads to more feelings of loneliness. A damaged self-esteem occurs when people have a discrepancy between their automatic evaluation of the self and the explicit, experiential evaluation of the self. People may feel 'entrapped' in their expectations of themselves and who they are in reality, which could lead to psychological problems such as loneliness (Creemers et al., 2013). It also means that self-esteem is a predictor for social anxiety. This is because people with low self-esteem are more likely to develop dysfunctional evaluations about themselves and they tend to evaluate social interactions more negatively, both of which are main factors in social anxiety (Ran et al., 2018). Lastly, the results of the current study suggest that social anxiety predicts loneliness. This can be explained through the vicious cycle (Danneel et al., 2019). Socially anxious people tend to have less peer contact since that requires social interactions, which they tend to avoid. This leads to increased feelings of loneliness, since they probably have not formed as many relationships as they would like, which leads to less peer contact, and increases socially anxious feelings. The current research found the indirect effect of self-esteem on loneliness through social anxiety, thus adding more knowledge on social anxiety as an underlying mechanism, which has not previously been studied.

The results concerning the second research question are partly in line with other research. Females were found to have a higher mean score on social anxiety, but did not differ from males on self-esteem or loneliness. Females are generally not as often encouraged to confront their fears, thus have higher social anxiety levels than males (Ranta et al., 2007). According to Abdollahi et al. (2016), females should have lower self-esteem, which was not found. This can be attributed to the fact that while females face more threats on their self-esteem, they also have more mechanisms to protect their self-esteem, such as making

comparisons in their own group versus other groups (males) (Kling, Hyde, Showers, & Buswell, 1999). Borys and Perlman (1985) found no clear gender differences for loneliness. Moreover, in a meta-analysis of gender differences throughout individuals' lifespan, the levels of loneliness are very similar for males and females (Maes, Qualter, Vanhalst, Van den Noortgate, & Goossens, 2019).

The same pattern of associations was found for both males and females, meaning that there were no stronger links on the relationships between self-esteem and loneliness and between self-esteem and social anxiety for females. This is not in line with research since it's expected that females have stronger links on both of these relationships (Mosknes & Epnes, 2013; Abdollahi et al., 2016). Mosknes and Epnes (2013) found that gender moderates the relationship between self-esteem and life satisfaction. While feelings of loneliness are part of life satisfaction, it also takes other factors into account such as socioeconomic status and health. The current research only examined loneliness, which could be why the moderation was not found. Abdollahi et al (2016) found that females with lower self-esteem report higher social anxiety. They however also included a body-esteem measure, which the current research did not do. When self-esteem was measured separately, the moderating effect of gender became much smaller. This could explain why the current research did not find a moderating effect. The current research also did not find the direct effect of self-esteem on loneliness for females, which is not in line with research since self-esteem has often shown to predict loneliness for males and females (Creemers et al., 2013). Since the pattern of the paths are the same for males and females and there is also no significant difference in the indirect effects, the reducing effect of social anxiety on the direct effect between self-esteem and loneliness is still found, even though the direct effect is not significant for females.

A strength of the current research is that it has used longitudinal data. This allows researchers to more strongly ensure the directions of the associations between the variables. Another strength is the size of the sample. Since the sample is large, the results and outcomes are more reliable. Finally, the current study used validated, reliable, and widely used measures. The questionnaires have been proven to measure the constructs they were designed to measure. A limitation of the study is that the results are based on a sample from a Dutch high school with a rather high socioeconomic status, which is related to people having an overall high level of wellbeing (Bradley & Corwyn, 2002). This means that the sample's self-esteem is rather high, and the social anxiety and loneliness are rather low. This also means that the sample is homogeneous and it might not be generalizable to other cultures and nations. A recommendation for future research is to collect data from various countries and

cultures to make sure that nationality or culture does not have an effect on the results of the study. It is also recommended to collect data from groups with varying socioeconomic statuses. Another limitation in the study could be that all the measures were self-report questionnaires. Questionnaires about psychological wellbeing quite often contain sensitive questions about anxiety or loneliness, and some of the questionnaires were about classmates. This could lead the participants to want to answer according to social norms (Fugett, Thomas, & Lindberg, 2014), making the answers inaccurate. A recommendation for future research could be to use various methods to assess the constructs, to ensure that social desirability does not play a role in the scores.

The current study investigated the mediating role of social anxiety in the relationship between self-esteem and loneliness. It was found that lower self-esteem leads to higher social anxiety, which leads to higher levels of loneliness. Social anxiety reduces the direct effect of self-esteem on loneliness. The gender differences were small, and the links between the associations did not differ for males and females. The current research explored the possibility of social anxiety as an underlying mechanism between self-esteem and loneliness. This is important since loneliness is shown to have adverse effects such as depression and anxiety later in life (Vancampfort et al., 2019). The current study shed more light on social anxiety as a possible underlying mechanism for the relationship between self-esteem and loneliness, thus providing more insight for possible therapies using social anxiety training to help combat loneliness, and laying a foundation for future research.

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