Exploring the relationship between self-compassion and body dysmorphic symptoms in adolescents

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ABSTRACT

Current cognitive and behavioural models of body dysmorphic disorder aetiology highlight a possible role of deficits in self-compassion as a vulnerability factor. Yet, there has been little empirical research on the role of self-compassion in adolescents' body dysmorphic symptoms (BDS). In this study, we investigated the relationship between self-compassion and adolescents' BDS, after accounting for two potentially overlapping self-related beliefs and attitudes, namely self-esteem and self-efficacy. The participants were 449 Australian secondary school students (60% female) aged 11–17 years (M_{age} = 13.69, SD = 1.50) who completed the Appearance Anxiety Inventory to assess BDS, the Self-Compassion Scale-Short Form (SCS-SF), and other measures. Principal components analysis supported a two-component solution of the SCS-SF, which were labelled negative sense of self, and self-focussed perspective taking. These two components converged with measures of self-esteem and self-efficacy. As hypothesised, adolescents with a higher levels of self-compassion (total score) had lower levels of BDS. Also, when considered alongside self-esteem and self-efficacy, the negative sense of self component of self-compassion was positively associated with BDS, but self-focussed perspective taking was not. Additional research is needed to consider how to capture the positive component of self-compassion and determine whether it has a protective role in BDS and impairment.

1. Introduction

Body dysmorphic disorder (BDD) is characterised by an excessive preoccupation with a perceived flaw, defect, or ugliness in one's physical appearance, causing clinically significant distress and/or functional impairment (American Psychiatric Association, 2013). Epidemiologic studies indicate that BDD generally begins in adolescence (M_{age} = 16 years; Bjornsson et al., 2013) and is relatively common, affecting 1.7–3.6% of adolescents (Schneider, Mond, Turner, & Hudson, 2017). Alarmingly, an earlier onset of BDD is linked with the development of more severe symptoms, greater comorbidity, and higher suicidality rates (Bjornsson et al., 2013). Furthermore, BDD is often chronic and unlikely to resolve without evidence-based treatment (Phillips, Menard, Quinn, Didie, & Stout, 2013). Cognitive behaviour therapy (CBT) is the current psychological intervention of choice (National Institute for Health and Clinical Excellence, 2005); however, a recent meta-analysis found that only half of the patients treated with CBT improve significantly and remain improved over time (Harrison, Fernández de la Cruz, Enander, Radua, & Mataix-Cols, 2016). Thus, while CBT is an efficacious intervention for BDD, there is room for improvement. Research aimed at exploring more broadly the risk and

protective factors of body dysmorphic symptoms (BDS), may lead to new approaches to treatment and improved outcomes for youth.

Veale and Gilbert (2014) proposed that CBT outcomes may be improved by communicating the functional (e.g., affect regulation) and evolutionary context of behaviour in BDD as a means of normalising symptoms and enhancing patient engagement in therapy. Neuroscience has revealed different neurobiological systems responsible for affect regulation (Pavuluri, Herbener, & Sweeney, 2005). Based on these systems, Gilbert (2005) theorised that human beings have evolved to switch between three different affect regulation systems to maintain emotional stability. The first is the threat-detection and self-protection-focused system, which is responsible for activating defensive emotions (e.g., fear, anger) and behaviours (e.g., fight or flight) when encountering a threat (Gilbert, 2005). The next system which influences and regulates the threat-based system, is the drive, seeking, and acquisition-focused system which is responsible for the enabling of focused attention that is required for resource acquisition (Gilbert, 2005). Alternatively, the threat-based system can be de-activated by the third system, the contentment, soothing, and affiliative-focused system, which is responsible for the experience of peace, calm, and well-being, a state of mind where the individual is no longer reactive or focused on

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perceived threats (Gilbert, 2005). In the context of BDD or BDS, Veale and Gilbert (2014) argue that according to this model the perceived threat of a physical flaw activates the threat-detection system that triggers certain defensive emotions (e.g., shame, disgust) and behaviours, such as camouflaging perceived defects. Furthermore, they suggest that self-compassion approaches, by activating the contentment, soothing, and affiliative-focused system, may be a novel approach to buffer the perceived threat of a distorted body image experienced by BDD sufferers. Veale and Gilbert (2014) therefore propose a self-compassion-focussed approach to CBT for BDD, which currently has not yet been empirically tested. Furthermore, there have been very few studies which have empirically examined association of self-compassion with BDS.

Self-compassion can be briefly described as the act of being kind and understanding towards oneself in moments of distress (Neff, 2015). According to Neff's (2003a; 2003b; 2016a) conceptualisation, self-compassion has a six-component structure consisting of three positive elements and three opposing negative elements that are interrelated, yet distinct: (a) Self-kindness versus self-judgment, which refers to being kind and gentle with oneself, as opposed to being overly self-critical; (b) Mindfulness versus over-identification, which encompasses the ability to watch one's thoughts and feelings in the present moment, as opposed to a fusion with and reaction to thoughts and feelings; and (c) Common humanity versus isolation, which involves recognising the experience of being human (and with that, the experience of suffering) is shared by all, and not unique to oneself. However, since the original publication of the Self-Compassion Scale (SCS; Neff, 2003b) support for this conceptualisation has been subject to debate, with numerous factor analytic studies proposing alternative factor structures of self-compassion, including a single-factor structure (Deniz, Kesici, & Sumer, 2008; Raes, Pommier, Neff, & Van Gucht, 2011) and a two-factor structure (Bengtsson, Söderström, & Terjestam, 2016; Castilho, Pinto-Gouveia, & Duarte, 2015; Costa, Marôco, Pinto-Gouveia, Ferreira, & Castilho, 2016; Gilbert, McEwan, Matos, & Rivis, 2011; Hayes, Lockard, Janis, & Locke, 2016; López et al., 2015; Stolow, Zuroff, Young, Karlin, & Abela, 2016; Sutton, Schonert-Reichl, Wu, & Lawlor, 2018). Recent research undertaken by Bengtsson et al. (2016) investigated the component structure of a validated, yet short version of the SCS, the Self-Compassion Scale-Short Form (SCS-SF; Raes et al., 2011). In this study of 256 Swedish adolescents (12–14 years-of-age), principal components analysis with Promax rotation of the SCS-SF found a two-component solution in which the negative elements of self-judgment, over-identification, and isolation, loaded highly on the first component (*negative sense of self*; $\alpha = 0.82$), whilst the positive elements of self-kindness, mindfulness, and common humanity, loaded highly on the second component (coined *self-focused perspective-taking ability*; $\alpha = 0.79$). These findings are consistent with previous studies of both the short and long forms of the Self-Compassion Scale in adults (Hayes et al., 2016; López et al., 2015; Sutton et al., 2018).

An important question for the field is the degree to which self-compassion is similar or distinct from well-validated constructs of self-beliefs that have a more extensive history of psychological research, such as self-efficacy and self-esteem. Self-efficacy is related to self-perceptions of competence and control and has been defined as the perceived capability to produce a preferred action and achieve preferred outcomes (Bandura, 1977), whilst self-esteem, refers to an individual's mental and emotional assessment of their own personal self-worth (Harter, 1988). In the burgeoning area of self-compassion research, studies to date have indicated a weak to strong positive association between self-compassion and measures of self-efficacy and self-esteem among adolescents, suggesting that they share common features (Barry, Loflin, & Doucette, 2015; Donald et al., 2017; Marshall et al., 2015; Mosewich, Kowalski, Sabiston, Sedgwick, & Tracy, 2011; Muris et al. 2016a, 2017). Moreover, these self-related constructs have all been shown to have similar relationships with well-being (e.g., Leary, Tate, Adams, Allen, & Hancock, 2007) and psychopathological concerns

reported by adolescents (e.g., Marsh, Chan, & MacBeth, 2018; Muris et al., 2016a; Muris et al., 2017; Neff, 2003b; Neff, Kirkpatrick, & Rude, 2007; Neff & Vonk, 2009). However, according to Neff (2003a) they are best viewed as distinct, yet complementary. For instance, self-compassion emphasizes self-acceptance rather than self-evaluation, whereby self-compassion does not entail comparing oneself to others, unlike self-esteem which does have an evaluative component (Neff, 2003a). Therefore, self-compassion is proposed to be a distinct self-related construct, which has protective mechanisms associated with well-being, and is complimentary with other constructs such as self-esteem and self-efficacy.

Recently, there has been growing interest in, and evidence for, cultivating self-compassion as a meaningful way of improving one's well-being (Zessin, Dickhäuser, & Garbade, 2015) and alleviating common mental health issues (MacBeth & Gumley, 2012). For instance, self-compassion in adolescents has been found to be related positively to curiosity/exploration (Bluth, Mullarkey, & Lathren, 2018), emotional intelligence (Castilho, Carvalho, Marques, & Pinto-Gouveia, 2017), executive function proficiency (Shin, Black, Shonkoff, Riggs, & Pentz, 2016), family cohesion (Jiang et al., 2016; Neff & McGehee, 2010), and life satisfaction (Bluth & Blanton, 2014, 2015; Bluth et al. 2015, 2016, 2017) among other things. Similarly, research has demonstrated that self-compassion is negatively associated with a range of mental health concerns in adolescents, such as affective problems (Muris et al., 2017), anxiety (Bluth et al., 2016, 2017; Cunha, Xavier, & Castilho, 2016; Muris et al., 2016a; Neff & McGehee, 2010), daily peer hassles (Xavier, Pinto-Gouveia, & Cunha, 2016), depressive symptoms (Bluth et al., 2017; Castilho et al., 2017; Cunha et al., 2016; Neff & McGehee, 2010; Shin et al., 2016; Xavier et al., 2016), distress intolerance (Bluth et al., 2017), childhood maltreatment (Tanaka, Wekerle, Schmuck, & Paglia-Boak, 2011), non-suicidal self-injury (Jiang et al. 2016, 2017a, 2017b), and perceived stress (Bluth et al., 2016, 2017, 2015; Bluth & Blanton, 2014, 2015; Cunha et al., 2016). For instance, Muris et al. (2016a) investigated the relationships among the self-related constructs of self-compassion, self-esteem, and self-efficacy and adolescent's symptoms of anxiety and depression in a sample of 132 non-clinical adolescents (12–17 years-of-age) in the Netherlands. Findings revealed significant negative associations between self-compassion and anxiety and depression symptoms. However, self-compassion did not explain additional variance in symptoms of anxiety and depression beyond that explained by self-esteem and self-efficacy. Although, Muris et al. (2016a) did not find conclusive evidence to suggest that self-compassion is a unique predictor of psychological distress in adolescences, the results did suggest that higher self-compassion is associated with lower levels of anxiety and depression in adolescents, and may suggest a protective role of self-compassion on mental health symptoms.

Whilst there is limited research examining self-compassion and BDS, studies have demonstrated a protective role of self-compassion more broadly in relation to body image concerns. Braun, Park, and Gorin (2016) considered this association and provided a systematic review of 28 studies that explored the relationship between self-compassion and body image pathology among adult women. Findings revealed a negative relationship with body image, in that greater levels of self-compassion were associated with lower levels of body dissatisfaction. While research studies investigating the relationship between self-compassion and body image concerns among youth are scarce, some valuable empirical findings have been reported. For example, Rodgers et al. (2017) investigated the relationship between self-compassion and body image among a sample of 232 urban U.S. youth, aged 13–18 years, and found that the positive elements of self-compassion were associated with lower levels of body comparisons and perceptions of being overweight and higher levels of appearance esteem among girls (Rodgers et al., 2017). Similarly, Mosewich et al. (2011) explored the role of self-compassion as a protective factor among a sample of 151 young women athletes ($M_{age} = 15.10$, $SD = 1.20$). Results revealed that self-compassion explained additional variance in body image concerns beyond

that already accounted for by self-esteem. Young women athletes who self-reported lower levels of self-compassion had significantly higher levels of objectified body consciousness, body surveillance, and body shame.

Given few studies have examined the relationships between self-compassion and BDS in youth or adults, yet contemporary theories highlighting a possible protective role (Veale & Gilbert, 2014), the current study aims to explore these associations. Firstly, this study examined the component structure, reliability, and validity of the Self-Compassion Scale-Short Form (SCS-SF) in a sample of Australian adolescents. Further, the primary aim was to examine the relationship between self-compassion and BDS in adolescents, and explore whether self-compassion has a significant and unique association with BDS, after controlling for self-esteem and self-efficacy. A greater understanding of these associations represents an important step toward identifying potential protective factors, that may in turn inform cognitive-behavioural aetiological models of BDD, and the development of novel interventions for youth. After testing the item structure of the SCS-SF, expecting to find two components of negative sense of self and self-focused perspective-taking ability, two study hypotheses were tested:

1. Total self-compassion, as well as self-focused perspective-taking, will negatively correlate with BDS, and positively correlate with self-esteem and self-efficacy. Conversely, the negative sense of self component of self-compassion will positively correlate with BDS, and negatively correlate with self-esteem and self-efficacy.
2. Total self-compassion, as well as the two components of self-focused perspective-taking ability and negative sense of self, will be uniquely positively and negatively associated with BDS, respectively, after controlling for self-esteem and self-efficacy.

2. Method

2.1. Participants

The participants were 465 Australian secondary school students attending grades 7 to 12 at a fee-paying catholic school in an urban area of Southeast Queensland. Participants were 11–17 years of age (M_{age} = 13.62, SD = 1.55) with approximately half the sample female (58%, M_{age} = 13.64, SD = 1.58; 42% male, M_{age} = 13.60, SD = 1.50). They predominantly endorsed white Anglo-Celtic descent (83%), with the remaining participants endorsing a diverse range of other sociocultural backgrounds. Among these students, 25 did not provide their age, gender, or grade, and 45 did not provide information on their ethnicity.

Another 117 students attempted the survey but 104 were not considered in the analyses because they failed to complete one or more measures in its entirety (these students were in classes who were significantly delayed in starting the survey and completed less than a quarter of the survey items), and 13 were deemed to be unreliable reporters due to patterned responses (e.g., all 1's). Thus the total who attempted the survey was 582. The 582 represented a participation rate of 63% with 5% of parents actively declining participation. The remaining non-participating students did not return parental consent.

2.2. Procedure

Following institutional Human Research Ethics Committee approval of the study, the participating school was contacted by email and agreed to participation. Consent forms were sent electronically to all parents/guardians by the school, whereby active parent/guardian informed consent was obtained before participation and survey administration. Participating students completed the paper-and-pencil questionnaire at school, within classrooms. Instructions were included at the top of each section of the questionnaire. A teacher and two university research graduate students were present for the administration of the

questionnaire and observed completion across numerous classes providing clarification and assistance to any student who required help. In addition, teachers read aloud standardised instructions on how to complete the questionnaire. Before completing the questionnaire, students were required to also provide active written consent to participate. No student with parental consent refused to participate. At the conclusion of the survey administration, students provided demographic information (e.g., age, gender) and were provided with a list of support services. The questionnaire took less than 40 min to complete.

2.3. Measures

Body dysmorphic symptoms. The 10-item Appearance Anxiety Inventory (AAI) developed by Veale et al. (2014) measures the cognitive processes (e.g., "I compare aspects of my appearance with others") and behaviours (e.g., "I try to camouflage or alter aspects of my appearance") characteristic of body dysmorphic disorder (BDD), as described by the Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5; APA, 2013). Participants rated each item on a five-point Likert-type scale, from 1 (*Not at all*) to 4 (*All the time*). The overall AAI score was calculated by summing across all items. Scores ranged from 0 to 40, with higher scores indicating higher levels of appearance anxiety related to BDD. The AAI has been found to have excellent convergent validity with other measures of BDD in both adult and adolescents community samples (Roberts et al., 2018; 2019). In the present study, the internal reliability for this measure was excellent (α = 0.92).

Self-compassion. Self-compassion was assessed using the Self-Compassion Scale-Short Form (SCS-SF) adapted by Raes et al. (2011). The SCS-SF is a 12-item self-report measurement yielding a global self-compassion score, as well as scores in six lower-order dimensions. These are: (a) Self-kindness (e.g., "When I'm going through a very hard time, I give myself the caring and tenderness I need"), (b) Self-judgment (e.g., "I'm disapproving and judgmental about my own flaws and inadequacies"), (c) Common humanity (e.g., "I try to see my failings as part of the human condition"), (d) Isolation (e.g., "When I fail at something that's important to me, I tend to feel alone in my failure"), (e) Mindfulness (e.g., "When something upsets me I try to keep my emotions in balance"), and (f) Over-identification (e.g., "When I'm feeling down I tend to obsess and fixate on everything that's wrong"). Participants rated each item on a five-point Likert-type scale, from 1 (*Never*) to 5 (*Always*). The global self-compassion score was calculated by summing across all the scores from the self-kindness, common humanity, and mindfulness dimensions with the inverse scores from the self-judgment, isolation, and over-identification dimensions. Scores ranged from 12 to 60, with higher scores indicating greater self-compassion. See results for interitem correlations for the SCS-SF.

Self-esteem. The global self-worth scale of the Self-Perception Profile for Adolescents (SPPA; Harter, 1988) was used to measure self-esteem. This SPPA subscale contains five items, each consisting of two opposite statements contrasting two types of adolescents (e.g., "Some teenagers like the kind of person they are" but "Other teenagers often wish they were someone else"). First, students were asked to tick which statement is most like them, then, decide whether each statement is *really true for them* or *sort of true for them*. The score for each item is converted to range from low self-worth (1) to high self-worth (4) (see Harter, 1988). Global self-esteem scores were calculated by summing across all items. Scores ranged from 4 to 20, with higher scores indicating higher levels of global self-esteem. In the present study, the internal reliability for this measure was excellent (α = 0.89).

Self-efficacy. The Self-Efficacy Questionnaire for Children (SEQ-C) developed by Muris (2001) utilises 24 items to measure self-efficacy in three domains. These are: (a) Social self-efficacy, which is the perceived capability for effective interpersonal interactions (e.g., "How well can you work in harmony with your classmates?"); (b) Academic self-efficacy, which is the perceived capability to manage behaviour required to

attain mastery in one's academic affairs (e.g., "How well can you study a chapter for test?"); and (c) Emotional self-efficacy, which is the perceived capability to cope with negative emotions (e.g., "How well can you prevent to become nervous?"). Participants rated each item on a five-point Likert-type scale, from 1 (*Not at all*) to 5 (*Very well*). An overall self-efficacy score was calculated by summing across all items. Scores ranged from 24 to 120, with higher scores indicating greater self-efficacy. In the present study, the internal reliability for this measure was excellent (α = 0.92).

2.4. Data analysis

Data were analysed using the IBM Statistical Package for Social Sciences (SPSS), Version 25 (Mac). The variables of interest contained some item level missing data (item level range: 0.2%–2.2%). For those participates that missed 10% or less of the items on a measure, the missing values were replaced with the participants mean score for that measure. As for the remaining participants, 16 additional students were removed from the analyses because they were missing more than 10% of items on one or more measures. Subsequently, all below analysis were based on 449 participants (60% female) aged 11–17 years (M_{age} = 13.69, SD = 1.50). To test study aims and hypotheses, analyses included: (1) Principal component analysis (PCA) to examine the component structure of the Self-Compassion Scale-Short Form (SCS-SF), and Cronbach's alpha to report internal reliability of measures; (2) Descriptive statistics and Pearson bivariate correlations to examine associations among study variables (H1), and (3) Hierarchical multiple regression examining associations between self-compassion and BDS, while controlling for other self-related constructs (H2).

3. Results

3.1. Component structure and reliability of the Self-Compassion Scale-Short Form

A principal components analysis (with oblique rotation) of the 12-item Self-Compassion Scale-Short Form (SCS-SF) yielded two components with eigenvalues exceeding 1.00 (Component 1 = 4.08 and Component 2 = 2.31). Inspection of this two-component structure indicated that the six items from the self-judgment, isolation, and over-identification subscales loaded highly on the first component only (component loadings exceeding .67, crossloadings all less than .17), whilst six items from the self-kindness, common humanity, and mindfulness subscales loaded highly on the second component only (component loadings exceeding .64 crossloadings all less than .17).

Component loadings after rotation are reported in Table 1. The two components were labelled as negative sense of self (Component 1) and self-focused perspective-taking ability (Component 2). There was a negative relationship between these two components (r = -.23).

The reliability of the SCS-SF was assessed by calculating Cronbach's α. The Cronbach's α values were .82, .85, and .79 for all 12 self-compassion items, for items loading highly on the self-focused perspective-taking ability component, and for items loading highly on the negative sense of self component, respectively. Therefore, on the basis of this principal components analysis, the self-kindness, common humanity, and mindfulness subscale scores were summed to create a *Self-focused perspective-taking ability* score. The same method was used to calculate the *Negative sense of self* score, by summing across the self-judgment, isolation, and over-identification subscales scores. Both scores ranged from 6 to 30.

3.2. Descriptive statistics and associations between all measures

Pearson bivariate zero-order correlations were calculated for all study measures and are presented in Table 2. BDS was positively correlated with age, gender, and negative sense of self, but was negatively correlated with total self-compassion, self-focused perspective-taking ability, self-esteem, and self-efficacy all had significant negative correlations with BDS. Regarding associations between the predictors of interest, total self-compassion, self-focused perspective-taking ability, self-esteem, and self-efficacy were all significantly positively correlated with one another and were all significantly negatively correlated with negative sense of self, providing support for the convergent validity of the two components of the SCS-SF. Lastly, total self-compassion, self-esteem, and self-efficacy had significant negative correlations with age and gender. Whereas, negative sense of self had a significant positive correlation with age and gender. Self-focused perspective-taking ability was not found to significantly correlate with either age or gender.

3.3. Associations between self-compassion and BDS

To test the hypothesis that individuals higher in self-compassion would reported fewer BDS (Hypothesis 1), beyond that already accounted for by self-esteem and self-efficacy, hierarchal multiple regression analyses was employed (see Table 3). In the first step, age, gender, self-esteem, and self-efficacy were entered and each was significantly associated with BDS, $F(4, 444) = 125.16$, $p < .001$, with age and gender having positive associations and self-esteem and self-efficacy having negative associations. In combination, 53% of the variance in BDS was accounted for by age, gender, self-esteem, and self-efficacy.

Table 1
Principal components analysis with oblique (direct oblimin) rotated component structure of the 12-item self-compassion scale-short form (SCS-SF).

Item	Loading	
	Component 1[a]	Component 2[b]
1. When I fail at something important to me I become consumed by feelings of inadequacy. (OI)	.68	.07
4. When I'm feeling down, I tend to feel like most other people are probably happier than I am. (I)	**.70**	.09
8. When I fail at something that's important to me, I tend to feel alone in my failure. (I)	**.79**	-.03
9. When I'm feeling down I tend to obsess and fixate on everything that's wrong. (OI)	**.81**	.01
11. I'm disapproving and judgmental about my own flaws and inadequacies. (SJ)	**.81**	-.07
12. I'm intolerant and impatient towards those aspects of my personality I don't like. (SJ)	**.70**	-.17
2. I try to be understanding and patient towards those aspects of my personality I don't like. (SK)	.03	**.67**
3. When something painful happens I try to take a balanced view of the situation. (M)	-.02	**.78**
5. I try to see my failings as part of the human condition. (CH)	.09	**.65**
6. When I'm going through a very hard time, I give myself the caring and tenderness I need. (SK)	-.12	**.71**
7. When something upsets me I try to keep my emotions in balance. (M)	-.10	**.65**
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people. (CH)	.04	**.70**

Note. N = 456. Component loadings > .60 are in boldface. SK = Self-kindness; SJ = Self-judgment; CH = Common Humanity; I = Isolation; M = Mindfulness; OI = Over-identification.
[a] Negative Sense of Self.
[b] Self-Focused Perspective-Taking Ability.

Table 2
Means, standard deviations, and intercorrelations between all measures.

Variable	1	2	3	4	5	6	7	8
1. BDS	–							
2. Age	.28***	–						
3. Gender[a]	.33***	-.01	–					
4. Self-Compassion	-.59***	-.16**	-.21***	–				
5. Self-Focused Perspective-Taking	-.36***	-.06	-.08	.75***	–			
6. Negative Sense of Self	.56***	.18***	.24***	.84***	.27***	–		
7. Self-Esteem	-.68***	-.18***	.23***	.66***	.48***	.56***	–	
8. Self-Efficacy	-.43***	-.13**	-.12*	.57***	.58***	.35***	.54***	–
M	10.36	13.69	NA	36.26	17.98	17.71	14.57	79.74
SD	8.99	1.50	NA	7.96	4.46	5.51	4.65	16.08

Note. N = 449.
*p < .05. **p < .01. ***p < .001.
  [a] 0 = male 1 = female.

Table 3
Hierarchical multiple regression analyses examining associations between study variables and BDS in adolescents.

Variable	ΔR^2	B	SE	β	sr^2	95% CI
Step 1	.53***					
Age		0.98***	0.20	.16	.03	[0.59, 1.37]
Gender[a]		3.56***	0.61	.19	.04	[2.35, 4.77]
Self-Esteem		-1.09***	0.08	-.56	-.21	[-1.24, -0.94]
Self-Efficacy		-0.05*	0.02	-.08	-.004	[-0.09, -0.002]
Step 2	.02***					
Self-Compassion		-0.23***	0.05	-.21	-.02	[-0.33, -0.13]
Total R^2	.55***					

Note. N = 449. *B* = unstandardised regression coefficient; *SE* = standard error; *β* = standardised regression coefficient; sr^2 = semi-partial correlation; CI = confidence interval. *p < .05. ***p < .001.

Self-compassion was entered in the second and final step and was significantly associated with a lower level of BDS, accounting for an additional 2.1% of the variance, $\Delta F(1, 443) = 20.85$, $p < .001$. Once self-compassion had been added into the model, self-efficacy was no longer significant, but all other measures remained significantly associated with BDS. In total, 55.1% of the variance in BDS was accounted for in this model after Step 2.

A separate regression model was conducted to test the hypothesis that each of the two components of self-compassion, namely, self-focused perspective-taking ability and negative sense of self, would be uniquely associated with BDS, beyond that already accounted for by age, gender, self-esteem and self-efficacy (see Table 4). Negative sense of self and self-focused perspective-taking ability were entered together in the second step, accounting for a significant additional 2.79% of the variance in BDS, $\Delta F(2, 442) = 14.24$, $p < .001$. Negative sense of self, but not self-focused perspective-taking ability, was uniquely associated

(positively) with more BDS. In total, the six independent variables explained 55.8% of the variance in BDS.

4. Discussion

In line with study aims and hypotheses, the findings from this study demonstrate that the Self-Compassion Scale-Short Form (SCS-SF) provides a reliable and valid measure of self-compassion in Australian adolescents. Further, as predicted a negative relationship was found between self-compassion and BDS (H1). Moreover, after controlling for other self-related constructs, self-compassion (as well as negative sense of self, but not self-focused perspective-taking ability) was significantly and uniquely associated with BDS in adolescents (H2). Each of these hypothesises will be discussed in turn.

Firstly, as anticipated the findings from the principal components analysis revealed two components of self-compassion: (1) Negative sense of self and (2) Self-focused perspective-taking ability. The first, comprising of the negatively worded-items from the self-judgment, over-identification, and isolation subscales and the second comprising of the positively worded-items from the self-kindness, common humanity, and mindfulness subscales. Secondly, as expected the SCS-SF was found to be reliable, with both the overall scale and the two sub-scales displaying acceptable to good internal reliabilities for research with adolescents. As predicted, findings of this study revealed a significant negative association between the global construct of self-compassion and BDS. These findings demonstrate that adolescents with lower levels of self-compassion tended to have higher levels of BDS. Although, this specific association has not been previously examined, these findings are in line with studies that have explored associations between self-compassion and body image concerns in general, both in adults (Braun et al., 2016) and adolescents (Mosewich et al., 2011; Rodgers et al., 2017). Braun's et al. (2016) systematic review (of 28

Table 4
Hierarchical multiple regression analyses examining associations between study variables and BDS in adolescents.

Variable	ΔR^2	B	SE	β	sr^2	95% CI
Step 1	.53***					
Age		0.98***	0.20	.16	.03	[0.59, 1.37]
Gender[a]		3.56***	0.61	.19	.04	[2.35, 4.77]
Self-Esteem		-1.09***	0.08	-.56	-.21	[-1.24, -0.94]
Self-Efficacy		-0.05*	0.02	-.08	-.004	[-0.09, -0.002]
Step 2	.03***					
Self-Focused Perspective- Taking Ability		-0.06	0.08	-.03	-.001	[-0.22, 0.10]
Negative Sense of Self		0.34***	0.06	.21	.03	[0.21, 0.46]
Total R^2	.56***					

Note. N = 449. *B* = unstandardised regression coefficient; *SE* = standard error; *β* = standardised regression coefficient; sr^2 = semi-partial correlation; CI = confidence interval.
*p < .05. ***p < .001.
  [a] 0 = male 1 = female.

studies) revealed that across various studies, lower levels of self-compassion reported by women were consistently related to a range of markers related to body dissatisfaction.

Furthermore, as anticipated a significant positive relationship was found between negative sense of self and BDS, and conversely a significant negative relationship was found between self-focused perspective-taking ability and BDS. That is, adolescents with higher levels of negative sense of self tended to have higher levels of BDS, and those with higher levels of self-focused perspective-taking ability tended to have lower levels of BDS. Because previous research has not yet studied the lower-order constructs of self-compassion in the context of BDS, the current study findings are novel. Nevertheless, these results are generally consistent with past research undertaken by Rodgers et al. (2017) who found that the positive elements of self-compassion (i.e., self-kindness, common humanity, and mindfulness) were related to lower levels of body-appearance related concerns reported by adolescent girls. Overall, from these results it can be inferred, that in this population, adolescents who experience more negative self-evaluations are more likely to suffer with symptoms related to BDD, whereas adolescents who have the ability to identify less with their negative self-evaluations by bringing into light the positive aspects of their concerns and shortcomings are less likely to suffer with these symptoms related to BDD (Bengtsson et al., 2016; Veale & Gilbert, 2014). The present findings extend existing literature on the correlational link between self-compassion and psychopathology (e.g., depression, anxiety, and body image concerns) to include BDD. To date, the current study is the first to investigate and report significant relationships between self-compassion and BDS in adolescents.

As predicted a significant positive relationship was found between global construct of self-compassion, self-focused perspective-taking, and other positive self-related constructs (i.e., self-esteem, self-efficacy). Conversely, as expected a significant negative relationship was found between negative sense of self, and self-esteem and self-efficacy. These associations provide support for the convergent validity of the SCS-SF among Australian adolescents. Moreover, the moderate strength of these associations with self-compassion (.66 for self-esteem and .57 for self-efficacy) also suggests that whilst the constructs are highly related, they also appear to have distinctive qualities. In the context of adolescent self-identity, these findings support an increasing body of literature that consistently shows that the global construct of self-compassion is strongly linked to these other positive self-related constructs (Barry et al., 2015; Donald et al., 2017; Marshall et al., 2015; Mosewich et al., 2011; Muris et al. 2016a, 2017). Moreover, these findings replicate previous research that continues to support the theory that self-compassion is a conceptually related, but distinct self-related construct to self-esteem and self-efficacy.

Psychopathological concerns such as body dysmorphic disorder are often multifaceted in origin with regards to protective variables, therefore it is essential to consider the unique relation many self-related constructs have on psychopathology, as opposed to their relation in isolation. The hypothesis that there would be a significant and unique association between the global construct of self-compassion and BDS in adolescents, after controlling for other self-related constructs (i.e., self-esteem, self-efficacy) was supported. There was only partial support for the prediction that the lower-order components of self-compassion (i.e., negative sense of self and self-focused perspective-taking ability) would be significantly and uniquely associated with BDS in adolescents after controlling for self-esteem and self-efficacy. To date, there are no known published studies that have investigated the unique contribution of self-compassion (or lower-order components) in accounting for variance in BDS in either adolescents or adults, and as such the present study can only refer to similar methodological studies examining other related psychopathologies. The observation that self-compassion explains variance in symptoms of psychopathology beyond other self-related constructs is consistent with the findings of others, including Mosewich et al. (2011) in their study of young women athletes. In

contrast to the current findings, Muris et al. (2016a) found no unique link between self-compassion and symptoms of anxiety and depression in adolescents after controlling for self-esteem and self-efficacy. One possible explanation for this is based on theoretical and methodological considerations, specifically with the instrument that was utilised to measure self-compassion. Muris et al. (2016a) utilised a shortened and modified version of the original Self-Compassion Scale (SCS), namely the Shortened Self-Compassion Scale for Adolescents (S-SCS-A) which utilises only the positively-worded items from the self-kindness, common humanity, and mindfulness subscales to form the overall global self-compassion score, whilst discarding the negatively-worded items from the self-judgment, over-identification, and isolation subscales, which are included in the Self-Compassion Scale-Short Form (SCS-SF) employed in the present study.

Further, the current study found that negative sense of self, but not self-focused perspective-taking ability was found to be a significant and unique predictor of the variance in BDS in adolescents, after controlling for self-esteem and self-efficacy. Contrary to expectations, these findings are consistent with previous research by Muris et al. (2016a) that found no significant associations between the positive subscales of self-compassion and symptoms of anxiety and depression in adolescents. Muris et al. (2016a) concluded that the 'true' protective nature of self-compassion that only takes into account the positive elements of self-compassion do not have significant explanatory power in the prediction of psychopathology in youth, such as depression and anxiety. Thus, Muris et al. (2017) might argue that the current study's findings provide further support that the negative elements of self-compassion artificial tap into negative mechanisms associated with psychopathology, in this case BDS. Nevertheless, there remains ongoing debate surrounding the operational definition of self-compassion. In line with a multi-component model of self-compassion, these findings align with contemporary theories that emphasise the importance of cultivating self-compassion as a means of protecting individuals from BDD (Veale & Gilbert, 2014). That is, by engaging in self-compassion approaches (that activate the contentment, soothing, and affiliative-focused regulation system) individuals when faced with a perceived threat of a distorted body image, learn to cultivate detachment, acknowledge their flaws, take an alternative perspective, and direct love and kindness towards themselves, instead of fusing with maladaptive cognitions and behaviours that are characteristic of BDD (Gilbert, 2005; Veale & Gilbert, 2014). The present findings contribute to the literature, providing support that self-compassion is uniquely associated with BDS in adolescence.

Two additional findings from the current study merit further discussion. In line with what has been reported elsewhere in the literature, there were significant associations between age and gender with self-compassion, with older age associated with lower levels of self-compassion and self-focussed perspective taking relative to younger adolescents, whereas increased age was associated higher self-judgement. Moreover, being female was associated with lower levels of self-compassion and greater negative self-judgement (Bengtsson et al., 2016; Bluth & Blanton, 2015; Bluth et al., 2017; Muris et al., 2016a). These findings suggest that self-compassion differs as a function of gender and across development. Interventions aiming to increase self-compassion may therefore be best timed during late childhood and early adolescence, and perhaps targeting girls specifically, given that self-compassion appears to reduce over the adolescent years and appears to be lower among girls.

It should be acknowledged that the current study is not without its limitations. First, the cross-sectional and correlational design of the current study limits the ability to draw conclusions about cause-effect relations between self-compassion and symptoms pertaining to body dysmorphia. Second, the sample used was non-clinical, with relatively low levels of BDS overall. As such, the results must be interpreted with caution and studies with clinical samples of adolescents with BDD are needed to determine the clinical significance of these findings. Furthermore, whilst a strength of this study was controlling for related

self-constructs of self-esteem and self-efficacy, measures of co-occurring psychopathology such as anxiety and depression were not controlled for, and may account for variance in BDS.

In regards to measurement, although the Appearance Anxiety Inventory (AAI) has been validated for use with adolescents (Lavell, Webb, Zimmer-Gembeck, & Farrell, 2018; Zimmer-Gembeck & Webb, 2017) the fact that the normative sample used to develop the AAI was an adult population with body dysmorphic disorder (BDD) raises the question of whether these populations meaningfully differ in BDD symptomology, and if so, whether the AAI is a reliable and valid measure of body dysmorphic symptom in adolescents. Limited evidence to date suggests that some clinical presentations of BDD significantly differ between adults and adolescents (e.g., insight; suicide attempts; Bjornsson et al., 2013; Phillips et al., 2006; Veale, Gledhill, Christodoulou, & Hodsoll, 2016). Further, whilst the AAI was developed and validated as a measure specifically to assess symptoms characteristic of BDD, including distorted imagery, cognitive processes (e.g., self-focussed attention, preoccupation and rumination) and behaviours (checking and avoidance), these symptoms are also considered transdiagnostic, and may therefore relate to other body image problems, and not just BDD.

The current findings extend contemporary theories that indorse the fostering of self-compassion as a mitigating factor against BDD. This study examined the associations between self-compassion and BDS among youth, and moreover, provided evidence for the association of self-compassion, above and beyond other positive self-related constructs, in accounting for variance in BDS. Given the debilitating nature of BDD, combined with the sub-optimal response of many patients following evidence-based CBT, novel approaches to treatment are necessary, and self-compassion may be one such approach.

Author contributions

Allan: conceptualisation, investigation, formal analysis, writing: original draft. Roberts: conceptualisation, investigation, writing: reviewing and editing. Zimmer-Gembeck: methodology, writing: reviewing and editing. Farrell: conceptualisation, methodology, supervision, writing: reviewing and editing.

Declaration of competing interest

The authors declare that they have no conflict of interest.

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