Abstract

Psychological flexibility, the capacity to be open to any internal stimuli and act in accordance with valued ends, has been identified as an explanatory variable in how people cope with body concerns. The role of psychological flexibility is unexplored in adults with an atypical appearance due to a health condition, injury, or medical treatment (collectively *visible difference*), who often encounter multiple day-to-day body image threats. Testing two core components of psychological flexibility, namely experiential avoidance (a desire to avoid or get rid of unpleasant internal experiences) and cognitive fusion (taking thoughts literally), can also provide a more precise theoretical model, with clearer implications for psychological intervention. This survey study investigated whether each psychological flexibility component mediated the relationship between body evaluation and two unhelpful body image coping strategies (behavioural avoidance and appearance-fixing behaviours) in 220 adults with various causes of visible difference. Controlling for demographic variables and subjective noticeability of visible difference, results suggest that cognitive fusion partially mediated the relationship for both body image coping strategies, and experiential avoidance partially mediated behavioural avoidance but not appearance-fixing behaviours. Cognitive fusion may be a particularly important cognitive process in the mechanisms underpinning unhelpful body image coping strategies in this population.

Keywords: visible difference, disfigurement, body evaluation, psychological flexibility, cognitive fusion, experiential avoidance

1. Introduction

Body concerns are common in individuals with an atypical appearance, or *visible difference* (Bessell & Moss, 2007). Visible differences may be congenital (e.g., cleft lip and/or palate, birthmarks) or acquired through injury (e.g., burns), disease (e.g., skin diseases), or medical treatment (e.g., surgical scarring). Across the range of causes, individuals report being dissatisfied with their appearance, and some face stigmatising behaviours such as staring, unsolicited remarks or questions, and avoidance from others (Jewett et al., 2018; Rumsey & Harcourt, 2004). These represent additional body image stressors beyond those typically encountered by the general population.

The way individuals respond to such body image stressors influences facets of psychological distress, such as social anxiety and low self-esteem (Koff & Sangani, 1997; Moss, 1997). In responding to body image stressors, individuals employ cognitive and behavioural methods for coping with distressing experiences (Cash, Santos, Williams, & Fleming, 2005). Cash et al.'s (2005) cognitive-behavioural model of body image proposes three coping strategies that people employ when faced with situations that elicit negative body image cognitions. Two of these strategies, *behavioural avoidance* by means of escaping or preventing stressful situations, and *appearance-fixing* by attempting to alter or cover one's appearance, describe predominantly behavioural coping methods, and are proposed as unhelpful strategies. Both strategies negatively reinforce body-related distress and associated difficulties like social anxiety, by providing short-term relief from unpleasant body image-related cognitions and emotions (Cash, 2011). For example, in patients who have vitiligo (a skin condition), both behavioural avoidance and appearance-fixing (via concealment) were associated with a loss of valued activities, continued anxiety, and a reluctance to engage in romantic relationships (Kent, 2000). Similarly, despite appearance-fixing behaviours such as concealment conferring some benefits to the social confidence of individuals with visible

differences, these behaviours have simultaneously been shown to maintain social anxiety in individuals with alopecia who wear wigs (Montgomery, White, & Thompson, 2017) and in individuals with skin blemishes who use skin camouflage (Kent, 2002).

Cash et al.'s (2005) third proposed body image coping strategy, positive rational acceptance, describes a largely cognitive coping style characterised by self-talk, in which an individual positively reappraises stressful situations (e.g., in terms of the situations' importance) and their own personal qualities (e.g., bringing their good qualities to mind). Operationalized via the Positive Rational Acceptance Subscale of the Body Image Coping Strategies Inventory (Cash et al., 2005), example items include "I tell myself that I probably look better than I feel I do," and, "I tell myself that I'm just being irrational about things." Such self-talk reflects the focus of traditional cognitive-behavioural approaches on the cognitive restructuring of irrational thinking patterns. This approach has dominated the psychosocial intervention literature on populations struggling to adjust to having a visible difference (Bessell & Moss, 2007; Lewis-Smith, Diedrichs, & Halliwell, 2019; Norman & Moss, 2015).

An alternative to targeting change in distressing cognitive *content* is to change one's *context*, or relationship, to cognitions; which, in the case of individuals who look objectively different to the societal norm, may not always be irrational (e.g., "People think I look strange"). Such an alternative is presented by cultivating *psychological flexibility*, the capacity to pay attention to presently unfolding cognitions and emotions with openness and awareness (regardless of their valence), and respond with flexibility to the specific needs of the situation, acting in a way that aligns to one's valued goals (Hayes, Strosahl, & Wilson, 1999). Psychological flexibility is the overarching mechanism of change in Acceptance and Commitment Therapy (ACT), a third-wave behavioural therapy. ACT presents a conceptually suitable approach for this population given (a) the appropriateness of taking an open, aware

approach towards the aforementioned realistic thoughts, and (b) its use of personal values to guide individuals towards intrinsic goals and beyond appearance concerns (Stock, Zucchelli, Hudson, Kiff, & Hammond, 2019; Zucchelli, Donnelly, Williamson, & Hooper, 2018).

The domain-specific version of psychological flexibility, *body image flexibility*, has been shown in a recent review of empirical studies to be a mediator of the relationship between body image and disordered eating, with less flexibility associated with greater disordered eating (Rogers, Webb, & Jafari, 2018). Additionally, Mancuso (2016) found body image flexibility mediated the relationship between body evaluation, and both behavioural avoidance and appearance-fixing behaviours in a group of women, with greater body image flexibility associated with less avoidance and appearance-fixing. However, the majority of research on body image flexibility has measured the construct via the weight-and-shape-centric Body Image Acceptance and Action Questionnaire (BI-AAQ; Sandoz, Wilson, Merwin, & Kellum, 2013), limiting its applicability to individuals with visible differences, for whom body concerns are unlikely to exclusively centre on weight and shape.

As psychological flexibility represents a broad repertoire of cognitive and behavioural capacities, we also need to better understand the specific roles that the key components of psychological flexibility play in relation to body image variables for people with visible difference. This is especially important when considering the development of self-help interventions (which show promise for this population; Muftin & Thompson, 2013), in which individually tailored formulation is less feasible than in face-to-face therapy.

Two negatively valenced components of psychological flexibility, cognitive fusion and experiential avoidance, may offer distinctive theoretical pathways as intermediary cognitive processes between how individuals evaluate their appearance, and the two unhelpful behavioural coping strategies (behavioural avoidance and appearance-fixing). In the only published study to date to have measured these constructs in a visibly different

population, Shepherd, Reynolds, Turner, O'Boyle, and Thompson (2019) found both cognitive fusion and experiential avoidance were positively associated with appearance anxiety in a group of burns patients.

Cognitive fusion refers to the tendency to attach to thoughts' literal content, so the thoughts are taken as facts, rather than transient verbal constructions (Hayes et al., 1999). Conceptually, the greater an individual's cognitive fusion with evaluative thoughts concerning their appearance, such as "my scars are ugly," the more distressing such thoughts will be, as the thought represents a socially undesirable 'fact' about one's appearance. Believing that one's visible difference is socially undesirable, it follows that an individual is likely to feel the need to adopt appearance-fixing coping strategies such as covering or camouflaging scars to avoid negative social evaluations (Kent, 2000). Conversely, noticing internal negative appearance evaluations as they appear, and observing them purely as transient private events (cognitive *de*fusion) has been shown to reduce the thoughts' perceived believability and discomfort (Mandavia et al., 2015).

In this way cognitive fusion may play an important role in determining the extent to which individuals with visible differences respond to troubling appearance-related thoughts by engaging in appearance-fixing behaviours, such as covering or concealing their visible difference. It may also be that greater cognitive fusion, and hence greater discomfort in experiencing negative appearance-related thoughts, may also influence the degree to which individuals avoid situations that are likely to elicit such thoughts, such as social gatherings or sport/exercise activities.

However, individuals' attitude toward distressing thoughts and feelings that arise during such activities may play a more significant role in determining avoidance behaviours. *Experiential avoidance* describes an unwillingness to remain in contact with distressing thoughts, memories, emotions, and physical sensations; that is, an attitude of aversion

towards unpleasant internal experiences (Hayes et al., 1999). It also entails a desire to change the content and/or the frequency of such distressing experiences, for example via thought suppression (Hooper, Sandoz, Ashton, Clarke, & McHugh, 2012). It is this desire that distinguishes experiential avoidance from a related but distinct construct, distress tolerance, which describes one's perceived or actual ability to withstand exposure to distressing internal experiences (Shorey et al., 2017). The converse of experiential avoidance is a capacity central to the broader psychological flexibility construct, experiential acceptance, which entails an open and non-judgmental attitude towards cognitions and emotions regardless of their valence.

When faced with negative self-evaluative thoughts and emotions about one's appearance, it follows that an individual's level of desire to avoid unpleasant experiences (experiential avoidance) would determine their inclination to physically avoid situations that could perpetuate distressing internal stimuli. Experiential avoidance may also potentially lead individuals to engage in appearance-fixing behaviours such as covering or concealing, in order to avoid receiving attention in public or social situations and the possibility of negative self-referential thoughts.

The current study aims to advance the field by testing cognitive fusion and experiential avoidance as cognitive mediators between body evaluation and behavioural body image coping strategies, namely behavioural avoidance and appearance-fixing behaviours, in a group of adults with a range of visible differences. Specifically, we expected that (a) experiential avoidance would mediate the relationship between body evaluation and behavioural avoidance, with higher experiential avoidance mediating more behavioural avoidance, and that (b) cognitive fusion would mediate the relationship between body evaluation and appearance-fixing behaviours, with greater cognitive fusion mediating more appearance-fixing behaviours.

2. Method

2.1. Participants

Participants were 220 UK-based adults aged 18 to 75 (M = 40.88, SD = 13.54) who self-identified as having a visible difference, of whom 172 were female (78.1%). Eighty-eight (40%) reported that they were born with a visible difference, and 56 (25.4%) reported having more than one cause of visible difference. Primary causes of visible difference included alopecia (43; 19.5%), psoriasis (22; 10%), vitiligo (22; 10%), other skin diseases (18; 8.2%), birthmarks (18; 8.2%), cleft lip and/or palate (17; 7.7%), other craniofacial conditions (14; 6.4%), lupus (16; 7.3%), scarring from burns or surgery (15; 6.8%), facial palsy (12; 5.5%), neurofibromatosis (11; 5%), and other conditions (12; 5.5%). In terms of race/ethnicity, 204 (92.7%) were White, five (2.3%) Asian/Asian British, five mixed ethnicity, four (1.8%) Black/Black British and one declined to say. For relationship status, 97 (44.1%) were married or in a civil partnership, 67 (30.4%) were single, 40 (18.2%) were dating or living with a partner, and 15 (6.8%) were separated, divorced, or widowed. Highest educational attainment was reported as vocational degree for 65 (29.5%), undergraduate degree for 57 (25.9%), high school for 49 (22.3%), and postgraduate degree for 48 (21.8%).

2.2. Procedure

Participants completed an online survey hosted by *Qualtrics*©. The study was advertised via UK charities who represent a wide range of appearance-affecting conditions and other causes of visible difference (see Acknowledgments for details). A prize draw of 10 separate £10 online shopping vouchers was offered in appreciation of participation. Two attention check items were embedded in the survey. Incorrect answers to one of the two items led to a check of the participants' survey responses for indicators of inattentive participation, such as single-column responses. Incorrect answers to both led to exclusion in analysis. Following demographic questions and a measure of body evaluation, subsequent measures

were randomly ordered (body evaluation was presented first to prevent any potential influence of taking other measures on body evaluation). At the end of the survey, participants were invited to provide optional written feedback on their experience of completing the survey, to help researchers design future survey studies. Following approval by the University Research Ethics Committee, the survey was piloted with one male and one female collaborator who have a visible difference. Minor changes to content were made following their feedback, including more detailed explanation of why demographic data were being sought, and the addition of a highlighted footer encouraging participants to pause or stop if the questions elicit distress on each survey webpage, with hyperlinks to sources of support.

2.3. Measures

2.3.1. Body evaluation. The Appearance Subscale of the Body Esteem for Adolescents and Adults (BESAA-A; Mendelson, Mendelson, & White, 2001) is a 10-item questionnaire, with answers on a 5-point scale ranging from 0 = *never* to 4 = *always* to statements such as "I'm looking as nice as I'd like to." Higher mean item scores indicate more positive body evaluation (with six items reverse-scored). The BESAA-A has shown good internal consistency, and strong test-retest reliability, convergent validity, and discriminant validity (Milhausen, Buchholz, Opperman, & Benson, 2015). The scale has been used in a sample of mixed gender adults with a visible difference due to burn scarring, in which the scale displayed excellent internal consistency ($\alpha = .95$; Lawrence, Fauerbach, & Thombs, 2006). Cronbach's alpha scores from the present study for the BESAA-A and all other measures are given in Table 1 (a) for the whole sample and (b) by gender.

We are not aware of any psychometrically validated body image-specific measures in the English language for cognitive fusion. To ensure direct comparison between cognitive fusion and experiential avoidance outcomes, generic measures were used for both.

2.3.2. Experiential avoidance. The Brief Experiential Avoidance Questionnaire (BEAQ; Gámez et al., 2014) consists of 15 questions answered on a scale from 1 = *strongly disagree* to 6 = *strongly agree*. Example items include "I would give up a lot to not feel bad" and "I work hard to keep out upsetting feelings." Higher summed item scores indicate greater experiential avoidance. The BEAQ has shown strong internal consistency, convergent validity, and discriminant validity in men and women (Gamez et al., 2014), but has not yet been tested in individuals with visible differences.

2.3.3. Cognitive fusion. The Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014) is a 7-item instrument, with questions rated from 1 = *never true* to 7 = *always true* on items such as "I tend to get very entangled with my thoughts." Higher totalled item scores represent greater cognitive fusion. The CFQ demonstrates excellent internal consistency and can discriminate between individuals with and without psychological disorders (Gillanders et al., 2014). It has also been used in a sample of women and men with burns scarring, though alpha scores were not reported (Shepherd et al., 2019).

2.3.4.Behavioural avoidance. The Body Image Life Engagement Questionnaire (BILEQ; Diedrichs et al., 2016) was used to assess the extent to which participants engage in behavioural avoidance, specifically avoiding body image-relevant activities across social, recreational, and educational/vocational domains as a result of feeling bad or worrying about how they look. The BILEQ is a 10-item measure rated from 1 = *hasn't stopped me at all* to 4 = *stopped me all the time* on items such as "go to a social event." Lower mean item scores indicate greater life engagement. The BILEQ demonstrates good internal consistency and test-retest reliability in women (Diedrichs et al., 2016). It has not yet been tested in men in the general population, nor individuals with visible differences. An extra item, "use public transport," was added for the sample of individuals with a visible difference, for whom this presents a common body image stressor (Houston & Bull, 1994). This item improved the

scale's internal consistency from α = .91 to α = .92 in the present study. The BILEQ was chosen over the Avoidance Subscale of Cash et al.'s (2005) Body Image Coping Strategies Inventory (BICSI) because the BILEQ asks participants to report exclusively on behavioural avoidance, whereas the Avoidance Subscale of the BICSI includes attitudinal items that too closely resemble experiential avoidance.

2.3.5. Apperance-fixing coping strategies. The BICSI Appearance-Fixing subscale (BICSI-AF; Cash et al., 2005). This subscale measures the degree to which participants attempt to cover, camouflage, correct, seek reassurance, and engage in social comparisons regarding the aspect(s) of their appearance that concern(s) them. Statements on the 10-item subscale are rated between 0 = *definitely not like me* and 3 = *definitely like me* on items such as "I make a special effort to hide or 'cover up' what's troublesome about my looks." Higher mean item scores indicate greater use of appearance-fixing coping strategies. The BICSI-AF shows good internal consistency, and construct and convergent validity in college students (Cash et al., 2005). It was used in a sample of mixed gender adults who have visible differences following surgery for head and neck cancer, in which the scale showed good internal consistency (α = .86; Teo et al., 2016).

2.3.6. Subjective noticeability of the visible difference. To assess the extent to which participants perceive their visible difference to be noticeable to others in everyday situations, which has been shown to relate to appearance distress (Clarke, Thompson, Jenkinson, Rumsey, & Newell, 2014; Montgomery, Norman, Messenger, & Thompson, 2016), a single-item question rated on a scale between 0 = *not at all noticeable* and 10 = *very noticeable* was designed for the study: "How noticeable is this condition [the participant having selected the condition that most affects their appearance] to other people if fully clothed?"

2.4. Data Analyses

Data were inspected for missingness. As 16 participants (7.3%) left one to four entire questionnaires incomplete, multiple imputation by linear regression was used at the scale score level for all variables under investigation. Doing so yields data based on patterns in the available data (Parent, 2013). Data were checked and cleared for signs of Missing Not at Random (MNAR) criteria, including unusually high rates of missingness on partular items and scales (Parent, 2013), as MNAR data would preclude data imputation (White, Royston, & Wood, 2011). Twenty imputed datasets were created, based on the recommendation that the number of imputations should exceed (or at least match) the percentage of missing data (White et al., 2011). Further analyses were conducted from the imputed data.

A series of nonparametric bootstrap mediation analyses yielding 5000 bootstrap samples, as recommended by Hayes (2017), were conducted to test the hypotheses, using Hayes' PROCESS© software. Mediation analyses controlled for: (a) age, given the wide range; (b) gender, as there may be differences in how women and men with visible differences cope with body image stressors (Rogers et al., 2018; Sawant, Vanjari, & Khopkar, 2019); and (c) participants' subjective noticeability of their visible difference to others, as this has been shown to relate to appearance distress (Moss, 2005). To the authors' knowledge, no research has compared body evaluation or behavioural coping strategies in individuals with visible differences from birth versus those who acquired a visible difference, so this was not planned as a covariate in the mediation model. Independent samples *t* tests were conducted and Cohen's *d* effect sizes calculated to check whether any differences do exist between congenital and acquired visible differences, in which case the variable would need to be controlled for in the model. Mediation analyses provided bias-corrected 95% confidence intervals for the total, direct, and indirect effects. Owing to the confidence intervals' asymmetrical nature for the indirect effects, *p*-values cannot be determined. Statistical significance for mediation was therefore derived from the confidence intervals, where they

did not overlap zero (MacKinnon, Lockwood, & Williams, 2004). Following Fritz and Mackinnon (2007), a minimum sample size of $N = 196$ would provide at least 80% power to detect partial mediation at the 5% significance level, conservatively assuming the indirect path coefficients, alpha and beta, are moderately sized. This sample size holds over different recognised tests of mediation.

3. Results

Table 1 shows descriptive data and correlation coefficients for all self-report measures under analysis. In preparatory analyses to check for potential additional covariates in the mediation model, the independent samples *t* tests revealed that participants with visible differences from birth scored lower (i.e., more favourably) than those with acquired differences on: (a) body evaluation (BESAA-A), $t(218) = 2.954$, $p = .003$, Cohen's $d = 0.41$, 95% CIs [0.12, 0.60]; (b) behavioural avoidance (BILEQ), $t(218) = -2.368$, $p = .018$, Cohen's $d = -0.33$, 95% CIs [-0.41, -0.04]; and (c) appearance-fixing behaviours (BICSI-AF), $t(218) = -3.494$, $p < .001$, Cohen's $d = -0.48$, 95% CIs [-0.55, -0.16]. There were no differences between participants with visible difference from birth versus acquired causes on experiential avoidance (BEAQ), $t(218) = -1.516$, $p = .13$; Cohen's $d = -0.21$, 95% CIs [-6.42, 0.85], or cognitive fusion (CFQ), $t(218) = -1.238$, $p = .216$, Cohen's $d = -0.17$, 95% CIs [-4.87, 1.10]. Due to the significant differences in both outcome variables (behavioural avoidance and appearance-fixing) according to whether visible differences existed from birth or were acquired, subsequent mediation analyses controlled for this variable. Using the data derived from multiple imputation did not affect the substantive conclusions compared to mediation analyses performed using available case analyses, which was tested separately.

3.1. Mediation Analyses

Variables were converted into *z* scores before conducting mediation analyses, to provide standardized coefficients (*B*), as PROCESS© does not provide pooled standardized

coefficients for imputed data. Figure 1 shows the path diagrams for the four mediation models tested, where coefficients for each regression pathway, including direct effects between body evaluation and both body image coping strategies, are given. Each path controlled for age, gender, subjective noticeability, and congenital/acquired visible difference. With behavioural avoidance (BILEQ) as the outcome variable, body evaluation (BESAA-A) showed a significant indirect effect through experiential avoidance (BEAQ; Figure 1A), B = -0.10, 95% CI [-0.17, -0.05], and cognitive fusion (CFQ; Figure 1B), B = -0.09, 95% CI [-0.18, -0.01]. With appearance-fixing behaviours (BICSI-AF) as the outcome variable, the indirect effect of body evaluation was nonsignificant through experiential avoidance (BEAQ; Figure 1C), B = -0.04, 95% CI [-0.21, 0.00], and significant through cognitive fusion (CFQ; Figure 1D), B = -0.12, 95% CI [-0.21, -0.03]. The analyses suggest that cognitive fusion partially mediated the relationship between body evaluation and both (a) avoidance of body image-relevant activities and (b) appearance-fixing behaviours, while experiential avoidance partially mediated the relationship between body evaluation and (a) avoidance of body image-relevant activities, but not (b) appearance-fixing behaviours.

4. Discussion

This study examined the role of two key components of psychological flexibility, namely experiential avoidance and cognitive fusion, in relation to unhelpful body image coping strategies (behavioural avoidance and appearance-fixing behaviours) in a nonclinical sample of adults with visible differences. In testing these psychological flexibility components as mediators, this study sought to refine our understanding of psychological flexibility as a mediator of unhelpful body image coping behaviours (Mancuso, 2016). The study also builds on previous research that examined cognitive fusion and experiential avoidance in adults with visible differences (Shepherd et al., 2019), by widening the sample to any cause of visible difference, and testing a mediation model. In line with our hypotheses,

cognitive fusion partially mediated the relationship between body evaluation and appearance-fixing behaviours, while experiential avoidance partially mediated the relationship between body evaluation and behavioural avoidance.

The finding that cognitive fusion also partially mediated the relationship between body evaluation and behavioural avoidance suggests that cognitive fusion may represent a particularly important cognitive process for people with visible differences in managing body image stressors. Cognitive fusion has been found to predict avoidance coping behaviour in response to laboratory-induced and naturally occurring stress in adults, though it has not been tested as a mediator (Donald, Atkins, Parker, Christie, & Guo, 2017). Findings from the present study are consistent with the assertion that creating psychological distance from distressing thoughts (cognitive *de*fusion) could contribute to minimising unhelpful behavioural coping strategies in adults with visible differences. Therapies such as ACT offer various cognitive defusion techniques (Hayes et al., 1999). In the field of body image, brief cognitive defusion techniques such as rapid word repetition of a self-selected negative body image thought have been shown to reduce participants' believability and distress in response to the thoughts (Deacon, Fawzy, Lickel, & Wolitzky-Taylor, 2011; Mandavia et al., 2015). Such techniques have yet to be tested in adults with visible differences, so this may be a research avenue worthy of investigation.

Building on previous findings (Shepherd et al., 2019), the results also indicate experiential avoidance is likely to play a role in the process of social avoidance for this population. As social avoidance is a common problem for people with visible differences (Rumsey & Harcourt, 2004), this study offers tentative support for the applicability of approaches like ACT that cultivate experiential acceptance. Appearance-specific mindfulness practices that emphasize experiential acceptance have also been developed, such as the mindful mirror exercise, in which individuals are invited to systematically sweep their

attention up and down their bodies while looking in the mirror, non-judgmentally observing any thoughts and feelings that arise in relation to particular body areas (Pearson, Folette, & Hayes, 2012). Research is needed to test whether such practices help adults with visible differences engage more in life activities, and to ascertain the duration of any positive effects. Care should also be taken to underscore the importance of adopting a non-judgmental attitude in these exercises, as simply paying more attention to problematic areas of one's body in the absence of an accepting attitude is associated with greater distress (Montgomery et al., 2016).

The finding that experiential avoidance did not mediate between body evaluation and appearance-fixing behaviours may relate to the nature of the specified appearance-fixing behaviours. Some, such as spending long periods in front of the mirror and seeking reassurance from others, may actually require some degree of openness to distressing cognitions and emotions. Our findings suggest it may be the extent to which individuals become entangled with negative self-evaluations that better explains such behaviours.

As is typical in psychological research (Fritz & MacKinnon, 2007), all significant mediation findings were partial in magnitude, suggesting other mediators are likely to co-occur. Recent personal experiences relating one's body image, fear of negative appearance evaluation, and even personality constructs such as extraversion may also mediate behavioural responses. Further research investigating such factors would help refine our understanding of the processes that determine how individuals with visible differences cope with body image stressors.

Beyond the main research question, of interest is the finding that participants who were born with a visible difference scored more favourably on body evaluation, behavioural avoidance, and appearance-fixing than those who acquired a difference through disease, injury, or medical treatment. Research has indicated that the length of time since acquiring burns scarring does not predict distress (Kleve & Robinson, 1999). However, to the authors'

knowledge, no research has comprehensively investigated differences in psychosocial adjustment between people with a congenital or acquired visible difference. It may be that being born with a visible difference is associated with fewer unhelpful body image coping strategies in adulthood because of the longer period individuals have had to navigate the social world with an unusual appearance, and to desensitize to any negative reactions. Acquiring a visible difference may also negatively impact body evaluation as it marks a discrepancy between individuals' current and former, more normative appearance, whereas adults born with a visible difference do not contend with such a discrepancy. However, the current study did not ask participants at what age their visible difference first emerged, meaning participants who may have acquired a visible difference pre-memory (e.g., burns scarring) were included in the acquired category. Findings suggest future research investigating differences in psychosocial outcomes is warranted, but should also record the age of acquisition.

4.1. Limitations

How the findings from this nonclinical sample may apply to individuals who present with clinical or subclinical levels of psychological distress commonly experienced by this population like social anxiety (Montgomery et al., 2016) is unclear. Though we did not select for clinical symptoms, the content of some participants' written feedback on their experience of the study indicated they may experience subclinical or clinical severity of social anxiety. The correlational design also prevents any causal inferences from being drawn, meaning only tentative clinical implications can be suggested. One next step is to evaluate interventions for this population that target cognitive fusion and experiential avoidance, either separately or in combination, and to test these variables as mediators of psychological and/or behavioural outcomes.

Although the sample did include individuals with a range of visible differences and educational attainment, it was predominantly comprised of white women, limiting its generalisability across race/ethnicity and gender. Similarly, participants recruited via charities that represent their cause of visible difference may be actively engaged in support and/or campaigning about their cause. There may be differences in how those less engaged cope with body image stressors. The extent to which the present study's sample represents the broad spectrum of adults with visible differences is therefore unknown.

4.2. Conclusion

Despite these limitations, the present study offers a deeper understanding of the specific roles that cognitive fusion and experiential avoidance play in relation to common unhelpful body image coping strategies, and reinforces previous findings (e.g., Mancuso, 2016) that negative appearance cognitions themselves are unlikely to directly cause unhelpful body image coping behaviours in the form of avoiding feared situations and making attempts to cover or alter one's appearance.

Table 1.

Cronbach's alphas (α), Means (*M*), Standard Deviations (*SD*), and Intercorrelation for Self-Report Measures (*N* = 220)

Measures	α (total)	α (male)	α (female)	*M*	*SD*	1	2	3	4	5
1. PN	-	-	-	9.37	2.80	-				
2. BESAA-A	.92	.92	.92	1.36	0.90	-.13	-			
3. BEAQ	.85	.86	.85	54.35	13.35	.02	-.52*	-		
4. CFQ	.95	.93	.96	27.68	10.99	.10	.63**	.57**	-	
5. BILEQ	.92	.90	.92	1.89	0.70	.10	.60**	.61**	.58**	-
6.BICSI-AF	.90	.88	.90	2.69	0.75	.02	.47**	.42**	.50**	.44**

Note. PN = Perceived noticeability of appearance to others; BESAA-A = Body Esteem Scale for Adolescents and Adults - Appearance Subscale; BEAQ = Brief Experiential Avoidance Questionnaire; CFQ = Cognitive Fusion Questionnaire; BILEQ = Body Image Life Engagement Questionnaire; BICSI-AF = Body Image Coping Strategies Inventory – Appearance-Fixing Subscale; Data are derived from the imputed dataset; *$p < .05$; **$p < .01$.

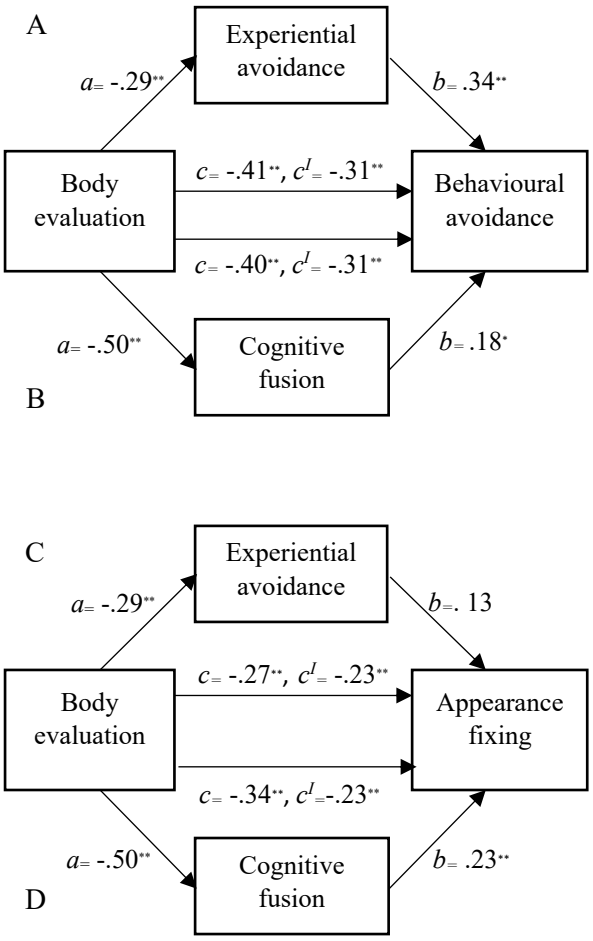

Figure 1. Mediation models testing: (A) experiential avoidance and (B) cognitive fusion as mediators between body evaluation and behavioural avoidance; and (C) experiential avoidance and (D) cognitive fusion as mediators between body evaluation and appearance-fixing behaviours. Numbers show pooled standardized coefficients (*B*) from imputed data for the respective regression pathways (*a*, *b,* and *c*), controlling for age, gender, subjective noticeability, and congenital/acquired visible difference. The numbers labelled c^{I} show the direct effect coefficients between body evaluation and body image coping strategies (behavioural avoidance and appearance-fixing), in which the respective mediator is controlled for.

Note. $^{**}p < .001$; $^{*}p < .01$

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