Running head: APPEARANCE REJECTION SENSITIVITY AND COPING

Are You Looking at Me? A Longitudinal Vignette Study of Adolescent Appearance

Rejection Sensitivity and Coping with Peer Evaluation

Melanie J. Zimmer-Gembeck[1]

Julia I. Rudolph[2]

Alex A. Gardner[1]

[1]Griffith University, School of Applied Psychology and Menzies Health Institute of

Queensland, Australia

[2]Griffith University, School of Applied Psychology, Australia

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Corresponding author contact details:
Melanie Zimmer-Gembeck
Griffith University
School of Applied Psychology
Parklands Dr, G40_7.86
Southport QLD 4222
Australia
email: m.zimmer-gembeck@griffith.edu.au
Tel: +61 07 56789085

Abstract

Appearance rejection sensitivity (ARS) refers to anxiously over-expecting rejection because of perceived appearance flaws. ARS has been associated with poorer mental health, which suggests coping with stress may be negatively affected by ARS. In this study, we investigated if ARS was related to adolescents' emotions and ways of coping with negative appearance evaluation two years later (T2). Other potential correlates of emotions and ways of coping were also tested, including peer appearance teasing, social anxiety, and gender, as well as reports of victimization, social status, and attractiveness gathered from peers. At Time 1 (T1), 329 adolescents (M = 13.9 years, 54% girls) self-reported their ARS, experience of appearance teasing, and social anxiety. T1 appearance victimization, popularity, and attractiveness were measured using peer nominations, and peer likeability was measured with peer ratings. At T2, participants' emotions and coping were measured using vignettes portraying appearance evaluation by peers. In regression models, T1 ARS, appearance teasing, social anxiety and female gender were associated with more T2 negative emotions, social withdrawal, rumination, and (except for social anxiety) thoughts about appearance change. ARS was not significantly associated with T2 positive thinking or support seeking. No peer-report measure was significantly associated with T2 outcomes.

Are You Looking at Me? A Longitudinal Vignette Study of Adolescent Appearance Rejection Sensitivity and Coping with Peer Evaluation

1. Introduction

Preoccupation and dissatisfaction with physical appearance increase during adolescence. These concerns are related to physiological and cognitive changes, which heighten adolescents' sensitivity and reactivity to others' behaviors while they are spending an increasing amount of time interacting with their peers (Tomova et al., 2021; Webb & Zimmer-Gembeck, 2014). Together, these changes are associated with an increase in adolescents' awareness that appearance is important to social status, personal identity, career prospects, and relationship opportunities (Borch et al., 2011; Mooney et al., 2009; Paxton et al., 2005; Tiggemann et al., 2000). Yet, given the awareness of appearance-related social evaluation and comparisons, it is surprising that we still know very little about the specific ways adolescents respond to events where they feel evaluated or perceive they could be rejected because of their physical appearance.

We do know that there is variability in adolescents' expectations of evaluation and rejection because of their appearance. Most notably, research has found that adolescents vary in their *appearance-based rejection sensitivity* (ARS), defined as anxiously over-expecting rejection because of perceived appearance flaws (Park, 2007; Webb & Zimmer-Gembeck, 2015). Moreover, ARS has been associated with poorer mental health and more disordered eating. For example, when adolescents (Bowker et al., 2013; Densham et al., 2017; Webb & Zimmer-Gembeck, 2016) and university students or adults (Park, 2007; Park et al., 2010) report more ARS they also report poorer self-esteem, engage in more disordered eating such as food restriction and purging, and report more symptoms of social anxiety. Possibly most concerning is the strong positive association between ARS and body dysmorphic symptoms (Gardner et al. 2021a; Hawes et al., 2020; Kelly et al. 2014; Park et al., 2010; Roberts et al.,

2018). The anxious preoccupation, distorted perceptions, and time-consuming repetitive behaviors characteristic of body dysmorphia have been described as attempts to protect against appearance-related rejection (Densham et al., 2017; Lavell et al., 2014; Zimmer-Gembeck et al., 2022).

Although research has identified the significant personal obsessive behaviors and eating-related and mental health risks of ARS, it is not yet known whether ARS relates to ways of coping with negative appearance-relevant social interactions. In one of the only studies on this topic, Park and Pinkus (2009) found that young people higher in ARS were more socially withdrawn on days they felt sensitive to rejection because of their appearance, relative to other days. Although this suggests a direct impact of ARS on adolescents' ways of coping with social interactions, we have yet to uncover whether ARS brings about other ways of coping that could be problematic for long-term health and well-being. In addition, Park and Pinkus (2009) examined natural experiences of appearance-related stress across participants, so experiences were not standardized. To address this, the current 2-year longitudinal study aimed to examine associations of adolescents' ARS measured at time 1 (T1) with their time 2 (T2) emotional reactions and anticipated ways of coping. These T2 emotions and ways of coping were reported in response to standardized vignettes portraying negative appearance evaluation by peers. The methodological approach of this study was guided by Park and Pinkus (2009), as well as theory and research on stress and coping with rejection (Lazarus & Folkman, 1984; Zimmer-Gembeck, 2016), the original Rejection Sensitivity Model (Downey & Feldman, 1996), and studies of adolescents' common ways of coping with interpersonal stressors (Skinner & Zimmer-Gembeck, 2016).

1.1. The Rejection Sensitivity Model and stress and coping frameworks

General rejection sensitivity is defined as a heightened anxious expectation of rejection in social situations that could result in rejection (Downey & Feldman, 1996; Gao et

al., 2017; Levy et al., 2001). The original Rejection Sensitivity Model has three primary parts. First, the model draws attention to how rejection sensitivity develops out of many sociocultural experiences, especially experiences of teasing, rejection, exclusion, ostracism, and victimization (e.g., Gao et al., 2021; Wang et al., 2012; Zimmer-Gembeck et al., 2013). In other related research, discrimination has also been related to rejection sensitivity, with studies finding higher rejection sensitivity in racial/ethnic (Vaswani et al., 2020) and sexual minority (Dyar et al., 2018; Feinstein et al., 2012) individuals who report more discrimination. Second, the general Rejection Sensitivity Model emphasizes how rejection sensitivity activates sociocognitive responses to interpersonal interactions and other social situations. In studies focused on this second part of the model, rejection sensitivity has been associated with more emotional reactivity (sadness, anger, and worry) to social stressors and situations that imply rejection, as well as with more social withdrawal and aggressive behavior (Chango et al., 2012; Zimmer-Gembeck, 2015). Thus, individuals higher in rejection sensitivity report more emotional reactivity to rejection and more maladaptive ways of coping with situations that could lead to rejection. In the third part of the model, these experiences and responses are expected to result in increasing rejection sensitivity and emotional problems over time (Zimmer-Gembeck et al., 2021). In the present longitudinal study, we address the *second part* of the general Rejection Sensitivity Model applying it to investigate associations of ARS with adolescents' emotional reactions and ways of coping with evaluation by peers that raise the possibility of rejection.

Coping has been defined as "efforts to manage adaptational demands and the emotions they generate" (Lazarus, 2006, p. 10). Stress and coping theories (and decades of related research) provide comprehensive descriptions of how stressful events bring about negative emotions and prompt coping responses to alleviate distress or change the stressor (Compas et al., 2017; Lazarus & Folkman, 1984; Zimmer-Gembeck & Skinner, 2016). The

intensity of emotional reactions and ways of coping play important roles in stress recovery and well-being outcomes. These views on stress and coping were drawn upon to guide our measurement of emotional reactions and ways of coping that could be related to ARS. In addition, we aligned our measures with the emotional, cognitive, and behavioral responses to rejection, ostracism, or conflict that are described in the Rejection Sensitivity Model (Downey & Feldman, 1996; Zimmer-Gembeck & Nesdale, 2013).

The emotional reactions measured were sadness, anger, and worry. These were measured in response to reading vignettes that portrayed negative appearance evaluation by peers. Sadness, anger, and worry are common responses to stressful interactions and have been used to indicate threat appraisals following stressful events in past research (Zimmer-Gembeck et al., 2016). Emotional reactions were expected to capture the heightened emotionality and threat appraisal that has been found among individuals higher in ARS (Bowker et al., 2013; Hawes et al., 2020; Park, 2007). For example, in a novel study, Park and Harwin (2010) found positive associations of appearance-RS with negative affect after participants were presented with negative ambiguous commentary about appearance.

We also measured ways of coping and thoughts about appearance change in response to reading the vignettes. Ways of coping included rumination, social withdrawal, support seeking, and positive thinking, which are all commonly used by adolescents when they experience interpersonal stress (Gardner et al., 2021b; Zimmer-Gembeck & Skinner, 2016). Participants also reported their thoughts about appearance change following reading the vignettes because ARS has been associated with greater endorsement of cosmetic surgery (Park et al., 2009, 2010). Thus, adolescents reported how much they would ruminate, withdraw from social interactions, seek support, use positive self-talk, and think about changing their appearance following reading vignettes portraying negative appearance evaluation by peers.

1.2. Perceptions of appearance teasing

Perceived experience of peer teasing about appearance was also considered as a predictor of T2 emotional reactions and ways of coping with appearance evaluation. Perceived peer teasing (as well as peer victimization) has been associated with more rejection sensitivity (Gao et al., 2021; Wang et al., 2012; Zimmer-Gembeck et al., 2013). Also, peer teasing is associated with ways of coping with stress. In particular, children and adolescents who report a higher level of peer teasing or victimization report more rumination (Goodman & Southam-Gerow, 2010), more social withdrawal (Zimmer-Gembeck & Nesdale, 2013), and less competence in responding to peer stress (Sontag & Graber, 2010; Zimmer-Gembeck et al., 2009, 2016). Thus, when testing associations of T1 ARS with T2 emotions and ways of coping, it was important to also consider reports of participants' perceived experience of appearance teasing by peers to isolate the impact of ARS from peer teasing. We expected to find unique associations of both ARS and peer appearance teasing with emotion and ways of coping with negative appearance evaluation by peers.

1.3. Peer-reported status and victimization by peers

Appearance and appearance ideals are known to shape interactions with peers, and to be associated with acceptance and rejection in the peer group (Webb et al., 2014; Webb & Zimmer-Gembeck, 2016). In our past research, peer relational victimization (i.e., ostracism or exclusion because of appearance) generally, as well as relational victimization related to appearance specifically (self-reported or reported by peers), has been associated with a higher level of ARS (e.g., Lavell et al., 2014; Webb et al., 2015; Webb & Zimmer-Gembeck, 2016). In contrast, no research has directly examined associations of peer status, such as popularity or likeability, with ARS or with coping with appearance evaluation, but multiple studies suggest that there would be associations. For example, adolescents who are more rejection sensitive have been found to be less liked by their peers (London et al., 2007), and

adolescents who are more liked are more satisfied with their bodies (Graham et al., 2000; Rancourt & Prinstein, 2010). Also, adolescents who are more popular report they have a more ideal body shape (Wang et al., 2006) but also report more concerns about their weight (Rancourt & Prinstein, 2010). Furthermore, adolescents who are high or low (relative to moderate) in status with their peers are more at risk for eating pathology (Smink et al., 2018; Troop et al., 2014). Thus, past research suggests that peer status would be associated with adolescents' ARS and their emotional reactions and ways of coping with negative appearance evaluation by peers, but the findings are sparse and such associations have not been directly tested in past research.

We measured peer-reported relational victimization about appearance and three aspects of peer-perceived status (popularity, likeability, and physical attractiveness) in the present study. Information was gathered from peers at school, using peer nominations and ratings, given that the peer group is a good source of information about who is victimized and the status of peers (Bukowski et al., 2000; Cillessen & Bukowski, 2000). Popularity was defined as high status or influence in the peer group and likeability was how much one is liked by their peers. Popularity often has only a small or moderate positive correlation with peer likeability but a stronger association with physical attractiveness (Dijkstra et al, 2010; van den Berg et al. 2020; Zimmer-Gembeck et al., 2005).

1.4. Gender, social anxiety, and age as related to appearance concerns and coping

Gender differences pervade the study of stress, coping and appearance concerns, with adolescent girls, relative to boys, reporting more stress, especially peer-related stress (Goodman & Southam-Gerow, 2010), more ARS (Webb et al., 2014; Webb & Zimmer-Gembeck, 2015), and more maladaptive ways of coping with stress (Al-Bahrani et al., 2013; Gardner et al., 2021a). Furthermore, gender differences in ways of coping have been reported, with a review of research concluding that girls report more rumination and support

seeking than boys and (in some studies) boys report more positive thinking than girls (Zimmer-Gembeck & Skinner, 2016). Such findings led us to consider participant gender in the present study. We expected to find gender differences across most measures and controlled for gender in all analyses.

Social anxiety symptoms were also included in the analyses because research shows that there is (at least a) moderate positive correlation between social anxiety and general rejection sensitivity (Bowker et al., 2013; Rudolph & Zimmer-Gembeck, 2014), and between social anxiety and ARS (Lavell et al., 2014; Webb et al., 2017). Thus, we sought to isolate the effects of ARS from any effect of social anxiety on emotional reactions and ways of coping with negative appearance evaluation.

Finally, age was also included as a covariate, given that there are age changes in some ways of coping during the early- to middle-adolescent years (Zimmer-Gembeck & Skinner, 2011). Also, although there is no existing evidence that ARS increases across the adolescent years (e.g, see Zimmer-Gembeck et al., 2022), other appearance concerns (such as body dissatisfaction or appearance anxiety) have been found to increase with age (Ricciardelli & Yager, 2015; Zimmer-Gembeck et al., 2018). Thus, we included age as a covariate to isolate the impact of ARS from the impact of age on emotional reactions and ways of coping with negative appearance evaluation by peers.

1.5. Study aims and hypotheses

To summarize, we conducted a longitudinal study drawing on two waves of data separated by two years, which included data from multiple reporters (i.e., self-report and peer-report). The primary aim of this study was to test the association of T1 ARS with adolescents' T2 emotional reactivity and ways of coping with appearance evaluation. Comparable to past vignette-based research on interpersonal stressors and responses (Aguinis & Bradley, 2014; Sandstrom, 2004; Titova et al., 2022; Zimmer-Gembeck & Nesdale, 2013),

emotions and ways of coping were measured using two scenarios negative appearance evaluation by peers and the possibility of rejection. Using vignettes allowed us to test temporal associations of ARS with anticipated emotionality and coping in response to stressors without the possible confound of variability in stressful events across participants. Notably, past research has shown that participants' coping responses to vignettes strongly correlate with their responses when reporting coping responses to personal stressful situations (Evans et al., 2015; Zimmer-Gembeck et al., 2009).

Three hypotheses were tested. First (H1), positive associations of T1 ARS with T2 coping responses of rumination and social withdrawal were hypothesized. Rumination and social withdrawal are two ways of coping that have been associated with heightened symptoms of emotional disorder (Compas et al., 2017; Francisco et al., 2016; Vélez et al., 2016; Zimmer-Gembeck et al., 2016, 2021) and with general rejection sensitivity (Nesdale & Zimmer-Gembeck, 2013; Zimmer-Gembeck, 2015). Second (H2), consistent with evidence from multiple studies of general rejection sensitivity (Chango et al., 2012; Gao et al., 2017; Levy et al., 2001; Silvers et al., 2012; Zimmer-Gembeck, 2015) and consistent with the Rejection Sensitivity Model (Downey & Feldman, 1996), positive associations between T1 ARS and T2 negative emotional reactions to the appearance vignettes were hypothesized.

Third (H3), negative associations of T1 ARS with T2 coping responses of support-seeking and positive thinking were hypothesized. Support seeking and positive thinking are common positive responses to interpersonal stressors among adolescents (Zimmer-Gembeck & Skinner, 2011), and each of these positive ways of coping have been associated with greater well-being despite stressful events (Chu et al., 2010; Heerde & Hemphill, 2018). In addition, indices of positive thinking (e.g., self-acceptance) have been negatively associated with appearance worries, concerns, and dissatisfaction (Gardner et al., 2021a; Maxwell & Cole, 2012).

We also tested T1 self-perceived peer appearance teasing; peer-reported popularity, likeability, attractiveness and appearance relational victimization; social anxiety symptoms; and demographics of gender and age as predictors of T2 emotional reactivity and ways of coping with negative appearance evaluation by peers. We expected unique associations of T1 ARS with T2 emotional reactivity and ways of coping even after considering the associations of peer experiences, symptoms, and demographic factors.

2. Method

2.1. Participants and procedure

Participants were 329 adolescents (54% girls) in Grades 7, 8 or 9 from three schools in an urban area of Australia encompassing low-middle to high-middle socioeconomic status. Participants ranged in age from 12.2 to 15.6 years (M_{age} = 13.9, SD = 0.85). The proportion of participants in each grade in the first time point of this study (i.e., grade 7: 27%; grade 8: 32%; grade 9: 41%) closely represented the proportions of students in each grade across the three schools. Of the 319 students who reported their race/ethnicity, most reported white/European (79.6%). Others reported Asian (15.4%) or Australian First Peoples (0.3%). The remaining participants (4.7%) reported a range of other racial/ethnic backgrounds.

Study approval was obtained from the Griffith University Human Research Ethics Committee prior to contacting school principals for approval to conduct the study. Students were then given parental consent forms to take home and return to the school. At the time of the first wave of data collection, students also provided written approval to participate in the study. Thus, parental and student informed consent were obtained from all individual participants included in this study.

Data for the present study were collected in 2015 and 2017 as part of Waves 5 and 6 of a 7-wave longitudinal study (completed in 2018). Waves 5 and 6 are used here because vignettes were only included in the Wave 6 survey and Wave 5 was the last collection of

reports from classroom peers about popularity, likeability, physical attractiveness, and relational appearance victimization.

At the start of this study in 2013 ($N = 387$), 43% of all eligible students in grade 5, 6, or 7 participated (total possible $N = 899$). Of the students who did not participate, 14% of parents declined participation and the others failed to return consent forms to the school. At Wave 5, 336 adolescents completed the survey for a retention rate of 87%, but 7 participants had patterned responding and were excluded leaving a sample of 329. Of these 329 adolescents, 69 did not complete the Wave 6 survey (67 were not able to be contacted and 2 parents declined participation for their children). Students from Wave 1 who participated in Wave 5 ($n = 336$) did not significantly differ from those who did not ($n = 51$) when Wave 1 demographics, ARS, social anxiety, and peer appearance teasing were compared (all ps $\geq$ .110). Students who did complete Wave 6 ($n = 260$) did not significantly differ from those who did not ($n = 69$) on any Wave 5 measure (all ps $\geq$ .140). Below, Wave 5 is referred to as Time 1 (T1) and Wave 6 is referred to as Time 2 (T2).

2.2. T1 Measures

2.2.1. Appearance-based rejection sensitivity (ARS)

Adolescents reported their ARS using the Adolescent ARS Scale (AARS; Webb et al., 2014). The AARS measure is founded on the original measure of ARS for adults (Park, 2007), but the items were modified slightly to make them relevant for adolescents. The measure has been used in numerous previous studies, with all studies supporting high measure reliability and excellent construct validity (e.g., Webb et al., 2014, Webb & Zimmer-Gembeck, 2016). The AARS includes 10 hypothetical scenarios (e.g., "You are leaving your house to go to school when you notice a big pimple on your face"). Adolescents read each scenario and indicate their anxiety/concern about being rejected based on their appearance (e.g., "How concerned or anxious would you be that others would think you were less

attractive because of the way you look?"; 1 = *not concerned*, 6 = *very concerned*), and their expectation of appearance-related rejection in the imagined scenario (e.g., "Do you think other people would find you unattractive because of the way you look"; 1 = *No!!*, 6 = *Yes!!*). Anxious concern was multiplied by expectation of rejection for each item, and these 10 product scores were averaged to form the total score. A higher score indicated greater ARS, Cronbach's α = .92.

2.2.2. Perceived peer appearance teasing

One item with two parts derived from the Weight Teasing Subscale of the Perceptions of Teasing Scale (Thompson et al. 1995) measured perceived peer appearance teasing. The item was "Do people about your age (your PEERS) make fun of you because of your weight or looks?" with the two parts asking students to rate the frequency (1 = *never*, 5 = *very often*) they are made fun of by same-gender peers and by opposite-gender peers. Responses were averaged to form a total score, with higher scores indicating greater appearance teasing by peers, Cronbach's α = .88. This measure has been validated in multiple of our past studies, showing it to be a significant concurrent and prospective correlate of ARS, body image concerns, and appearance anxiety symptoms [blinded for peer review].

2.2.3. Social anxiety symptoms

The 18-item Social Anxiety Scale for Adolescents (SAS-A; La Greca & Lopez, 1998) was used to measure self-reported social anxiety symptoms. An example item is "I worry what others say about me*"*, with responses ranging from 1 (*not true*) to 5 (*very true*). The SAS-A is a widely used, valid, and reliable measure. For example, previous studies report a high Cronbach's α = .93 (Storch et al., 2005) and the SAS-A total score has been found to be highly correlated with a clinician rating of anxiety and with other self-report measures of anxiety (rs> .60; Masters et al., 2021). Responses were averaged to produce a total score, with higher scores indicating greater social anxiety, Cronbach's α = .94.

2.2.4. Peer popularity and likeability, attractiveness, and appearance-based victimization

A widely used peer-nomination procedure was used to assess popularity, physical attractiveness, and victimization about appearance. From a list of all students in the same grade, each participant nominated up to 10 grademates who they thought were "the most popular" and 10 grademates who were the most "good-looking". Students also nominated up to three grademates who best fit four behavioral descriptors of appearance-based relational victimization (e.g., "Who do other students gossip about [or talk about behind their back] because of their appearance?"; Who is teased by others in your grade, because of the way they look?; Who is left out (or excluded) by others, because of their appearance?; Who in your grade has mean things said to them about their appearance?) developed for this study, but founded on measures of general relational victimization that have been validated in past research over the past three decades (Crick & Grotpeter, 1995; Zimmer-Gembeck & Pronk, 2012). Overall, peer nominations are useful for capturing reputational features of large numbers of participants, and many methodological studies report their reliability and validity for use with children and adolescents (e.g., Babcock et al., 2014; Cillessen & Bukowski, 2000; Cillessen & Marks, 2017). For each participant, nominations received for popularity, attractiveness (i.e., good-looking) and appearance-based victimization were summed and standardized within grades to adjust for unequal grade sizes. Cronbach's α for the four appearance-related relational victimization items was .96. Other measures were based on one item.

To measure peer likeability, each participant rated how much they liked each of their classmates in their homeroom class (1 = *Not at all,* 5 = *Very much*) (Asher & Dodge, 1986; Cillessen & Bukowski, 2000; Hymel et al., 1990). Ratings received were averaged to form a liking score for each participant, with a higher score indicating greater liking. As described for peer nominations, many methodological studies report the construct validity of likeability

ratings to capture adolescents' standing with their peers (e.g., Cillessen & Bukowski, 2000).

Also using classmate reported ratings (rather than nominations) of peer likeability has been

encouraged due to evidence of their superior validity (Hymel et al., 1990).

2.3. T2 Emotions and ways of coping with negative appearance evaluation by peers

A vignette ratings procedure was used to measure adolescents' anticipated emotional

reactions and ways of coping with experiences of negative appearance evaluation by peers.

This procedure was inspired by the Survey for Coping with Rejection Experiences

(Sandstrom, 2004) and the Reactions to Implied Rejection Scale for Children and

Adolescents (Zimmer-Gembeck & Nesdale, 2013), but was modified to describe negative

appearance evaluation by Australian peers while also suggesting the possibility of rejection

or exclusion. Two vignettes were used:

1. You receive a message sent to you and a number of your friends. The message
    continues a discussion about how you and your friends look. Worse, you read that
    the others have been teasing you about your looks. How would you feel? Would
    you –

2. You hear that someone you know is throwing a big birthday party on the beach.
    Most of your group of friends expect to go. You hear that some of your friends are
    worried about how you would look in your beach togs (i.e., swimsuit, bathers).
    How would you feel? Would you –

Participants reported their anticipated emotions of sadness, worry, and anger as they

imagined themselves as the central character in each scenario. Participants also completed

seven items to measure desiring appearance change (1 item per scenario, "Spend time

considering how to change your appearance?"), social withdrawal (3 items per scenario, e.g.,

"Think of ways to avoid seeing people"), rumination (1 item per scenario; "Keep thinking

and worrying about the situation"*)*, positive thinking (1 item per scenario; "Try to think

positive thoughts about appearance"*), and support seeking (1 item per scenario; Talk about it or how you were feeling with someone close to you [e.g., friend, parent]). Item response options ranged from 1 (*not at all*) to 5 (*very much*). To form composite scores, relevant item responses were averaged within each scenario, when needed, and then averaged across the two scenarios. Higher scores indicated a more negative emotional response (Cronbach's α = .92), thoughts of appearance change (α = .89), social withdrawal (α = .91), rumination (α = .84), positive thinking (α = .81), or support seeking (α = .88).

3. Results

3.1. Missing data and multiple imputation

Sixty-nine adolescents did not complete the survey at T2 and 10 were missing T1 peer nomination measures. Little's MCAR test was not significant, $\chi^2(55) = 57.60$, $p = .379$, indicating that these data are assumed to be missing completely at random. Rather than listwise deletion, however, we used multiple imputation to impute T1 and T2 missing data for all 329 T1 participants in the study. We imputed 20 datasets and report the pooled results. Sensitivity analyses were also conducted including only the participants who had complete data; the results were very similar to the results reported here (available upon request from the first author).

3.2. Descriptive statistics and correlations between all measures

Means (*M*s), standard deviations (*SD*s), and correlations were examined before standard linear regression models were estimated to test hypothesized associations. As shown in Table 1, ARS was significantly positively associated with perceived appearance teasing and social anxiety symptoms but was not significantly associated with peer-reports of popularity, liking, physical attractiveness or appearance relational victimization.

Also shown in Table 1, ARS, perceived peer appearance teasing, and social anxiety symptoms were significantly positively associated with T2 vignette measures of negative

emotions, thoughts about appearance change, social withdrawal, and rumination (rs ranged from .44 to .52). ARS, perceived peer appearance teasing, and social anxiety were not significantly associated with vignettes measures of positive thinking or support seeking. Finally, no peer report measure was significantly associated with T2 anticipated responses to negative appearance evaluation by peers, except for a small negative association between popularity and positive thinking. Thus, peer-report measures were not examined further. It is worth noting here, however, the strong positive correlation between popularity and physical attractiveness (r = .75), and the moderate correlation between likeability and physical attractiveness (r = .20). Also, neither popularity nor physical attractiveness was significantly associated with peer-report of appearance relational victimization (r's = .02 and -.07, respectively), but there was a significant negative correlation between peer-reported likeability and appearance victimization (r = -.33).

We compared adolescents who self-reported white/European (n = 254) to those who self-reported Asian (n = 49) race/ethnicity on all measures using independent samples t-tests. Two small differences were found on the peer report measures. Students of Asian race/ethnicity (compared to adolescent who reported they were white) were slightly less popular (Asian M = -0.44, SD = 0.53; White M = -0.10, SD = 0.95), $t(301)$ = 2.34, p = .019, d = .37, and were less often nominated as good-looking (Asian M = -0.42, SD = 0.56; White M = -0.05, SD = 0.94, $t(301)$ = 2.54, p = .011, d = 0.40. All other comparison were not significant, $t(301)$ ranged from -1.55 (p = .122) for social anxiety to 0.95 (p = .344) for relational victimization. Given these small differences, we did not control for race/ethnicity in the primary analyses, which had the advantage of allowing us to maintain the adolescents who endorsed "other" race/ethnicity in the study.

3.3. Unique associations: Multivariate models of emotional reactions and coping

To identify if T1 ARS and perceived appearance teasing by peers were two unique

longitudinal correlates of responses to the vignettes, standard multiple regression analyses were used to test the relationships of the five T1 predictors (ARS, perceived appearance teasing by peers, social anxiety, age, and gender) with each of the T2 measures of emotional reactions and ways of coping with negative peer evaluation vignettes. As shown in Table 2, T1 ARS and perceived peer appearance teasing were uniquely positively associated with four T2 vignettes measures including negative emotional reactions, thoughts about appearance change, social withdrawal, and rumination. Neither T1 ARS nor perceived peer appearance teasing were significantly associated with T2 positive thinking or support seeking in these models. Regarding the other predictors in the models, T1 social anxiety was uniquely positively associated with T2 social withdrawal and rumination but not with T2 negative emotions, thoughts about appearance change, support seeking, or positive thinking. Gender was associated with all responses to the vignettes, with girls higher than boys in negative emotional reactions, appearance change thoughts, social withdrawal, rumination, positive thinking, and support seeking. Age was uniquely negatively associated with positive thinking and support seeking.

4. Discussion

Founding our hypotheses in the original Rejection Sensitivity Model (Downey & Feldman, 1996) and stress and coping theories (e.g., Lazarus & Folkman, 1984; Skinner & Zimmer-Gembeck, 2016), we tested whether an anxious over-expectation of rejection because of appearance, referred to as ARS (Park, 2007), is associated with more negative emotional reactions and poorer ways of coping with negative appearance evaluation by peers two years later. Two vignettes, which portrayed evaluation by peers, were the stimuli used to measure emotional reactions and ways of coping at T2. Using vignettes standardized the stressor across participants. To better isolate T1 ARS as a unique predictor of T2 emotions and coping, we also considered social experiences that can have an impact on responses to

negative social interactions. These social experiences included self-reported experiences of peer appearance teasing, as well as peer-reported popularity, peer likeability, physical attractiveness, and appearance relational victimization. Finally, given the known covariation of social anxiety symptoms, gender, and age with emotionality and coping, these were also included as possible predictors of emotions and coping with negative appearance evaluation.

Overall, supporting H1 and H2, adolescents higher in T1 ARS did respond more negatively to the vignettes at T2 (two years later); they anticipated feeling more intense negative emotion (more sadness, worry, and anger) and reported they would use more social withdrawal and rumination to cope with negative appearance evaluation. Furthermore, adolescents higher in T1 ARS reported more desire to change their appearance in response to the negative evaluation vignettes at T2. ARS was not significantly associated with T2 support seeking and positive thinking, which are two ways of coping that can be helpful for recovery. Perceived peer appearance teasing and social anxiety symptoms showed a pattern of associations similar to what was found for ARS (except, notably, social anxiety was not significantly associated with thoughts about appearance change), but none of the peer-report measures were significantly associated with responses to the vignettes. Finally, age and gender were the only T1 measures associated with T2 positive ways of coping; older adolescents anticipated less support seeking and positive thinking, whereas girls anticipated more support seeking and positive thinking than boys.

4.1. Coping, thoughts of appearance change, and appearance-based rejection sensitivity

Adolescents higher in ARS at T1 anticipated more negative emotional reactions and more use of rumination and social withdrawal to cope at T2, similar to what has been found for general rejection sensitivity (Zimmer-Gembeck, 2015) and coping with peer rejection or exclusion in past research (Goodman et al., 2010; Kochenderfer-Ladd, 2004; Titova et al., 2022). These associations remained significant even after controlling for T1 perceived peer

appearance teasing, social anxiety symptoms, and gender. Rumination and social withdrawal are thought to be maladaptive because they block emotional recovery and limit opportunities for changing the interpretation of the stressful event. Specifically, they are known to result in increases in adolescents' emotional and social problems over time because they provide a context where worries can spiral without interference and they restrict opportunities to repair negative feelings about the self through positive social interactions (Williams & Nida, 2011; Zimmer-Gembeck, 2015).

Adolescents higher in T1 ARS also reported more thoughts of changing their appearance after reading the vignettes at T2. In fact, it was T1 ARS and perceived peer appearance teasing, not social anxiety, that were the unique correlates of anticipating more T2 thoughts about appearance change. As far as we know, this is the first study suggesting that adolescents higher in ARS (and those who report more experience with appearance teasing) respond with more thoughts about changing their appearance directly following interactions with their peers that imply evaluation or judgement about appearance. We expect that the types of interactions with peers portrayed in the vignettes are good examples of real interactions that many adolescents encounter, so that these vignette-based findings should be a good representation of responses adolescents would report in their real interactions. More broadly, however, we also expect that the vignettes are a good representation of how values about appearance can be conveyed through peer and friendship groups (Burnell et al., 2021). Placing greater value on achieving stereotypical ideals of appearance has been associated with higher body dissatisfaction in adolescent girls (Webb et al., 2014; Webb & Zimmer-Gembeck, 2014) and with greater endorsement of cosmetic surgery (Park et al., 2010). These associations could explain why ARS is associated with anticipating more thoughts about appearance change following the vignettes. Although there has been a long history of research considering body image as a correlate of cosmetic surgery (e.g., Cash, 1996), we

encourage more research that illuminates how a desire to change appearance can be socialized within adolescent peer groups.

T2 coping measures of support seeking and positive thinking were not associated with ARS. This is consistent with literature showing that it is generally maladaptive ways of coping that co-occur with negative self-beliefs and appraisals of high threat from social stressors (e.g., for reviews see Compas et al., 2017; Zimmer-Gembeck et al., 2016). Yet, the findings were surprising, given that support seeking and positive thinking are strategies that seem in opposition to social withdrawal and rumination suggesting there would be negative associations of ARS with both support seeking and positive thinking. Given that there were nonsignificant correlations of rumination and social withdrawal with support seeking and positive thinking, it is possible that our measure missed identifying important adaptive ways of coping that are in opposition to rumination and social withdrawal. For example, future research could measure cognitive reappraisal, compensatory thinking, positive self-talk, and self-compassion; all of which have been suggested as coping responses that correlate with a more positive body image (Allen et al, 2021; Maxwell & Cole, 2012; Seekis et al., 2017). Further research is also needed to understand why support seeking and positive thinking were not significantly associated with ARS and other measures in this study, especially given that these coping responses are often encouraged in adolescents to aid recovery from stress (Hoying et al., 2016; Johnstone et al., 2014), they have been useful to teach in intervention programs (for a review see Gardner et al., 2021b), and they have been associated with better adolescent well-being (Chu et al., 2010; Heerde & Hemphill, 2018).

4.2. Perceived peer appearance teasing, social anxiety, and gender

Adolescents' T1 experience with peer appearance teasing and social anxiety symptoms were also associated with more T2 maladaptive ways of coping with negative appearance evaluation by peers. These findings are consistent with past research on the impact of peer

relationships on body image concerns and ARS (Lavell et al., 2014; Webb & Zimmer-Gembeck, 2014, 2015). Furthermore, girls, relative to boys, were higher in ARS and social anxiety, and anticipated more negative emotional reactions and more use of all ways of coping. As has been widely described in past research and popular literature (Webb & Zimmer-Gembeck, 2014; Ricciardelli & Yager, 2016), body and appearance concerns are markedly negative experiences for girls, even when they are presented in vignettes as done here. It is particularly worrying that girls anticipate working much harder to cope with their more elevated negative feelings about appearance evaluation. Although boys today seem more concerned about achieving societal ideals of appearance than in previous decades (Ricciardelli & Yager, 2016) and do get increasingly anxious about possible appearance flaws as they get older (Zimmer-Gembeck et al., 2018), it still appears that the gender gap is wide. Adolescent girls seem to carry a heavier burden from judgmental and evaluative appearance-related interactions with peers than boys, even when these are presented in vignette form.

4.3. Peer-reports of peer status, attractiveness, and appearance relational victimization

We gathered reports from grademates and classmates to measure peer-perceived popularity, peer likeability, physical attractiveness, and appearance victimization for each participant. Adolescents who were more popular were much more frequently nominated by their peers as physically attractive. There was also a more modest positive association between physical attractiveness and peer likeability, so that more attractive adolescents were also more liked. These findings are consistent with past research (van den Berg et al., 2020). What was more surprising were the nonsignificant associations of peer popularity and attractiveness with peer reports of victimization about appearance. However, adolescents who were less liked were more victimized, which suggests that victimization is not limited to adolescents with low popularity or low attractiveness but may be driven most by being

disliked by peers.

ARS and perceived peer appearance teasing were not associated with any of the peer-report measures, and these null findings also extended to the associations of all peer-report measures with T2 emotion and ways of coping. These findings conflict with the known appearance and weight-related concerns and eating problems that seem to be more prominent among adolescents who are less liked by their peers, and among those who are either low or high in popularity (and, relatedly, physical attractiveness) with their peers (e.g., Smink et al., 2018; Graham et al., 2010; Rancourt & Prinstein, 2010). Yet, this is the first study to consider whether peer-perceived appearance relational victimization and status relate to specific responses to negative appearance-related interactions with peers, so at this point we suggest additional research.

This study warrants replication and extension. One research direction would be to consider friendship dynamics, rather than general peer status. Such a study could focus on conversations about appearance and upward or downward comparisons within friendship groups, gathering multilevel data from all members and considering gender (and other characteristics) of individual friends, dyads, and groups. Such research has been productive in identifying features of friendship dyads and peer groups that are associated with body image concerns and ARS (Webb & Zimmer-Gembeck, 2015). In addition, it would be useful to couple this study design with more information about adolescents' appearance values or real-world experiences with *both* negative and positive social feedback about their appearance.

4.4. Study limitations and future directions

There are some limitations of this study to consider. First, standardized vignettes were used as stimuli to gather adolescents' reports of their *anticipated* emotions and ways of coping with negative appearance evaluation by peers. We used vignettes in order to have some control over the stressful stimuli. However, we did not directly ask about personal

experiences of feeling evaluated or judged on appearance. In the future, research could simultaneously ask about responses to personal interactions that involved being evaluated, judged and compared on appearance or, as another alternative, in-vivo stressors could be presented to all participants in a controlled setting.

Second, ways of coping were measured with only one item per vignette (2 items total per subscale). However, coping measures had good interitem correlations, and this approach has been valuable for assessing coping with stress among large samples in other areas of research (Catterson & Hunter, 2010; Zimmer-Gembeck et al., 2016). Relatedly, rumination was measured with one item that asked about repetitive "thinking and worrying about the situation." This resulted in a high correlation between emotion following the vignettes (including sadness, worry, and anger) and the rating of rumination. Rumination is known to be a complex response that is multidimensional. For example, some differentiate brooding rumination from three other types (reflective, intrusive, or deliberate; Garcia et al., 2017). It is likely we measured only brooding rumination in the present study and future research might focus on all forms of rumination that can follow stressful events, given that some forms have stronger associations with emotional adjustment problems than others.

A third study limitation was that we did not use the vignettes to measure emotional reactions and ways of coping at T1; these data were only collected at T2. Because emotional reactions and ways of coping were not assessed at T1 or controlled in the analyses, we cannot conclude that T1 ARS has a unique association with changes in emotional reactions or ways of coping over time. Our study instead provides preliminary evidence that ARS in early adolescence (at age 12 to 15 years) is associated with more negative emotional reactivity and more maladaptive ways of coping with negative appearance evaluation (and more thoughts about making changes to appearance) when measured two years later at age 14 to 17 years.

The participating adolescents were generally representative of their communities and

their schools. However, the study was conducted in Australia and the sample was predominantly white, which could limit the generalizability of the findings. Notably, we found two small mean level differences (on peer report measures of popularity and physical attractiveness) when we compared adolescents who reported they were white to those who reported they were Asian. These findings add to existing research literature that finds associations of perceived attractiveness and peer status with race/ethnicity and these findings deserve more attention in future research (for a review, see Graham & Echols, 2018). A final and related limitation regards the demographic information we collected. The information collected did not allow us to consider finer groups of adolescents based on their immigrant status, language spoken at home, birthplace, or other histories. Collecting these data in the future would allow for the study of intersections of race/ethnicity with gender and other aspects of diversity that could be related to appearance-based rejection, rejection sensitivity, and coping with peer stressors.

We want to emphasize that there are likely to be multiple pathways to body image concerns and appearance-based rejection sensitivity, but we expect that many of the most direct route is from experiences that threaten identity and sense of belonging. This expectation means that experiences of rejection, exclusion, and being different should be relevant for explaining the functioning of all adolescents. However, multiple pathways would be found because there will be multiple reasons for rejection, exclusion, and related experiences (e.g., ostracism, discrimination). How these experiences manifest is likely to depend on the source of negative social experiences, as well as resources and opportunities, community, nation, cultural background and minority vs. majority status, and ingroup connections. As one example, qualitative research conducted in the US has described how socialization about gender and appearance may be linked with Asian racial/ethnic background (e.g., Ahn et al., 2022). In addition, coping could be constrained, changed, or

have differing implications for mental health or other outcomes depending on socialization experiences tied to racial/ethnic background, as well as experiences embedded within families and community or tied to socioeconomic status (Spencer et al., 1995, 2006; Wadsworth et al., 2013). Future research could address the possibility of multiple reasons for (and differing sources of) rejection and discrimination, and differences in coping socialization. Such research would especially allow for a more in-depth focus on the first part of the general Rejection Sensitivity Model. This first part of the model is directed at unpacking the experiences that form and shape rejection sensitivity, whether it is general rejection sensitivity, ARS, or other forms of rejection sensitivity that are emerging as important in the research literature (e.g., rejection sensitivity among individuals who are members of minority groups).

4.5. Conclusions

This study focused on longitudinal associations of adolescents' anxious concerns and heightened expectations of rejection due to appearance, referred to as appearance-based rejection sensitivity (ARS). Our aim was to test if adolescents' responses to negative appearance evaluation by peers (which we argued is stressful for adolescents) could be uniquely explained by their earlier level of ARS. At T2, we used vignettes to measure responses, with adolescents reporting their anticipated emotional reactions, ways of coping, and thoughts about appearance change after reading two negative appearance evaluation scenarios. T1 ARS, as well as perceived peer appearance teasing and gender, were associated with more T2 negative emotions, rumination, social withdrawal, and thoughts about changing appearance. Furthermore, T1 social anxiety uniquely predicted more T2 negative emotions, rumination, and social withdrawal. These findings can inform parents or others on how to assist adolescents to manage the barrage of messages they encounter that convey the importance of appearance or provoke appearance comparison and can socialize adolescents

towards believing appearance is the key to success in relationships and their futures. Future research could investigate whether support from others can be helpful to adolescents (e.g., co-problem-solving) as they navigate the many offline and online spaces where appearance is highly valued, commented upon, evaluated, judged, and compared. Likewise, children and adolescents who experience appearance-related social adversity could be assisted with specific interventions. Those at most risk because of ARS and other appearance-related concerns may especially need intervention to learn to re-engage socially following negative social interactions, to find accepting social groups, to downregulate negative reactions and thoughts about the self, and interfere in ruminative tendencies.

Declaration of Competing Interest

None.

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Table 1

Pearson's Correlations Between All Measures (N = 329)

	Measure	1	2	3	4	5	6	7
Time 1								
1	ARS	--						
2	Perc peer victim	.24***	--					
3	PR Popularity	-.02	.01	--				
4	PR Likeability	-.03	-.02	.08	--			
5	PR Attractiveness	.02	.06	.75***	.20***	--		
6	PR App victim	.09	.06	.02	-.33***	-.07	--	
7	Social anxiety	.64***	.26***	-.13*	-.11*	-.07	.15**	--
Time 2								
8	Neg emotions	.51***	.23***	.02	.05	.09	-.04	.41***
9	App change	.52***	.28***	-.07	-.02	-.03	.00	.42***
10	Social withdrawal	.44***	.28***	-.01	.02	.04	-.03	.46***
11	Rumination	.49***	.30***	-.03	.05	.02	-.02	.46***
12	Positive thinking	-.02	-.12	-.13*	.06	-.01	.00	-.06
13	Support seeking	.12	-.05	-.03	.01	.07	.02	.10
Demographics								
14	Age	.11	-.01	.07	.01	.15**	-.03	.12*
15	Gender	.31***	.03	-.02	.05	.15**	.05	.20***
	Mean	9.88	5.90	-0.18	3.27	-0.14	0.03	2.24
	SD	6.9	6.55	0.92	0.60	0.92	1.03	0.82

Table 1

Pearson's Correlations Between All Measures, continued (N = 329)

	Measure	8	9	10	11	12	13	14
Time 1								
1	ARS							
2	Perc peer tease							
3	PR Popularity							
4	PR Likeability							
5	PR Attractiveness							
6	PR App victim							
7	Social anxiety							
Time 2								
8	Neg emotions	--						
9	App change	.67***	--					
10	Social withdrawal	.70***	.68***	--				
11	Rumination	.81***	.72***	.78***	--			
12	Positive thinking	.05	-.10	-.08	-.08	--		
13	Support seeking	.32***	.08	.11	.19**	.42***	--	
Demographics								
14	Age	.06	.12*	.13*	.11	-.15*	-.13	--
15	Gender	.45***	.28***	.27***	.38***	.20***	.28***	-.03
	Mean	2.86	2.54	2.30	2.91	3.05	2.58	13.90
	SD	1.10	1.26	1.02	1.30	1.12	1.35	0.85

*p < .05. **p < .01. ***p < .001.

Note. ARS = Appearance-based rejection sensitivity. Perc peer tease = Perceived peer appearance teasing. PR = peer-report. App = appearance. Neg = negative. Withd = withdrawal.

Table 2

Time 1 Predictors of T2 Emotions and Ways of Coping with Negative Appearance Evaluation Vignettes (N = 329)

Independent variables	DV: Negative Emotions B (SE B)	β	DV: Appearance change B (SE B)	β	DV: Social withdrawal B (SE B)	β
ARS	0.05 (0.01)	.30***	0.07 (0.01)	.37***	0.03 (0.01)	.17**
Perceived peer app teasing	0.02 (0.01)	.12*	0.03 (0.01)	.16**	0.03 (0.01)	.16**
Social anxiety	0.16 (0.08)	.12[a]	0.16 (0.10)	.10	0.33 (0.09)	.27***
Age	0.04 (0.07)	.03	0.11 (0.08)	.08	0.10 (0.06)	.09
Gender	0.73 (0.12)	.33***	0.36 (0.13)	.14**	0.32 (0.11)	.16**

Independent variables	DV: Rumination B (SE B)	β	DV: Positive thinking B (SE B)	β	DV: Support seeking B (SE B)	β
ARS	0.04 (0.01)	.21***	0.00 (0.01)	-.01	0.01 (0.01)	.04
Perceived peer app teasing	0.04 (0.01)	.18**	-0.02 (0.01)	-.11	-0.02 (0.01)	-.08
Social anxiety	0.34 (0.11)	.22***	-0.07 (0.11)	-.05	0.11 (0.13)	.07
Age	0.11 (0.08)	.08	-0.18 (0.08)	-.14*	-0.21 (0.10)	-.13*
Gender	0.69 (0.13)	.26***	0.48 (0.13)	.21***	0.69 (0.16)	.26***

[a]p = .052. *p < .05. **p < .01. ***p < .001.
Note. DV = dependent variable. Emotions $F(5, 323)$ = 39.76, p < .001, R^2 = .38. App change $F(5, 323)$ = 32.14, p < .001, R^2 = .33.
Social withdrawal $F(5, 323)$ = 27.69, p < .001, R^2 = .30. Rumination $F(5, 323)$ = 37.66, p < .001, R^2 = .37.
Positive thinking $F(5, 323)$ = 6.00, p = .001, R^2 = .08. Support seeking $F(5, 323)$ = 7.81, p < .001, R^2 = .11.
ARS = appearance-based rejection sensitivity. App = appearance.