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Social threat sensitivity and its relationships with peer victimisation and internalising symptoms among adolescent girls.

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## Abstract

Consistent associations have been shown between self-reported peer victimisation and internalising symptoms. In distinct literature, anxious and depressed youth have been shown to interpret ambiguous social stimuli in a manner consistent with social threat and rejection. The aim of the current study was to determine whether this sensitivity to social threat among anxious/depressed youth explains significant variance in the relationship between self-reports of peer victimization and internalising symptoms. Two hundred and sixty-seven students in grades seven and eight ( $M$  age = 12.62,  $SD$  = 0.65) completed measures of their own symptoms of anxiety and depression as well as their experiences of being physically or relationally victimised by their peers. They also read descriptions of 10 hypothetical ambiguous social interactions and provided responses indicating whether they interpreted each scenario as indicating social threat (rejection/ negative evaluation) and the extent to which they perceived it as victimisation. As expected, anxiety and depression were positively correlated with self-reported peer victimisation and with interpretations consistent with social threat and victimisation (social threat sensitivity). In turn, social threat sensitivity was positively correlated with both self-reported relational and physical victimisation, but moreso with the former. However, the relationship between anxiety and depression and victimisation remained significant, even after controlling for social threat sensitivity. Results suggest that a sensitivity toward social threat can influence self-reports of peer victimisation among anxious and depressed youth, but that the relationship between internalising and victimisation goes beyond this sensitivity.

## Highlights

- Adolescent girls who scored higher in anxiety and depression were more likely to self-report being the targets of peer victimisation
- Adolescent girls scoring higher in anxiety and depression were more likely to interpret ambiguous social scenarios as indicating social rejection and victimisation
- Anxiety and depression remained significant predictors of self-reported victimisation even after controlling for sensitivity to social threat
- Relationships, especially involving social threat sensitivity, were generally stronger for relational than physical victimisation

Social threat sensitivity and its relationships with peer victimisation and internalising symptoms among adolescent girls.

Peer victimisation is a serious interpersonal process that is associated with severe, long-term consequences. Young people who are chronically victimised by their peers are at greater risk of continuing mental health problems, somatic problems, academic difficulties, and ultimately suicide (Card & Hodges, 2008; Copeland, Wolke, Angold, & Costello, 2013; Koyanagi et al., 2019). Peer victimisation can take the form of relational forms of bullying (such as rumours, exclusion) or physical bullying (such as hitting or kicking)(Stassen Berger, 2007). Although correlated, these two forms of victimisation show slightly different patterns. Physical victimisation appears higher among boys than girls, while relational victimisation shows similar prevalence in both (Casper & Card, 2017). The overall prevalence of peer victimisation reduces slightly from childhood to adolescence, however, this appears to be due primarily to reduced prevalence in physical victimisation - verbal/relational forms of victimisation remain high, especially among adolescent girls (Casper & Card, 2017).

Assessing victimisation is a complex issue given high levels of social demand and secrecy surrounding this behaviour. The most common methods to measure victimisation include peer nomination, teacher report, and self-report (Juvonen, Nishina, & Graham, 2014). Peer nomination is seen by many researchers as the gold standard since it is often thought to provide a more “unbiased” or independent perspective (Juvonen et al., 2014). In reality, peer nominations appear to be just as subjective as self-reports, but are affected by a unique set of influences. Peer identification of youth who are victimised seems to be especially subject to influence by peer reputation and social isolation (Juvonen et al., 2014). Given the secrecy surrounding victimisation, the primary advantage of self-report is that victims will have the

greatest knowledge of what happens to them. However, given the stigma surrounding peer victimisation, self-report is affected by its own set of biases. Self-reports of victimisation appear to be closely linked with internalising distress and perceptions of self-worth (Juvonen et al., 2014). Self-reports may also reflect biased perceptions stemming from previous victimisation histories (Pouwels, Lansu, & Cillessen, 2016). Despite these different influences on different sources of reporting, most estimates of the prevalence of peer victimisation and most evaluations of its predictors are based only on self-report (Stassen Berger, 2007). This is likely a practical decision – assessing prevalence within large population samples is cheapest and easiest when based on self-report questionnaires. However, the potential influences on these self-reports need to be better understood.

Across multiple areas of research, one of the most consistent predictors of victimisation is the emotional distress of the victim, usually assessed as anxiety or depression (Hong, Kral, & Sterzing, 2015; Juvonen & Graham, 2014; Tsaousis, 2016). Cross-sectional data consistently show small to moderate, positive correlations between self-reported peer victimisation and both anxiety and depression (Hawker & Boulton, 2000). Relationships are generally stronger with depression than anxiety (Hawker & Boulton, 2000; Hong et al., 2015). Interestingly, internalising distress is less consistently related to peer-reported than self-reported victimisation (Juvonen et al., 2014; Pouwels et al., 2016). However, this effect may at least partly reflect shared method variance since stronger relationships between internalising and victimisation have been shown when both are measured using consistent informants (Hawker & Boulton, 2000; Pouwels et al., 2016). Longitudinal data have shown that these relationships are clearly bi-directional – higher levels of anxiety and depression predict future victimisation and victimisation predicts increases in anxiety and depression (Forbes, Fitzpatrick, Magson, & Rapee, 2018; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). There is also a developmental overlap. In addition to high levels of relational forms of

victimisation among adolescent girls, the adolescent period is also critical for the development of emotional distress, especially anxiety and depression among girls (Rapee, Fardouly, et al., in press). Relational forms of victimisation have also shown slightly more consistent relationships with internalising than have physical forms of victimisation, especially among adolescents (Casper & Card, 2017).

Several authors have hypothesized that victimisation is maintained or elicited by the behaviours or reactions that are displayed by the targets of the victimisation, including crying, distress, or unassertiveness (Crawford & Manassis, 2011; Delfabbro et al., 2006). Some evidence has indicated that helpless responses to bullying are more likely to maintain it (Salmivalli, Karhunen, & Lagerspetz, 1996). Anxious and depressed young people are more likely to display these reactions since the same behaviours are characteristic of internalising distress. At least one study has shown that 12-14 year old youth who are presented with hypothetical vignettes of peers showing shy, withdrawn behaviours or sad, morose behaviours rate these characters as more likely to be victimised than hypothetical peers displaying proactive behaviours (Luchetti & Rapee, 2014).

Aside from these behavioural expressions, victims of peer bullying relative to non-victims may also interpret others' attitudes toward them as more negative. In other words, they may show a sensitivity toward potential rejection or victimisation, thereby increasing their perceived victimisation. Some authors have argued that a self-serving attributional bias impacts self-reported victimisation and reduces its validity (Österman et al., 1994). On the other hand, it may be more helpful to consider self-reports as reflecting an important perspective, including its influence by the child's personal preconceptions (Juvonen et al., 2014). Consistent with these views, empirical evidence has shown that self-reported sensitivity to rejection is positively associated with self-reported victimisation (Downey, Lebolt, Rincon, & Freitas, 1998; Salmivalli & Isaacs, 2005; Zimmer-Gembeck & Duffy,

2014). In the only study using hypothetical vignette methodology, self-reported victimisation in preschool-aged children was significantly associated with critical self-referent attributions (Prinstein, Cheah, & Guyer, 2005). It is not clear from current studies whether these negative personal beliefs are related to self-reported victimisation due to genuinely higher victimisation, perhaps due to the behavioural expressions noted above (e.g., withdrawal, sadness, helplessness) or to an increased sensitivity (also referred to as a bias) to perceived victimisation.

Sensitivity to interpersonal rejection is not only associated with victimisation. Internalising disorders, especially anxiety and depression, have been frequently associated with a range of sensitivities (often referred to in this literature as cognitive biases) toward interpersonal threat (Hadwin, Garner, & Perez-Olivas, 2006; Platt, Waters, Schulte-Koerne, Engelmann, & Salemink, 2017; Stuijzand, Creswell, Field, Pearcey, & Dodd, 2018). Misinterpretation of ambiguity, in other words a heightened sensitivity toward potential threat and negativity, characterizes both anxiety and depression, including among adolescents (Hadwin et al., 2006; Platt et al., 2017). Much of this research has focused on social or relational contexts and both anxiety and depression are characterised by heightened sensitivity to social threats. For example, studies have shown positive correlations between measures of anxiety and depression and self-reported rejection sensitivity (Gardner & Zimmer-Gembeck, 2018; Magson, Oar, Fardouly, Johnco, & Rapee, 2019). Other research using hypothetical scenarios or vignettes to evaluate sensitivity to social threat has shown positive relationships with anxiety and depression (Creswell, Schniering, & Rapee, 2005; Klein et al., in press; Pergamin-Hight, Bitton, Pine, Fox, & Bar-Haim, 2016; Reid, Salmon, & Lovibond, 2006).

In summary, young people who are victimised by peers and those with internalising disorders are both characterized by a sensitivity to detect social rejection or aggression from



peers. Self-reported peer victimisation and internalising disorders are also strongly related. Therefore, it may be suggested that sensitivity to social threat might be responsible for the positive associations between self-reported victimisation (especially relational forms of victimisation) and internalising symptoms. Few studies have evaluated this possibility. In one early attempt to address this issue, discrepancies between self and peer-reports of peer victimisation were measured among 16 year-old youth (De Los Reyes & Prinstein, 2004). On the assumption that peer-reports reflect more “valid” estimates of victimisation, so-called “overestimated” victimisation was determined when self-reports were greater than peer-reports. Results showed that overestimates of both relational and reputational victimisation were positively predicted by symptoms of depression among both girls and boys. A later study among adolescents aged 10-14 years assessed rejection sensitivity through both self-reports and peer-reports, both of which determined rejection sensitivity through a combination of rejection expectation along with anxious responses to rejection (Zimmer-Gembeck, Trevaskis, Nesdale, & Downey, 2014). A path analysis showed significant associations between relational victimisation, rejection sensitivity (both peer and self-report), and symptoms of depression. There was both a significant direct path from victimisation to depression as well as a significant indirect path via rejection sensitivity, suggesting that the common variance between self-reported relational victimisation and depression was partly, but not entirely, shared with rejection sensitivity.

In summary, given that research into the relationship between internalising disorders and peer victimisation commonly relies on self-reported victimisation, it is not clear whether this relationship is a result (partly or fully) of the perceptual/interpretation sensitivities to social threat that are also demonstrated by these youth. The very limited direct evidence to date points to a significant influence of social threat sensitivities among depressed youth on self-reported victimisation, but evidence has not yet evaluated relationships with anxiety. The

aim of the current study was to begin to tease apart these factors. It was predicted that significant bivariate relationships would be demonstrated between a measure of social threat sensitivity and both internalising symptoms and self-reported victimisation. However, consistent with Zimmer-Gembeck et al. (2014), we hypothesized that internalising symptoms would explain significant, unique variance in victimisation over and above variance explained by social threat sensitivity. Given the particularly strong relationship between relational victimisation and internalising along with the particular importance of peer relationships for adolescent girls (Rapee, Fardouly, et al., in press), we predicted that these effects would be stronger for self-reported relational than physical victimisation.

## Method

### Participants

Participants were 267 school students enrolled in grades seven and eight attending a single-sex Catholic secondary school in Sydney, Australia. Due to the nature of the school, all participants were female. The sample was comprised of 136 seventh-grade students, and 131 eighth-grade students. Participants ranged in age from 12 to 15 years ( $M = 12.62$ ,  $SD = 0.65$ ). Participants primarily lived in intact (married) families (88.0%), and the majority of participants had only one sibling (46.1%).

### Self-report Measures

Spence Children's Anxiety Scale – Child Version (SCAS; Spence, 1998). The SCAS is a widely used self-report questionnaire that was developed to measure the severity of symptoms of anxiety disorders in children and adolescents aged 6-18 years. The original scale incorporates 38 items assessing six domains of anxiety, including generalised anxiety, social phobia, separation anxiety, obsessive-compulsive disorder, panic agoraphobia, and

fears of physical injury. Items are scored on a 4-point Likert scale from 0 (*never*) to 3 (*always*) such that higher scores represent higher anxiety. The SCAS has good psychometric properties including convergent validity with other widely used measures of childhood anxiety, good discriminant validity, and solid test-retest reliability ( $r = .60$ ) (Spence, 1998; Spence, Barrett, & Turner, 2003). Internal consistency for the original total scale was excellent ( $\alpha = .93$ ) (Spence, 1998) and remained so in the current sample ( $\alpha = .95$ ). Scores in the current sample ranged from 0 to 106 and the mean was 34.46 (SD = 19.26), which is consistent with norms for early adolescent girls (Spence, 2020).

Short Mood and Feelings Questionnaire – Child Version (SMFQ; Angold et al., 1995). The child version of the SMFQ is a 13-item self-report questionnaire that was developed to screen for depressive symptomology in children and adolescents aged 6-17 years. The SMFQ asks participants to rate whether the provided phrases are indicative of their feelings and actions over the previous two weeks on a 3-point Likert scale, ranging from 0 (*not true*) to 2 (*true*), where higher scores represent higher levels of depression. The psychometric properties of the SMFQ have been shown to be good including the measure's high discriminant validity (Angold et al., 1995). Internal consistency for the original scale was excellent ( $\alpha = .86$ ), as it was for the current sample ( $\alpha = .92$ ). Scores in the current sample ranged from 0 to 26, with a mean of 7.66 (SD = 6.76), in line with similar nonclinical samples (Tomyn et al., 2016).

The Personal Experiences Checklist (PECK; Hunt, Rapee, & Peters, 2012). The PECK is a self-report questionnaire that was developed to measure personal experiences of being bullied in youth aged 8-16 years. The scale comprises 32 items reflecting individuals' perceived relational-verbal victimisation, cyber victimisation, physical victimisation, and victimisation based on culture. The current study utilized the relational-verbal (PECKr) and physical (PECKp) victimisation subscales. Sample items include: "Other kids ignore me on

purpose” (PECKr), and “Other kids trip me over” (PECKp). Participants were asked to rate how often they experienced the presented statements over the past month or so on a 5-point Likert scale, ranging from 0 (*never*) to 5 (*every day*). All original PECK scales demonstrated adequate test-retest reliability ( $r$  range = .61-.86), and good to excellent internal consistency (Cronbach’s  $\alpha$  range = .78-.91) (Hunt et al., 2012). In the current sample, the internal consistency for the PECKr and PECKp were excellent ( $\alpha$ ’s = .92 and .87, respectively). Scores in this sample ranged from 0 to 99 with a mean of 10.78 (SD = 14.81), which similar, although slightly lower than in the original validation sample (Hunt et al., 2012).

### Hypothetical scenarios

Each youth was presented with 10 ambiguous hypothetical situations that entailed socially ambiguous behaviours that could potentially be interpreted as either victimizing/aggressive or as accidental/ playful. Previous studies have used similar vignettes to assess individuals’ interpretation of socially ambiguous behaviour that could potentially be interpreted as either threatening or benign (Barrett, Rapee, Dadds, & Ryan, 1996; Waters, Craske, Bergman, & Treanor, 2008). After being presented with each ambiguous scenario, participants were asked to choose which of two attributions they would most likely make about the situation. In each case one attribution was negative (motivated by intent/aggression/victimisation) and the other was benign or positive (motivated by lack of intent/fun). An example of an ambiguous hypothetical scenario was: “Imagine that you have gone into class and are about to sit at your desk. Just as you start to sit, a girl pulls your chair away and you fall to the ground. Everyone around you laughs. What is the more likely reason for the girl acting like this? a) The girl thinks you are annoying and is trying to make fun of you in front of everyone, or b) The girl thinks that you would also find this funny and is just trying to play around with you)” (vignettes are presented in Appendix A). Order of

attributions was counterbalanced across vignettes and vignettes were presented in random order. Following selection of the attribution for each vignette, participants were also asked to rate the extent to which they believed that the hypothetical peer(s) was bullying them using a 4-point Likert scale, ranging from 0 (*not at all*) to 3 (*very much*).

Hence two measures of social threat sensitivity were derived from these scenarios: 1) a measure of the participants' interpretation of social rejection, which was created by counting the number of individuals' responses to the 10 forced-choice questions that indicated a negative interpretation (maximum score of 10); and 2) victimisation interpretation was determined by summing responses across the 10 ambiguous vignettes to the single item that asked whether the participant interpreted the behaviour as victimisation (maximum score of 30). Internal consistency for the victimisation interpretation score was  $\alpha = .91$ . The correlation between the two cognitive measures of sensitivity was  $r=0.64$ ,  $p<.001$ . Therefore, to provide an overall measure of social threat sensitivity, the two cognitive measures, social rejection interpretation and victimisation interpretation, were standardized and averaged<sup>1</sup>.

### Procedure

Ethics approval was obtained from the Macquarie University Human Research Ethics Committee, as well as from the Sydney Catholic Schools department. Informed consent was obtained from the school principal at the participating school, from the parents of the participating students, and from the students, themselves. This paper describes all measures that were administered to this sample and no participants were excluded from analyses. Sample size was determined by convenience, with all participants who provided consent from a single school being included.

Consenting students individually completed measures online in class groups of

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<sup>1</sup> Pattern of results remained the same when each cognitive measure was analysed separately

approximately 20 and on average, took 19 minutes to complete. The online questionnaire began with basic demographic information, followed by questionnaire measures of symptoms of anxiety and depression, and experiences of victimisation, and concluded with the 10 ambiguous social vignettes. Participants' pastoral care coordinator and pastoral care teachers were present throughout the data-collection session to provide instructions, monitor participants, and assist with questions or distress.

### Statistical analysis

There were no missing data. Distributions of the main variables were examined and shown to fall within acceptable levels of skew (0.63 – 0.94) and kurtosis (-.062 - .553) for most variables. The only exceptions were the two measures of victimisation (Relational – skew = 1.84, kurtosis = 3.83; Physical - skew = 3.76, kurtosis = 17.93). Therefore this measure was subjected to a base 10 logarithmic transformation and all analyses were repeated. The overall patterns of results and significance were consistent between analyses using the transformed and untransformed variables and therefore results from the original, untransformed measures of victimisation are reported. Bivariate correlations were calculated between all pairs of measures. To examine unique contributions of internalising and social threat sensitivity to self-reported victimisation, two multiple regressions were conducted. In the first, relational victimisation was the dependent variable and the composite social threat sensitivity score was entered at the first step. Subsequently, anxiety and depression were entered simultaneously to the equation. The second regression ran the same analysis but with physical victimisation as the dependent variable. SPSS Version 25 was used to complete the statistical analyses and statistical significance for all analyses was set at  $p < .05$ .

## Results

### Bivariate relationships

Bivariate correlations were calculated between pairs of variables (see Table 1). As shown in the table, relational victimisation showed moderate associations with measures of anxiety and depression and small associations with measures of social threat sensitivity. Correlations with physical victimisation were generally similar, although slightly smaller in all cases than those with relational victimisation. The only correlation that did not reach statistical significance was between physical victimisation and social rejection interpretation. Both anxiety and depression were significantly correlated with the measures of social threat sensitivity, with anxiety showing moderate associations and depression showing small associations.

### Multiple regressions

Examination of Mahalanobis' Distance identified one significant multivariate outlier. The subsequent regressions indicated the same patterns of results with and without the inclusion of this participant and therefore the original, unchanged data were used. The hypothesis that internalising symptoms would explain additional, unique variance in victimisation over that explained by social threat sensitivity was tested through two multiple regressions: one utilizing relational victimisation score on the PECK as the dependent variable and the other utilizing physical victimisation. When relational victimisation was the dependent variable, at the first step, the overall measure of social threat sensitivity was entered as a predictor and explained 11% of the variance in relational victimisation,  $F(1,265) = 31.46, p < .001$ . At the second step, anxiety and depression were each added to the equation. There was a significant change in  $R^2$  (.235),  $F(2,263) = 46.90, p < .001$ . Hence, the final equation explained 34% of the variance in relational victimisation. Both anxiety,  $\beta = 0.170, t = 2.35, p = .020$ , and depression,  $\beta = 0.400, t = 6.00, p < .001$ , were significant unique predictors

of relational victimisation and social threat sensitivity was also a significant unique predictor,  $\beta = .116, t=2.03, p=.044$ .

When physical victimisation was the dependent variable, at the first step, the overall measure of social threat sensitivity was entered as a predictor and explained 4% of the variance in physical victimisation,  $F(1,265) = 10.42, p=.001$ . At the second step, overall anxiety and depression were added to the equation. There was a significant change in  $R^2$  (.153),  $F(2,263) = 24.84, p<.001$ . Hence, the final equation explained 19% of the variance in physical victimisation. Only depression was a significant unique predictor,  $\beta = 0.349, t=4.72, p<.001$ . Neither anxiety,  $\beta = .101, t=1.26, p=.210$ , nor social threat sensitivity,  $\beta = .034, t=0.54, p=.589$ , predicted significant unique variance above depression in the final model.

## Discussion

Extensive research has demonstrated positive associations between peer victimisation and internalising symptoms in victims (Hawker & Boulton, 2000; Hong & Espelage, 2012; Juvonen & Graham, 2014). These associations are demonstrated even when victimisation is reported by peer nomination however, they are more consistent and stronger when derived from self-reported victimisation (Hawker & Boulton, 2000). Although this difference may simply reflect shared method variance (Pouwels et al., 2016), it raises the possibility that youth who are more anxious and depressed may label others' actions as "victimisation" when those same actions might be labelled in more neutral ways by less anxious and depressed youth. The current results are consistent with this prediction, keeping in mind that no directionality can be inferred from the concurrent measurement design. In the current study, adolescent girls demonstrated a positive relationship between their own symptoms of internalising and their tendency to interpret ambiguous social interactions in a manner consistent with social rejection and victimisation (social threat sensitivity). However,



internalising symptoms remained significantly related to self-reported victimisation even after controlling for common variance with social threat sensitivity. In other words, there appears to be a significant relationship between self-reported victimisation and symptoms of both anxiety and depression that goes beyond any tendency to be sensitive to potential victimisation and social rejection.

The bivariate associations between interpretation sensitivity and internalising are consistent with a significant body of literature showing interpretation sensitivities among anxious and depressed youth (Hadwin et al., 2006; Platt et al., 2017). In a similar fashion to the current study, previous studies have utilised hypothetical vignettes to test social threat sensitivity (often labelled interpretation bias). Many of these studies have shown associations between anxiety or depression and a tendency to interpret ambiguous social scenarios in a manner consistent with social rejection or negative evaluation (Klein et al., in press; Pergamin-Hight et al., 2016; Reid et al., 2006). However, minimal research has directly linked the social threat sensitivities of anxious/depressed youth specifically to interpretations of victimisation. Hence it seems that not only do anxious and depressed youth believe that they are disliked or poorly evaluated by their peers, but they are also more likely to interpret their peers' actions as being motivated by bullying. Both anxiety and depression, separately showed these relationships. As noted earlier, although a small number of studies has previously shown an association between social threat sensitivity and perceptions of victimisation linked with symptoms of depression (De Los Reyes & Prinstein, 2004; Zimmer-Gembeck et al., 2014), extending this finding to a transdiagnostic commonality with anxiety has not been previously demonstrated. Of course the direction of this relationship cannot be determined from the current results and both directions are equally plausible. That is, anxious and depressed youth may subjectively experience more victimisation because of their

sensitivity to such experiences, or they may develop an increased sensitivity due to their prior history of victimisation (Ladd & Troop-Gordon, 2003).

As noted earlier, and consistent with previous research (Zimmer-Gembeck et al., 2014), our results showed that the association between self-reported victimisation and internalising remained significant even after controlling for social threat sensitivity. Even though anxious and depressed youth are sensitive to interpreting ambiguous situations as bullying, they report experiences of victimisation that are independent of this interpretation style. There is little doubt that anxious and depressed youth are genuinely more likely than others to be the targets of bullies (Juvonen & Graham, 2014). Sufficient evidence shows associations between internalising and peer-reports of victimisation (Boivin, Hymel, & Bukowski, 1995; Goodman, Stormshak, & Dishion, 2001) as well as experimental data showing that young people expect peers who display anxious and depressed behaviours to be the targets of bullying (Luchetti & Rapee, 2014; Salmivalli et al., 1996). It is also very possible that the two processes act in concert. That is, a sensitivity to interpret benign social interactions as rejection and bullying may lead a young person to react with hostility or withdrawal and increase the likelihood that they will subsequently be victimised (Salmivalli & Isaacs, 2005). A heightened social threat sensitivity may also reduce popularity and friendships, which are key factors in the protection against peer victimisation (Fitzpatrick & Bussey, 2014; Hodges, Boivin, Vitaro, & Bukowski, 1999). Longitudinal research may help to disentangle some of the developmental processes involved in these cycles.

Research has demonstrated distinct correlates of physical and relational victimisation (Casper & Card, 2017). Whereas physical victimisation is more common among boys and children, relational victimisation is found more equally among both male and female adolescents. Relational victimisation is also more strongly associated with internalising symptoms and this relationship increases with age (Casper & Card, 2017). Female

adolescents also show marked increases in depression and some forms of anxiety and peer relationships are especially important for female adolescents (Rapee, Fardouly, et al., in press). Consistent with these distinct relationships, our results showed that the relationships between internalising, social threat sensitivity, and victimisation were stronger for relational victimisation than physical victimisation in this female, adolescent sample. Significant relationships were also shown with physical victimisation, in the small to moderate range. When common variance was modelled in the multiple regressions, relational victimisation showed unique associations with anxiety, depression, and social threat sensitivity, but physical victimisation was associated uniquely with only depression. Forms of victimisation do share considerable common variance (Casper & Card, 2017) (around 50% overlap in the meta-analysis by Casper and Card and in the current study) and it appears that social threat sensitivity is a factor that is relevant to self-reported physical victimisation. However, its relevance to self-reported physical victimisation is considerably less than for relational victimisation, at least among adolescent girls. Hence, consistent with prior research, self-reported relational and physical victimisation do show slightly different patterns of correlates and it appears that, among adolescent girls, self-reported physical victimisation is most uniquely associated with symptoms of depression. It is possible that this identified association may be a result of the stronger links between depression and externalising symptoms (McElroy, Shevlin, Murphy, & McBride, 2018; Stalk, Love, & Mueller, 2015) and subsequently a greater likelihood of girls with externalising problems resorting to physical aggression. Clearly, future research that includes a measure of externalising symptoms will be needed to clarify this possibility.

The main limitation of the study has already been indicated – the study collected concurrent data rendering any directional conclusions impossible. Longitudinal evaluations will be valuable to determine whether social threat sensitivity is a precursor or a consequence

of victimisation (or more likely both). The lack of a peer-report measure of victimisation means that we were unable to determine whether the results are specific to self-report. Theoretically, this is a key limitation since the assumption is that sensitivity to victimisation has a particular impact on self-reported victimisation. However, if similar effects were demonstrated against peer-reported victimisation, this would more strongly point to social threat sensitivity as a consequence of victimisation experiences. Conclusions are also restricted to adolescent girls and it will be valuable to determine whether similar relationships are found among children and boys. Similarly, the use of a single, religious denominational, school in Australia means that results cannot be generalized across backgrounds, cultures and socioeconomic levels.

The identification of cognitive sensitivities among anxious and depressed populations has led to many empirically-validated treatments (Beck, Emery, & Greenberg, 1985) and continues to inspire more innovative intervention methods (Krebs et al., 2018). Hence, identifying social threat sensitivity as a major factor in self-reported victimisation may lead to new methods and new targets for intervention. Programs aimed at bullying reduction by addressing the targets of bullying directly, are far less common than school-based interventions aimed at reducing bullying perpetration (Berry & Hunt, 2009; Rapee, Shaw, et al., in press). At the very least, these data point to the importance of addressing cognitive factors in addition to social skills when developing interventions to help the victims of peer bullying (Berry & Hunt, 2009; Rapee, Shaw, et al., in press; Zimmer-Gembeck et al., 2014). Greater understanding of factors that may be relevant to both the receipt of actual victimisation and its experience will be critical to improve current interventions.

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Table 1: Bivariate correlations between the main variables describing victimisation, internalising, and social threat sensitivity (N = 267).

	1	2	3	4	5	6
1. Relational victimisation (PECKr)						

2. Physical victimisation (PECKp)	.70					
3. Total anxiety (SCAS)	.49	.35				
4. Total depression (SMFQ)	.55	.43	.66			
5. Social threat sensitivity	.33	.19 <sup>a</sup>	.48	.32		
6. Social rejection interpretation	.29	.11 <sup>b</sup>	.41	.26	.91	
7. Victimization interpretation	.30	.24	.47	.32	.91	.64

Note: \* all correlations are significant at  $p < .001$ , except a –  $p = .001$ , b –  $p = .075$ .

PECKr – Personal Experiences Checklist – relational verbal victimisation subscale; PECKp – Personal Experiences Checklist – physical victimisation subscale; SCAS – Spence Children’s Anxiety Scale; SMFQ – Short Mood and Feelings Questionnaire.

## Appendix A – Hypothetical scenarios used in the presented vignettes

### **Vignette 1. Please read the following scenario carefully:**

Imagine it is your turn to present your English speech to the class. You begin to notice that a girl and her friend are quietly talking to each other and start to snicker throughout your presentation. Every time you look over their way, they immediately look away. At the end of your presentation, you notice that the girls aren't paying attention because they are too focused on something else that they are reading together and laughing.

#### **What is the more likely reason for the girls acting like this?**

- a) They are laughing at your presentation, and are sharing mean notes about you
- b) Something in your presentation reminded the girls of something funny that happened earlier during the week that makes them laugh and they begin to write notes to each other about it

### **Vignette 2. Please read the following scenario carefully:**

Imagine your PDHPE class is playing a game of Netball. Your teachers instruct two girls to select members of their team one by one, and you are the last person picked for a team. You notice that this is the second time that this has happened to you within the past two weeks.

#### **What is the more likely reason for the girls acting like this?**

- a) The captains are choosing the most skilled team members for the Netball game so their team has a higher chance of winning
- b) Neither of the captains really like you and don't want you on their team

### **Vignette 3. Please read the following scenario carefully:**

Imagine that you are walking through the playground at school and a girl from a higher grade who is bigger than you brushes against you quite hard as she walks by.

#### **What is the more likely reason for the girl acting like this?**

- a) The girl is running late for her exam and didn't mean to brush past you that hard
- b) The girl purposely wanted to hurt and scare you

### **Vignette 4. Please read the following scenario carefully:**

Imagine that you enter the school bus and see a vacant spot next to a girl in your year. You don't want to sit alone, so you approach the girl and ask if you can sit with her. She replies with "No, sorry. I'm saving the spot for someone else".

#### **What is the more likely reason for the girl acting like this?**

- a) Someone else actually asked the girl to save a spot for them on the bus
- b) The girl doesn't want to sit with you and is just using that as an excuse

### **Vignette 5. Please read the following scenario carefully:**

Imagine that your friend takes a photo of you both whilst you are out together. You see the photo and tell your friend that you think it's unflattering of yourself. That night, she posts the photo of you both onto Facebook.

#### **What is the more likely reason for the girl acting like this?**

- a) Your friend thinks the photo is funny of you and uploads it to Facebook to purposely make fun of

you and embarrass you

b) Your friend uploaded the photo because she thought it was a funny photo of you both, and didn't think that it would bother you that much

**Vignette 6. Please read the following scenario carefully:**

Imagine that you are standing in the playground with a group of your friends when another girl walks over towards you. She greets everyone first, and then throws her arm around your shoulder and says "Hey, fatty". This is the second time that she has called you this in the past week.

**What is the more likely reason for the girl acting like this?**

- a) The girl is just joking around and doesn't actually think that you are fat
- b) The girl doesn't like you and is trying to make fun of you

**Vignette 7. Please read the following scenario carefully:**

Imagine that you have gone into class and are about to sit at your desk. Just as you start to sit, a girl pulls your chair away and you fall to the ground. Everyone around you laughs.

**What is the more likely reason for the girl acting like this?**

- a) The girl thinks you are annoying and is trying to make fun of you in front of everyone
- b) The girl thinks that you would also find this funny and is just trying to play around with you

**Vignette 8. Please read the following scenario carefully:**

Imagine that one day you tell your friends that you don't really like Taylor Swift's music. You then find out that all of your friends have organised to go out to her concert together, and you were the only one who wasn't invited. When you ask them why you weren't included they say that they didn't invite you because they had remembered that you said that you didn't like Taylor Swift's music.

**What is the more likely reason for the girls acting like this?**

- a) The girls didn't invite you because they assumed that you would just say no to going
- b) The girls didn't invite you because they didn't want you to come, and was just using that as an excuse

**Vignette 9. Please read the following scenario carefully:**

Imagine that one day you forgot to bring a pen to school. You see someone ask for and receive a pen from a girl in your class. You also need a pen so you ask the same girl for one. She says "No, sorry. I don't have one".

**What is the more likely reason for the girl acting like this?**

- a) The girl didn't want to give you one of her pens because she doesn't like you
- b) The girl is being truthful and only had 1 extra pen

**Vignette 10. Please read the following scenario carefully:**

Imagine that you are sitting with two girls in your Science class. One of the girls pulls out her phone and begins to show the other girl something that makes them laugh. You ask the girl what they are laughing about and she tells you that she'll show you once she finishes showing the first girl. As soon as she is finished showing her, she quickly turns off her phone and puts it back into her pocket.

**What is the more likely reason for the girl acting like this?**

- a) The girl was planning on showing you but saw the teacher approaching her and quickly needed

hide her phone

**b)** The girl thinks that you are annoying and didn't want to show you what was on her phone