

Relations Between Social Anxiety and Identity Formation Among Adolescents: Social Participation and Self-Esteem as Resilience Resources

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Abstract

This study investigated the relationship between normal variations in adolescent social anxiety, as reported by both youths and their mothers, and three key factors of identity formation: commitment, in-depth exploration, and reconsideration of commitment. It also explored the moderating role of social participation and self-esteem in these relationships. Data from 186 mother-adolescent pairs revealed social anxiety negatively correlated with commitment and positively with reconsideration of commitment, especially when self-reported. The moderating effects of social participation and self-esteem varied based on the reporter of social anxiety, underscoring the importance of considering both perspectives. These findings contribute to our understanding of how socially anxious adolescents might struggle developing a cohesive identity and suggest potential interventions to support adolescents during this crucial period.

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Keywords

social anxiety, identity formation, adolescence, social participation, self-esteem

Introduction

The formation of a cohesive self-identity is a developmental milestone in adolescence (E. Erikson, 1950). Self-identity is an internal and subjective sense of self, encompassing individuals' understanding of who they are, their path in life, and their future goals and aspirations (E. H. Erikson, 1968). A cohesive identity is a vital psychological resource, enhancing well-being and empowering individuals to confidently navigate their world (Waterman, 2007). Anxiety can be a significant barrier to this developmental process (Crocetti et al., 2008; Marcia, 1967; Potterton et al., 2022), disrupting identity formation, leading to identity confusion and an unstable self-concept (Crocetti et al., 2009; Lillevoll et al., 2013; Potterton et al., 2022). Given the pivotal role of social interactions in identity formation, particularly during adolescence (Berzonsky, 2011; Sugimura et al., 2025), we examined the anxiety-identity link, focusing on social anxiety.

While the negative association between anxiety and identity formation is well-documented, some questions remain. Can adolescents develop a clear and stable identity while experiencing social anxiety? How do external and internal factors moderate these relations? Can social participation and self-esteem act as resilience resources? We explored these questions in a sample of 186 adolescents and their mothers.

Identity Formation in Adolescence

Adolescence is a period of change, development and self-discovery, marked by physical, cognitive, social, and emotional transformations (Yurgelun-Todd, 2007). A key process during this stage is the formation of self-identity, an internal and subjective sense of self, crucial for developing independence and autonomy (E. H. Erikson, 1968) and laying the foundation for healthy relationships, generativity, and well-being. During adolescence, fundamental questions such as “Who am I?” and “What am I?” arise, with a well-developed identity serving as the answer.

Several theories were initially proposed to explain the development of identity during adolescence (E. H. Erikson, 1968; Marcia, 1966). Later advancements in the field led to the development of the Three-Factor Model (Crocetti et al., 2008) dividing identity formation into three main processes: commitment, in-depth exploration, and reconsideration of commitment.

Commitment refers to the choices individuals make in various developmental areas and the self-confidence resulting from these choices. It relates to various aspects of well-being, including physical health, subjective well-being, and psychological well-being (Burrow & Hill, 2011; De Lise et al., 2024).

In-depth exploration involves the degree to which individuals critically reflect on their commitments, seek out additional information, and engage in discussions with others about their decisions. Exploration can have both positive and negative consequences. It can be adaptive, as it is associated with personality traits such as conscientiousness and openness to experience, indicating a responsible approach to identity formation (Luyckx, Goossens, Soenens, & Beyers, 2006). Alternatively, excessive in-depth exploration may lead to doubts and psychosocial issues, including lower self-concept clarity and increased depression and anxiety (Crocetti et al., 2008).

Reconsideration of commitment involves comparing existing commitments with other possible ones, especially when the current commitments no longer satisfy the individual. It is characterized by uncertainty (Crocetti et al., 2008) and is related to negative developmental outcomes, maladjustment, and poorer family relationships in adolescents (Beyers & Luyckx, 2016; Crocetti et al., 2017).

The Three-Factor Model, along with many other identity theories (e.g., Social Identity Theory; Turner et al., 1979), emphasizes adolescents' interaction with their social environment as a crucial factor in identity formation. During social interactions, especially with their peers, adolescents seek out their unique identity, relinquishing other attractive options (Palmonari et al., 1992). Those with high levels of anxiety, especially social anxiety, may find this it difficult.

Anxiety and Identity Formation

Anxiety can significantly hinder the process of identity formation, making it difficult for adolescents to achieve a cohesive sense of identity and a stable, integrated self-concept, often leading to identity confusion (Crocetti et al., 2009). While anxiety disorder is defined by specific diagnostic criteria, anxiety itself is part of the normal emotional spectrum and can be experienced by anyone, even those who do not meet criteria for a clinical diagnosis (Cunha et al., 2008; Gullone, 2000; Muris, 2010).

Studies of non-clinical populations have demonstrated associations between anxiety and self-identity formation (Crocetti et al., 2008; Dellas & Jemigan, 1990; Potterton et al., 2022). A meta-analysis reviewed 12 studies involving 1,124 participants and found higher levels of anxiety were

associated with delayed identity formation, characterized by high levels of exploration and low levels of commitment (Lillevoll et al., 2013). In work on the specific relationships between the three components of identity and adolescent anxiety, researchers found commitment was negatively associated with anxiety, while in-depth exploration and reconsideration of commitment were positively linked to anxiety (Crocetti et al., 2008). Similar findings were observed among adolescents in a study exploring relations between anxiety and identity development over time (Crocetti et al., 2009). Researchers conducting annual assessments of anxiety and identity development among 1,313 adolescents from the Netherlands over 5 years found. adolescents with high anxiety had greater difficulty developing their identity than those with low anxiety. Over time, identity commitment of highly anxious adolescents became less stable, and their initial uncertainty about identity commitment, as reflected in a higher intercept of reconsideration, was greater than that of their low-anxiety comparators. This uncertainty continued to grow as they aged.

General anxiety symptoms have been linked to identity formation, but to the best of our knowledge, the relationship between social anxiety and identity formation has not been explored. Social anxiety is one of a range of anxiety symptoms, characterized by a persistent fear of social performance among unfamiliar people, leading to anxiety, or panic attacks. Individuals with social anxiety recognize the fear as excessive but still avoid these situations or endure them with significant distress, as they interfere with daily routines, work or academic performance, social activities, and relationships (American Psychiatric Association, 2013).

Social anxiety typically intensifies during adolescence, with heightened engagement with individuals beyond the family circle and exposure to new social situations (Alfano & Beidel, 2011). Acknowledging the significance of social interactions for identity development (Danielsen et al., 2000; Schwartz et al., 2000), we argued this type of anxiety may be a key factor in the identity formation process.

Social Anxiety: Differences in Parent-Child Reporting

Social anxiety in adolescents can be assessed via reports from multiple sources, including adolescents' self-reports and reports from significant individuals in their lives, such as parents (Hunsley & Mash, 2007). There are often discrepancies between sources (Bowers et al., 2020), with adolescents' self-reports indicating poorer emotional and social health than parents' observational reports (Waters et al., 2003). A factor contributing to the discrepancy may be the shift in relationships during adolescence.

The significant figures for adolescents become their peers rather than their parents (E. H. Erikson, 1968). Thus, parents might be less aware of their children's mental health. Moreover, while social anxiety is an internal struggle, parents often focus on observable behaviors (Mechanic, 1983) not capturing adolescents' experiences of social anxiety. Another factor is children's tendency to rate their levels of psychopathology in a favorable light (De Los Reyes & Kazdin, 2005). Notably, in one study, the diagnosis of anxiety had a stronger correlation with maternal reports of anxiety than with children's self-reports, suggesting clinicians place more emphasis on maternal reports when assigning diagnoses (Manassis et al., 2009). One of the strongest predictors of seeking treatment for children and adolescents is parents' perceived burden (Angold et al., 1998; Wu et al., 2001). Thus, the discrepancies between the child's experience and the parent's report might affect the diagnosis of social anxiety and have implications for treatment (Carlton, 2024; Deros et al., 2018).

We assessed social anxiety using both parent and child reports. We explored two resilience factors, one related to external dynamics, social participation, and one related to internal dynamics, self-esteem, to illuminate their role in moderating relations between social anxiety and identity development.

Moderating Role of Social Participation

Adolescents' social participation refers to the nature and extent of engagement in age-appropriate social activities and peer interactions (E. H. Erikson, 1968; Power & Hyde, 2002; Rękosiewicz, 2013; Sugimura et al., 2025). In fact, social experiences are fundamental to identity formation, giving adolescents explore and refine their self-concept through peer interactions and engagement in diverse social contexts, contributing to the processes of self-discovery and social learning that are integral to the formation of a coherent identity (Berzonsky, 2011; E. H. Erikson, 1968; Rękosiewicz, 2013; Sugimura et al., 2025).

Social participation can be a buffer against the harmful effects of social anxiety during adolescence, including its detrimental impact on academic achievement (Scanlon et al., 2020). This finding, along with social participation's pivotal role in identity formation, suggests adolescents' social engagement may moderate the potential adverse effects of social anxiety on identity formation by providing crucial experiences of belonging, social support, and self-exploration, counterbalancing the socially-avoidant tendencies characteristic of social anxiety and their detrimental effects (La Greca & Lopez, 1998), including on identity development.

Moderating Role of Self-Esteem

Self-esteem, defined as individuals' overall attitude toward themselves, characterized by a favorable or unfavorable self-view (Rosenberg, 1965), has been linked to identity status since the development of Marcia's (1966) identity theory. For example, high self-esteem has been associated with stable identity outcomes, such as identity achievement, and low self-esteem has been associated with less stable identity statuses, such as diffusion, foreclosure, and moratorium (Dusek et al., 1986; Ryeng et al., 2013; Tovarović, 2021).

Although self-esteem plays a significant role in identity development, the relationship between self-esteem and identity status is complex. A meta-analysis of 18 studies reported mixed results, with some evidence supporting connections between high self-esteem and committed identity statuses (Ryeng et al., 2013). However, the analysis did not definitively show whether high self-esteem was tied to "high" identity statuses like achievement or linked to the level of identity commitment itself. Overall, research finds adolescents with higher self-esteem develop stronger, more coherent identities (Shaw et al., 1995).

While self-esteem plays a role in shaping identity, it is important to consider its potential as a moderating factor in relations between social anxiety and identity formation. High self-esteem may act as a protective resource, buffering against the negative effects of social anxiety on identity development. Adolescents with higher self-esteem may be better equipped to handle social anxiety, maintaining a more stable sense of self and commitment to their chosen identity, despite anxiety. Conversely, low self-esteem may exacerbate difficulties associated with social anxiety, leading to greater uncertainty in achieving a coherent identity. These adolescents may waver and reconsider alternative identities, unable to make firm choices or commit to a specific identity.

The Present Study

We explored the intricate relationship between social anxiety, as reported by adolescents and their mothers, and adolescents' identity formation, asking if social participation and self-esteem moderate this relationship. The study was unique in its use of both adolescents' self-reports and parents' observational reports. As noted, there are often discrepancies between these perspectives (De Los Reyes & Kazdin, 2005; De Los Reyes et al., 2010). By incorporating multiple data sources, we aimed to provide a more comprehensive understanding of how social anxiety influences identity development and how resilience resources (social participation, self-esteem) alter this relationship.

Hypotheses

H1) Social anxiety will significantly relate to the three components of identity: commitment, in-depth exploration, and reconsideration of commitment (Crocetti et al., 2008):

H1a) Social anxiety will be negatively related to identity commitment;

H1b) As the literature suggests in-depth exploration can be a double-edged sword, associated with both favorable and unfavorable features of identity formation, we examine the direction of relations between social anxiety and in-depth exploration without a specific hypothesis;

H1c) Social anxiety will be positively related to reconsideration of commitment.

H2) Social participation will moderate relations between social anxiety and identity components:

H2a) The negative relationship between social anxiety and commitment will weaken as social participation increases;

H2b) We explored the moderating effect of social participation on relations between social anxiety and in-depth exploration without a specific hypothesis;

H2c) The positive relationship between social anxiety and reconsideration will weaken as social participation increases.

H3) Self-esteem will moderate relations between social anxiety and identity components:

H3a) The negative relationship between social anxiety and commitment will weaken as self-esteem increases;

H3b) We explored the moderating effect of social participation on the relationship between social anxiety and in-depth exploration without a specific hypothesis;

H3c) The positive relationship between social anxiety and reconsideration will weaken as self-esteem increases.

Method

Sample

The study included 186 adolescents (58.6% boys), aged 12 to 18 years ($M_{\text{age}} = 14.62$, $SD = 1.87$) and their mothers. Most parents (83.0%) were highly educated, having completed at least a bachelor's degree. Participants were recruited through online platforms and using snowball sampling across various regions of Israel.

Procedure

Before data collection, an information sheet detailing the study, along with a consent form for one of the parents and the child to participate, was sent to parents of potential participants. Adolescents were given information about the study and were required to sign an informed consent form. Upon parental and child approval, a link to complete the questionnaires through an online survey platform (Qualtrics) was sent to their email or mobile phone. As a token of appreciation, participants received an \$18 gift card. The study was approved by the authors' university IRB board (approval 031HLE2023).

Measures

All questionnaires were administered in Hebrew. If a Hebrew version was not available, they were translated from English into Hebrew using a back-translation procedure. All participants first reported demographical information, including gender and age.

Social Interaction Anxiety. Adolescents answered the short, 6-item version of Social Interaction Anxiety Scale (SIAS; Peters et al., 2012), a self-report questionnaire designed to measure anxiety in social interactions (Mattick & Clarke, 1998). Participants rate items using a 5-point Likert scale (0 = not at all characteristic or true of me, 4 = extremely characteristic or true of me). For example: "I feel tense if I am alone with just one person." The questionnaire is applicable to adolescents (Zsido et al., 2021). Cronbach's alpha = .81.

Parents answered the 8-item Social Anxiety Disorder subscale of Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999). SCARED assesses anxiety symptoms in youth aged 8 to 18. The full questionnaire consists of 41 items describing various anxiety symptoms. Parents are asked to select the answer that best characterizes their child's behavior and feelings over the last 3 months, using a 3-point Likert scale (0 = not true or hardly ever true, 1 = sometimes true, 2 = very often true). For example: "My child feels nervous with people he/she doesn't know well." The questionnaire is utilized in both clinical and research settings. A Hebrew version is available (Rachamim et al., 2011). Cronbach's alpha = .85.

Identity Formation. We evaluated identity formation using Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008), a self-report questionnaire designed to assess three processes of self-identity formation: commitment, in-depth exploration, and reconsideration of commitment. It can be employed to evaluate identity processes in a specific

domain or to assess global identity by combining at least one ideological domain (e.g., educational identity) with one relational domain (e.g., romantic relationship). We examined global identity by investigating educational and interpersonal identity (i.e., friendship). The questionnaire comprises 26 items, with 13 items for each domain: 5 measuring commitment, 5 measuring in-depth exploration, and 3 assessing reconsideration of commitment. Each item is rated on a 5-point Likert scale (1 = completely untrue, 5 = completely true). For example: “My education/best friend gives me certainty in life” (commitment); “I think a lot about my education/best friend” (in-depth exploration); “I often think it would be better to try to find a different education/best friend” (reconsideration of commitment). A Hebrew version is available, and it is suitable for use with adolescents (Crocetti et al., 2020). Cronbach’s alphas: .83 for commitment, .77 for in-depth exploration, .76 for reconsideration of commitment.

Self-Esteem. We used the Rosenberg Self-Esteem scale (RSE; Rosenberg, 1965), a self-report questionnaire measuring general self-esteem. We used the average score for five positively phrased items (from a set of ten). These items, previously used with adolescents (Benish-Weisman et al., 2020), were selected because they convey equivalent meanings across cultures, making them applicable beyond North America (Schmitt & Allik, 2005). Participants are asked to rate each statement on a 4-point Likert scale (1 = strongly disagree, 4 = strongly agree). For instance, “I take a positive attitude toward myself.” A Hebrew version is available, and it is suitable for use with adolescents (Benish-Weisman et al., 2015). Cronbach’s alpha = .81.

Social Participation. Social participation was assessed using the Social and Recreation Activities index from National Longitudinal Transition Study (NLTS; Bumpass & Sweet, 1987), a parent-reported 10-item questionnaire gaging the extent of a child’s social participation. Parents report the frequency of their child’s involvement in various social activities on a 5-point Likert scale (0 = less than yearly or never, 4 = several times a week). For example: “Spend social time with relatives.” The questionnaire is suitable for use with adolescents (Orsmond et al., 2004). We adjusted some items to the Israeli context. Factor analysis showed three exhibited comparatively lower correlations; items 1, 5, and 7 were excluded from analysis. Cronbach’s alpha = .62.

Plan of Analysis

First, to test H1a, H1b, and H1c, we calculated Pearson correlations between the study variables using SPSS version 28. Next, to assess H2a, H2b, H2c,

H3a, H3b, and H3c, we performed a series of regression analyses using Mplus 8.4 (Muthén & Muthén, 2017) with maximum likelihood estimation robust to non-normality (MLR). Based on studies showing differences in parental and child reports on children's level of anxiety (De Los Reyes & Kazdin, 2005) and considering the relatively low association between parental and child reports on social anxiety (.23), we evaluated two models: one focused on the child's report of social anxiety and the other on the social anxiety reported by parents. Interaction terms were introduced by multiplying the social anxiety (reported by child/parent) by social participation and self-esteem. Mplus defines low, medium, and high levels of the moderator as one standard deviation below the mean, the mean, and one standard deviation above the mean, respectively. Since the age range was wide, and studies show identity processes change throughout puberty (Bogaerts et al., 2021; Klimstra, Hale, et al., 2010), all regression analyses included age as a control variable.

To determine whether our sample size permitted meaningful inferences based on the observed effect sizes, sensitivity analyses were performed using G*Power (Faul et al., 2009) with a desired power of .80 and alpha level of .05. The sample was sufficient to detect a small effect size of .244.

Results

Preliminary Analysis

Descriptive statistics and Pearson correlations among the study variables are summarized below. Mean levels for key variables were: child-reported social anxiety ($M=0.85$, $SD=0.74$), parent-reported social anxiety ($M=0.52$, $SD=0.47$), identity commitment ($M=3.64$, $SD=0.61$), in-depth exploration ($M=3.55$, $SD=0.59$), reconsideration of commitment ($M=2.12$, $SD=0.74$), self-esteem ($M=3.15$, $SD=0.50$), and social participation ($M=2.21$, $SD=0.78$).

In line with the Three-Factor Model of identity formation, commitment was positively related to in-depth exploration ($r=.39$, $p<.01$) and negatively associated with reconsideration of commitment ($r=-0.45$, $p<.01$). No significant association emerged between in-depth exploration and reconsideration of commitment.

Child-reported social anxiety was positively, albeit modestly, correlated with parent-reported social anxiety ($r=.23$, $p<.01$). Given the weak associations between perceptions, we performed further analyses separately for parent-reported and child-reported social anxiety to clarify their distinct contributions to identity formation.

Relations Between Social Anxiety and Identity Formation

As anticipated, children's self-reports of social anxiety were negatively related to commitment ($r = -0.16$, $p < .05$; H1a) and positively associated with reconsideration of commitment ($r = .31$, $p < .01$; H1c). Social anxiety was not correlated with in-depth exploration ($r = .06$, ns; H1b), and no identity dimensions were related to parent-reported social anxiety (commitment: $r = -0.03$, in-depth exploration: $r = .00$, reconsideration: $r = .08$; all ns). Self-esteem was negatively associated with child-reported social anxiety ($r = -0.44$, $p < .01$), positively correlated with commitment ($r = .35$, $p < .01$), and negatively with reconsideration ($r = -0.29$, $p < .01$). Social participation was positively associated with commitment ($r = .17$, $p < .05$) and negatively with both child- ($r = -0.15$, $p < .05$) and parent-reported ($r = -0.19$, $p < .01$) social anxiety.

Social Anxiety Reported by the Child and Identity Formation Dimensions: The Moderating Role of Social Participation and Self-Esteem

As hypothesized, we found a significant interaction effect between child-reported social anxiety and parent-reported social participation in predicting commitment and reconsideration of commitment (Table 1), whereby the associations between social anxiety and these identity processes changed as a function of social participation (H2). However, social participation was not a significant moderator of the relationship between social anxiety and in-depth exploration.

Given the significant interaction effect, we examined associations between social anxiety and commitment and reconsideration of commitment under different levels of social participation. As anticipated (H2a), under conditions of low social participation, social anxiety was negatively related to identity commitment (Table 1, Conditional Effects). However, at medium and high levels of social participation, social anxiety was no longer significantly related to commitment. As hypothesized, under conditions of low and medium social participation, social anxiety was positively associated with reconsideration of commitment, but at higher levels, this positive relationship was no longer significant (H2c). Contrary to expectations, the interaction between self-esteem and social anxiety was not statistically significant for any identity dimensions: commitment, in-depth exploration, reconsideration of commitment (H3).

Table 1. Relationship Between Social Anxiety (Child-Reported) and Identity Dimensions, Moderated by Social Participation and Self-Esteem.

Predictors	Commitment (CR)	In-depth exploration (CR)	Reconsideration (CR)
	Estimate (p value)	Estimate (p value)	Estimate (p value)
Social anxiety (CR)	.03 (.854)	.48 (.112)	.36 (.400)
Social participation (PR)	-.00 (.991)	.01 (.922)	.19 (.016)
Self-esteem (CR)	.39 (.000)	.28 (.005)	-.23 (.040)
Social anxiety $\times$ self-esteem	-.36 (.113)	-.45 (.088)	.36 (.318)
Social anxiety $\times$ social participation	.36 (.025)	.14 (.367)	-.57 (.001)
Conditional effects*			
Social participation = -1 SD	-.20 (.001)		.42 (.000)
Social participation = 0 SD	-.08 (.116)		.23 (.003)
Social participation = +1 SD	.02 (.745)		.04 (.685)
R ²	.18 (.000)	.06 (.067)	.17 (.009)

Note. CR = child report; PR = parent report.

*Conditional effects of social participation in moderating the effect of social anxiety on commitment and reconsideration. The bold values in parentheses are p-values.

Social Anxiety Reported by the Parent and Identity Formation Dimensions: The Moderating Role of Social Participation and Self-Esteem

As anticipated, we found a significant interaction effect between parent-reported social anxiety and child-reported self-esteem in predicting both commitment and reconsideration of commitment (H3), but self-esteem did not significantly moderate relations between social anxiety and in-depth exploration (Table 2).

Given the significant interaction effect, we explored associations between social anxiety and both commitment and reconsideration of commitment under different levels of self-esteem. As expected, self-esteem significantly moderated relations between parent-reported social anxiety and identity commitment (H3a). Specifically, at high levels of self-esteem, social anxiety was positively related to identity commitment. Self-esteem also emerged as a significant moderator in relations between social anxiety and reconsideration of commitment. Under conditions of low self-esteem, social anxiety was significantly and positively associated with reconsideration of commitment; at medium and high levels of self-esteem, no significant results were obtained. Contrary to our hypothesis (H2), no statistically significant interaction was found between social participation and social anxiety for any of the identity dimensions.

Although we controlled for age, we conducted an additional analysis to examine whether age moderated relations between social anxiety and identity formation (Tables 3 and 4). Age did not significantly moderate these associations, except for one finding: the positive association between child-reported social anxiety and reconsideration of commitment was stronger among younger adolescents and diminished as age increased, suggesting reconsideration processes in the context of social anxiety may be salient in early adolescence.

Discussion

We examined how adolescent and parent-reported social anxiety relates to adolescent identity formation. We also tested social participation and self-esteem as resilience factors.

Relationship Between Social Anxiety and Identity Formation

We expanded on research identifying anxiety as a risk factor in identity formation (Crocetti et al., 2008, 2009; Potterton et al., 2022) by focusing on

Table 2. Relationship Between Social Anxiety (Parent-Reported) and Identity Dimensions, Moderated by Social Participation and Self-Esteem.

Predictors	Commitment (CR)	In-depth exploration (CR)		Reconsideration (CR)
	Estimate (p value)	Estimate (p value)		Estimate (p value)
Social anxiety (PR)	-1.09 (.004)	-.30 (.556)		1.15 (.020)
Social participation (PR)	.03 (.712)	-.04 (.675)		.00 (.997)
Self-esteem (CR)	.15 (.096)	.09 (.423)		-.07 (.468)
Social anxiety $\times$ self-esteem	.90 (.009)	.14 (.753)		-1.00 (.022)
Social anxiety $\times$ social participation	.26 (.197)	.21 (.392)		-.13 (.549)
Conditional effects*				
Self-esteem = -1 SD	-.17 (.100)			.33 (.030)
Self-esteem = 0 SD	.041 (.615)			.06 (.515)
Self-esteem = +1 SD	.256 (.021)			-.20 (.184)
R ²	.19 (.000)	.04 (.139)		.12 (.052)

Note. CR = child report; PR = parent report.

*Conditional effects of self-esteem in moderating the effect of social anxiety on commitment and reconsideration. The bold values in parentheses are p-values.

Table 3. Relationship Between Social Anxiety (Child-Reported) and Identity Dimensions, Moderated by Child Age.

Predictors	Commitment (CR)	In-depth exploration (CR)	Reconsideration (CR)
	Estimate (p value)	Estimate (p value)	Estimate (p value)
Social anxiety (CR)	-.80 (.111)	-.72 (.130)	1.78 (.001)
Age	-.08 (.411)	.02 (.834)	.14 (.100)
Social anxiety $\times$ age	.63 (.214)	.80 (.120)	-1.51 (.004)
Conditional effects*			
Age = -1 SD	-.72 (.120)	-.06 (.130)	1.95 (.001)
Age = 0 SD	-.66 (.110)	-.58 (.132)	1.77 (.001)
Age = +1 SD	-.60 (.100)	-.50 (.135)	1.60 (.000)
R ²	.06 (.080)	.03 (.220)	.14 (.014)

Note. CR = child report; PR = parent report.

*Conditional effects of child age in moderating the effect of social anxiety on commitment and reconsideration. The bold values in parentheses are p-values.

Table 4. Relationship Between Social Anxiety (Parent-Reported) and Identity Dimensions, Moderated by Child Age.

Predictors	Commitment (CR)	In-depth exploration (CR)	Reconsideration (CR)
	Estimate (p value)	Estimate (p value)	Estimate (p value)
Social anxiety (PR)	.06 (.910)	-.59 (.290)	-.02 (.980)
Age	.15 (.085)	.05 (.600)	-.05 (.607)
Social anxiety $\times$ age	-.08 (.880)	.61 (.260)	.10 (.852)
Conditional effects*			
Age = -1 SD	.09 (.903)	-.83 (.860)	-.05 (.962)
Age = 0 SD	.08 (.910)	-.74 (.290)	-.03 (.977)
Age = +1 SD	.06 (.911)	-.64 (.300)	-.01 (.994)
R ²	.02 (.290)	.03 (.270)	.01 (.500)

Note. CR = Child report; PR = Parent report.

*Conditional effects of child age in moderating the effect of social anxiety on commitment and reconsideration.

social anxiety. Based on the Three-Factor Model, social anxiety related to two identity components in adolescents' self-reports.

Specifically, as expected, social anxiety was negatively linked to identity commitment; adolescents with higher social anxiety exhibited lower levels of commitment, suggesting social anxiety hinders the ability to make firm decisions about identity. Social anxiety was positively related to reconsideration of commitment, indicating greater self-doubt and more identity reevaluation. These opposing effects align with Crocetti's (Crocetti et al., 2008, 2009) argument that commitment reflects a desire for identity security, while reconsideration represents a questioning of this security, leading to identity confusion. Our findings suggest adolescents with high social anxiety tend to remain in a state of identity insecurity.

No evidence emerged for the hypothesized social anxiety and in-depth exploration link, supporting previous literature highlighting the "double-edged sword" nature of identity exploration (Crocetti, 2017). Self-identity exploration is a growth-oriented process (Luyckx, Soenens, & Goossens, 2006), involving adaptive aspects, including openness to experiences (Klimstra, Hale, et al., 2010; Klimstra, Luyckx, et al., 2010) and active social-cognitive strategies to evaluate self-relevant information (Berzonsky & Papini, 2022). It has been linked to enhanced psychological well-being (Berzonsky & Cieciuch, 2014), but the inherent nature of exploration can also involve experiences of uncertainty and anxiety (Crocetti et al., 2008, 2010).

The adolescent-parent discrepancy in social anxiety–identity links is noteworthy. Although social anxiety was associated with identity formation when reported by the adolescents, no evidence of this link emerged when it was reported by mothers. Our findings echo previously-identified parent-adolescent discrepancies in views of anxiety (De Los Reyes & Kazdin, 2005; De Los Reyes et al., 2010; Waters et al., 2003) and underscore a fundamental issue: while adolescents may experience intense social anxiety, they often internalize it without visible signs. As adolescents strive for greater autonomy and emotional independence (E. Erikson, 1950), they spend less time with parents (R. W. Larson et al., 1996; R. Larson & Richards, 1991), seek less emotional support from them (Smetana et al., 2004), and share fewer inner experiences (Mayseless et al., 1998). Consequently, parents, who often rely on observable behaviors, may assess the presence of social anxiety differently, as it typically manifests as an internal, subjective struggle that is not always outwardly visible. This gap in perception has important implications for both diagnosis and intervention. For example, clinicians should use self-reports and interviews, not just parental reports, to identify socially anxious adolescents.

The findings suggest future studies should use multi-informant data for fuller insight. Teachers, who observe students daily, may provide valuable additional perspectives (Clarizio, 1994; Lyneham et al., 2008).

Notably, follow-up analyses revealed one age-related moderation effect: the link between child-reported social anxiety and reconsideration was stronger among younger adolescents. This may reflect developmental differences in coping strategies. Younger adolescents typically rely on less effective coping strategies, making it harder for them to manage anxiety. The use of adaptive coping strategies, such as problem-solving and cognitive restructuring, increases with age during adolescence, and is more commonly employed by older adolescents compared to younger ones (Anderson et al., 2024; Tardif-Grenier et al., 2022). Reconsideration itself may trigger distress, and younger adolescents may find it especially difficult to tolerate the uncertainty it involves. Alternatively, elevated anxiety may undermine their emerging sense of identity, increasing reconsideration. In both cases, weaker coping capacities in early adolescence may intensify the link between social anxiety and identity instability.

Our findings show the link between social anxiety and reconsideration is particularly salient in early adolescence, as shown by age-related moderation in adolescent reports. Although parent-reported social anxiety did not interact with age, adolescent-parent gaps may partly reflect older adolescents' increasing independence and internalization.

Resilience Resources Moderating Social Anxiety-Identity Formation Relations

We examined whether social participation and self-esteem buffered social anxiety's effects on identity formation. To our knowledge resilience resources have not been studied in this context. Our findings suggest social participation and self-esteem each play unique roles in moderating the varied effects of social anxiety on identity formation, as reported by adolescents or their mothers. While social participation was a protective factor in the association between adolescents' self-reported social anxiety and identity formation, self-esteem emerged as a resilient resource when social anxiety was reported by mothers. In other words, using multiple informants illuminated complex dynamics that may otherwise have been overlooked.

Social Participation as a Resilience Factor. As expected, social participation was a significant protective factor, moderating youth-reported social anxiety's links to commitment and reconsideration. Adolescents with medium and high levels of social participation better maintained identity commitment despite

anxiety. These findings suggest different coping mechanisms play a role in identity formation. Adolescents who, despite their social anxiety, manage to overcome feelings of discomfort and engage in social activities gain opportunities for peer interaction (Ragelienė, 2016), providing positive reinforcement, fostering a sense of belonging (Jaiswal et al., 2022; Pugh & Hart, 1999; Sugimura et al., 2025), and potentially reducing the impact of anxiety on identity development. Other adolescents may adopt avoidant coping mechanisms, withdrawing from social participation and hindering identity formation. For them, social anxiety may be negatively related to identity commitment, possibly because they have fewer opportunities for social feedback and validation, both of which are crucial for forming and maintaining a stable sense of identity (Forthun et al., 2006). Future studies should examine mechanisms for managing social anxiety to explore this process further.

In our study, at low and medium levels of social participation, social anxiety was linked to greater reconsideration. Higher levels of social participation buffered this association; thus, while social anxiety may be linked to self-doubt, consistent social engagement provides the support and validation needed to reduce the tendency to reconsider identity. The salient role of social participation has been supported by social-development theorists E. H. Erikson (1968) and Berzonsky (2011). Erikson argued social interactions in adolescence help resolve identity conflicts, reinforcing commitments and reducing reconsideration. Similarly, Berzonsky suggested active social participation fosters an informational identity style, encouraging proactive identity formation processes and resilience against confusion.

Self-Esteem as a Resilience Factor. Self-esteem buffered the link between mother-reported social anxiety and identity commitment and reconsideration. While social anxiety alone wasn't linked to identity, its interaction with high self-esteem predicted greater commitment.

Thus, when adolescents feel confident and value themselves highly, the presence of social anxiety seems less likely to hinder their ability to commit to an identity, pointing to the crucial role of self-esteem as a resilient factor (Gurung et al., 2019; Moksnes & Espnes, 2013). At lower levels of self-esteem, this relationship did not emerge; thus, when adolescents lack confidence in themselves, social anxiety may undermine their ability to solidify identity commitments.

Adolescents' social anxiety was positively related to reconsideration of commitment only at low self-esteem. When adolescents have low self-esteem, social anxiety may be associated with more frequent questioning of their identity commitments, likely due to feelings of inadequacy, and uncertainty about their sense of self (Maldonado et al., 2013). We did not find a significant relationship

between social anxiety and reconsideration of commitment at medium and high levels of self-esteem, suggesting higher self-esteem has a stabilizing effect, reducing the tendency for social anxiety to trigger identity-related doubt. Adolescents with greater self-esteem may be more confident in their existing commitments, making them less susceptible to anxiety-driven reconsideration. Self-esteem acts as a buffer, preventing social anxiety from disrupting the commitment process and promoting a stable sense of identity.

The importance of the interaction between social anxiety and self-esteem in healthy identity formation can also be explained by self-esteem's role as a protective factor against adolescent depression and anxiety (Gurung et al., 2019). These findings support the importance of fostering self-esteem to promote identity development in socially anxious youth.

Interestingly, self-esteem moderated relations between social anxiety and identity formation in parent but not adolescent-reports. An explanation for this difference may lie in the nature of parent versus adolescent reports of social anxiety. Parent-reported social anxiety is based on observable behaviors; internal resources like self-esteem may play a stronger moderating role by buffering the negative effects of externally perceived social anxiety on identity formation. Adolescent self-reports reflect a subjective internal experience. Self-esteem is already embedded within the perception of social anxiety and may no longer function as a moderator. Instead, social participation emerges as the relevant moderating factor, potentially offering adolescents external validation that mitigates the impact of self-perceived social anxiety on identity formation.

Furthermore, other factors may serve as moderators in relations between social anxiety and identity formation. For example, peer support fosters identity exploration through autonomy support and strengthens identity formation via peer group identification (Audet et al., 2022; Tarrant, 2002). Given the bidirectional link between social anxiety and peer functioning, supportive peer relationships may buffer the negative effects of social anxiety on identity development (Chiu et al., 2021; Tillfors et al., 2012). Coping strategies may also play a role. Active coping, such as problem-solving, is linked to adaptive identity processing, while avoidant coping may hinder it (Beaumont & Seaton, 2011) particularly among socially anxious adolescents (Luneva & Ababkov, 2023; Thomasson & Psouni, 2010). Future research could explore how different coping mechanisms and peer support contribute to the buffering effect of social participation and self-esteem.

Strengths, Limitations, and Future Directions

The multiple-informant design incorporating both youth- and parent-reported social anxiety provided a richer understanding of social anxiety and identity

formation by highlighting each family member's distinct contribution. Using multiple informants in moderated models offered a broader view of how internal and external factors affect identity formation.

However, the cross-sectional design restricted our ability to infer causality, as the study captured data at one point. This limitation is particularly relevant when considering the directionality of the associations found. The relationship between social anxiety and identity formation may be bidirectional: social anxiety may hinder identity development, while difficulties in establishing a stable identity may increase social anxiety. Nonetheless, this design suited our aim of identifying how self-esteem and social participation moderate links between social anxiety and identity in adolescence. The findings provide a foundation for theory development and suggest key variables for future longitudinal research to examine. The relationship between anxiety and identity processes could be bidirectional, with identity development influencing anxiety levels and vice versa, a dynamic that cannot be fully explored within this design. For instance, previous research found in-depth exploration was often accompanied by anxiety, suggesting a feedback loop (Crocetti et al., 2008). Future studies should employ longitudinal designs to track how changes in identity development and anxiety influence each other over time.

While using multiple informants enriched understanding, it may have limited the interpretability of some findings and contributed to the observed differences in moderation effects. For instance, parents may not understand the extent of teens' social participation, as they spend less time with them; peer reports may be more sensitive to the nuances of social interactions and engagement, providing a more accurate perspective (Jugert & Titzmann, 2020). Future studies should include multi-informant reports (parents, teachers, peers, close friends) across the same constructs.

An additional methodological consideration is the measurement of self-esteem. The Rosenberg Self-Esteem Scale offers a global measure that may not fully capture domain-specific aspects of self-esteem relevant to social anxiety and identity formation. Future studies should consider more specific assessments (e.g., the Self-Perception Profile for Adolescents includes social and academic self-esteem subscales; Harter, 1988) to provide a finer-grained understanding of these processes.

The measurement of social participation is another concern. Participation was assessed by parent reports on the frequency of activities, without distinguishing between pro-social and antisocial involvement. Adolescents may engage in activities that promote either healthy identity development (e.g., volunteering; Lazarova, 2020) or antisocial behaviors (e.g., aggression; Crocetti et al., 2013). Future research should consider not only the quantity

but also the quality and nature of social participation to clarify its role as a protective factor in identity formation.

Finally, the sample consisted of adolescents from Israel, most from highly educated families. Cultural and socioeconomic factors may shape how social anxiety and identity formation are experienced during adolescence (Destin et al., 2017; Lemstra et al., 2008; Schwartz et al., 2024), limiting the generalizability of our findings. Cross-cultural and cross-population studies should test if similar patterns emerge elsewhere.

Implications for Practice

The findings offer practical insights for interventions targeting adolescents. First, promoting social participation through school initiatives, such as study groups (Jaiswal et al., 2022), afterschool sports activities (Dimech & Seiler, 2010; Fuller et al., 2013), or engaging consistently with peers (Coyle & Malecki, 2018), might mitigate the negative effect of social anxiety on identity formation. However, promoting social participation is especially challenging for adolescents with high social anxiety, as fear and avoidance often interfere with their ability to engage. Therefore, increasing participation may first require therapeutic support, such as exposure-based interventions, social skills training, or structured peer-group interventions, to facilitate social engagement.

Second, our findings suggest strong self-esteem buffers the negative effects of social anxiety on identity formation, making it crucial to prioritize self-esteem interventions in mental health and educational programs (Sharma & Agarwala, 2015). Third, because adolescents may not always share their internal experiences, while parents may focus on observable behaviors, it is vital to tailor interventions based on reports from both youth and parents to ensure alignment with each family member's perspective. Intake and treatment planning should involve both informants to provide a comprehensive understanding and match the adolescent's unique needs.

Beyond its specific intervention implications, this study highlights key processes linking social anxiety to identity development, with broader relevance for adolescent well-being. Understanding how internal distress interacts with social participation and self-esteem can inform the design of school-based and community programs that promote resilience, autonomy, and a stable sense of self among adolescents facing social and emotional challenges. These findings may guide policy aimed at preventing and addressing youth anxiety, supporting adolescent well-being and societal welfare.

Conclusion

This study highlights the negative role of social anxiety in identity formation during adolescence, emphasizing the contributions of self-esteem and social participation as resilience resources. By incorporating both youth- and parent-reported social anxiety, it offers a comprehensive understanding of these dynamics. The findings suggest valuable directions for future research and intervention programs.

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Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

Declaration of Conflicting Interests

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Ethical Approval Statement

The study received ethical approval from the Institutional Review Board (IRB) of the Hebrew University of Jerusalem (Approval No. 2023HLE031) on November 23, 2023.

Patient Consent Statement

Parental consent was first obtained for both the parent's and the adolescent's participation in the study. Following this, each adolescent was provided with information about the study and gave their own assent to confirm their voluntary agreement to participate.

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