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Sketching People:

Prospective Investigations of the Impact of Life Drawing on Body Image

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**Abstract**

Three studies were conducted to establish the extent to which life drawing is effective at promoting positive body image. Study 1 (*N* = 84 women) showed that life drawing had a positive impact on state body image, but only if artists observed a human model and not non-human objects. Study 2 (*N* = 61 women, 61 men) showed that life drawing had a positive impact on state body image for women and men, irrespective of whether artists observed a sex-congruent or -incongruent model. Study 3 (*N* = 23) showed that participating in weekly life drawing sessions for a 6-week period resulted in significantly elevated trait positive body image (body appreciation and body pride) and embodiment, and in reduced social physique anxiety; however, the intervention had no significant impact on negative body image (drive for thinness or muscularity). These results highlight the potential of life drawing for promoting positive body experiences.

 **Keywords:** Life drawing; Body image; Embodiment; Art; Body appreciation

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 As summarised by Cash (2004), body image is a multifaceted construct referring to the thoughts, feelings, beliefs, and behaviours that are related to one’s own body. Negative body image, in particular, has been identified as a major public health concern, as it affects a majority of women and men in most socioeconomically developed settings (e.g., Swami et al., 2010; Wardle, Haase, & Steptoe, 2006). In turn, negative body image has been reliably associated with a range of negative outcomes, including poorer social functioning (Cash, Thériault, & Annis, 2004; Davison & McCabe, 2006), exercise dependence and the use of performance-enhancing drugs (White & Halliwell, 2010), discomfort with sexual functioning (Woertman & van den Brink, 2012), and poorer psychological well-being (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2010). In addition, negative body image is one of the most important prognostic factors in the onset and maintenance of eating pathology (Stice & Shaw, 2002).

 These negative outcomes make it critical to identify putative factors that may protect against negative body image and highlight ways of promoting more positive body experiences (Cook-Cottone, 2015; Tylka & Wood-Barcalow, 2015a). Piran’s (2002, 2015) Developmental Theory of Embodiment provides one such framework for helping scholars identify the conditions and experiences that provide positive ways of connecting with the body. According to this theory, “embodiment” is a process through which individuals gain a sense of connection and comfort with their bodies, feel empowered *vis-à-vis* their bodies, are able to voice their bodily desires, and are attuned to the self-care needs of their bodies (Piran, 2016). That is, embodied individuals not only respect and meet the needs of their bodies, but also experience their bodies as integral to their self-expression, agency, and well-being. Menzel and Levine (2011) have extended Piran’s work to propose that participation in “embodying activities” is a key factor in the promotion and development of positive body image.

 According to the Embodiment Model of Positive Body Image (Menzel & Levine, 2011), embodying activities are those that are situated in the body, encourage awareness of and attentiveness to the body, and involve absorption in one’s current activity. The result of participating in embodying activities is a sense of flow and physical empowerment – or “embodiment” characterised by mind-body integration – which in turn directly promote positive body image. In addition to this direct route, Menzel and Levine also proposed that embodiment may indirectly promote healthier body image. For example, their model suggests that embodiment can lead to lower self-objectification – evaluating the physical appearance of one’s body from an outsider perspective or viewing one’s body as an object – which in turn is associated with more positive body image. In short, embodying activities may provide a direct route to promoting positive body image, as well as the tools to cope with threats to body image.

 Based on the Embodiment Model, scholars have sought to identify activities that may have embodying elements. For example, in developing their model, Menzel and Levine (2011) suggested that competitive athletics may promote embodiment: the requirements of athletics give rise to frequent states of mind-body integration, greater awareness of the body, a high degree of attentiveness to the body’s needs, and a sense of physical empowerment. Although the extent to which competitive athletics promotes more positive body image is debatable (see Swami, Steadman, & Tovée, 2009), other scholars have identified activities that may contain embodying elements. For example, Mahlo and Tiggemann (2016) reported that yoga practitioners had higher scores on measures of embodiment and positive body image than non-practitioners. In support of the Embodiment Model, the relationship between yoga participation and positive body image was mediated by feelings of embodiment.

 Other relevant research has suggested that participation in some types of dance, such as belly dance (Tiggemann, Coutts, & Clark, 2014), recreational pole-dancing (Pellizzer, Tiggemann, & Clark, 2016), street-dance (Swami & Tovée, 2009), and contemporary dance (Swami & Harris, 2012), may also contain embodying elements that promote positive body image. Likewise, direct exposure to nature may help individuals develop psycho-social tools that promote embodiment and, in turn, positive body image (Swami, Barron, Weis, & Furnham, 2016). In each of these examples, as well as the theoretical models on which they are based, embodiment is assumed to occur through direct immersion in embodying activities. For example, the positive embodying effects of dance are thought to occur via direct participation in dance, rather than merely through observing dancers.

 Recently, however, Swami (2016) proposed the positive effects of embodiment could also occur vicariously, as occurs in life drawing sessions where individuals produce drawings of the human form from observations of a live model. In Swami’s view, the process of observing and receiving sensory feedback from a nude human body, and the active reproduction of that body in art form, contain embodying elements that promote positive body image. Specifically, life drawing may provide a (transitional) space for individuals to explore relationships with their own bodies, to question and challenge the normativity of beauty ideals, to actively inhabit their bodies as subjective (rather than objectified) sites, and to develop greater body confidence (Mayhew, 2010; see also Chittenden, 2013). That is, in-situ drawings creates conditions where artists foster personal responses to form and space, which may be experienced as embodying and which, in turn, lead to more positive body image.

 In support of this perspective, Swami (2016, Study 1) reported that greater lifetime attendance at life drawing sessions was significantly and positively associated with body appreciation in British women and men (*N* = 138). In addition, greater attendance was also significantly associated with lower drive for thinness and social physique anxiety in women, though associations with drive for muscularity and social physical anxiety were not significant in men. In a second study, Swami (2016, Study 2) asked a self-selecting sample of 37 undergraduate women to take part in their first life drawing session. Compared to pre-session scores, he found that participants had significantly more positive state body image and appearance satisfaction after the session (*d*s = 0.60). Based on these findings, Swami concluded that participation in life drawing as artists may contain embodying elements that promote positive body image.

 Although these findings appear to suggest that life drawing has a positive effect on body image, there were a number of limitations to the work. First, at present it is unknown whether it is life drawing *per se* (that is, the process of observing nude human form and transferring that form to paper) or simply engaging in artistic drawing that promotes positive body image. Drawing – whether of the human form or of non-human objects – may activate discovery-oriented behaviours (Csikszentmihalyi & Getzels, 2015) and may also reduce negative mood (Drake, Searight, & Olson-Pupek, 2014), which may in turn indirectly affect body image. More generally, engagement with artistic activities of any kind may offer opportunities for autonomous self-expression and heightened concentration or “flow”, as well as cognitive and creative challenges, which are experienced as embodying (Wilkinson & Chilton, 2013). In such a scenario, it is possible that actively engaging in drawing, rather than life drawing of a nude human form, is sufficient to promote positive body image.

 Secondly, given the infancy of this field of research, the extent to which model-artist relationships may impact on positive effects of life drawing remain unknown. For example, Stanhope (2013) suggested that, in a sample of adolescent British girls, sex-congruent life drawing sessions might heighten body anxiety. Although the sessions offered an opportunity to reflect on and challenge unrealistic beauty ideals, participants may also have faced difficulties moving beyond the nudeness of a sex-congruent body, especially if it activated concerns about participants’ own bodies. In contrast, Swami (2016, Study 2) used a sex-congruent set-up, where female artists participated in a life drawing session with a female model, and found a positive effect of attendance. At present, it is unknown whether observing and drawing a sex-incongruent body may alleviate possible anxieties and thus promote more positive body image in women. In a similar vein, the prospective effects of participating in a life drawing session on men’s body image has not been examined, whether with sex-congruent or -incongruent models.

 Third, and perhaps most importantly, the extant evidence of a causal effect on life drawing on body image to date is limited to state effects. That is, participation in life drawing has been shown to have an immediate impact on state body image (Swami, 2016, Study 2), but longer-term prospective effects on trait body image have not been fully investigated. Swami (2016, Study 1) did report on longer-term associations, but the findings from that study were limited to cross-sectional inferences. These issues are important because, if life drawing is to emerge as a potential therapeutic route for promoting healthier body image, it is vital that longer-term, causal effects are examined and evaluated. While it might be expected that short-term elevations in state body image will translate into longer-term positive effects on trait body image, such a hypothesis requires urgent examination.

 The present studies were designed to overcome the above limitations and to provide further prospective evidence on the effects of life drawing on body image. First, to examine whether previously-reported findings were truly due to the effect of drawing a nude human form, as opposed to merely engaging in an artistic activity, female artists were asked to participate in sessions involving a nude human model, a clothed human model, and non-human objects (Study 1). Second, to examine the effects of the artist-model relationships, female and male artists were asked to participate in sex-congruent or -incongruent life drawing sessions (Study 2). Third, to examine the longer-term effects of life drawing, measures of trait body image and related constructs were obtained for a group of artists participating in sessions over a period of six weeks (Study 3). Taken together, these studies offer the potential to uncover the unique effects of life drawing sessions on body image and to determine the extent to which in-situ environmental factors affect body image.

**Study 1**

 Study 1 was effectively a replication and extension of Swami’s (2016) first study. Specifically, a self-selecting sample of undergraduate women was invited to take part in one of three life drawing classes with a nude female model, a clothed female model, or non-human objects. Using a prospective design, participants’ state body image was measured immediately before and after the sessions. Based on the notion that it is observing and drawing the nude human form specifically that contains embodying elements, it was hypothesised that participants who drew the nude human form would show more positive improvement in body image post-session compared to participants who drew the clothed human form. In a similar vein, to the extent that drawing non-human objects does not contain embodying elements, it was predicted that participants who drew the non-human form would show no significant elevation in state body image.

**Method**

**Participants**

 A power analysis was conducted using G\*Power based on Swami (2016, Study 2). To detect a medium-sized effect (*f*2) at α = 0.05, a sample of 84 participants was needed. Sampling in the present study exceeded these requirements, as a total of 90 female students from a university in Cambridge, UK, took part in the study. Participants ranged in age from 18 to 29 years (*M* = 19.53, *SD* = 2.31) and in self-reported body mass index (BMI) from 16.16 to 29.39 kg/m2 (*M* = 21.14, *SD* = 2.67). The majority of participants were of British White ancestry (84.4%).

**Measures**

 **State body image**. At both time-points, participants completed the Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002). This is a 6-item scale that taps individuals’ evaluations and affect about their body image and physical appearance at a particular point in time. Items were rated on a 9-point scale with each item having unique response anchors. Three items were reverse-coded prior to analysis so that higher scores reflected more positive state body image. Cash et al. (2002) reported that BISS scores had acceptable internal consistency coefficients and good patterns of construct and convergent validity in adult women. In the present study, Cronbach’s α was .82 at Time 1 and .80 at Time 2.

 **Demographics**. Participants were asked to provide their demographic information consisting of age, ethnicity, height, and weight. Self-reported height and weight were used to calculate participants’ BMI as kg/m2.

**Procedure**

Ethics permission for this and all subsequent studies was obtained from the relevant university ethics committee. Participation for a study on art and well-being was solicited through flyers placed on university campus locations. To be eligible, participants had to be of adult age, female, and not have previously attended a life drawing class or session. Eligible participants provided written informed consent and were randomly allocated to one of three groups (nude model *n* = 29, clothed model *n* = 30, non-human object *n* = 31). On six separate afternoons in February 2016, participants were invited to an arts studio in Cambridge where sessions were organised especially for this project with the cooperation of the coordinator. As in Swami (2016, Study 2), participants were given a selection of drawing materials (paper of varying sizes, pencils, pens, paint, and brushes) to choose from upon arrival. Participants were then invited to find a seat in the studio and were presented with the pre-test questionnaire for completion. This questionnaire contained the BISS and a request for participant demographics. To minimise the risk of hypothesis guessing, the questionnaire also included the abbreviated, generic Quality of Life Scale (QLS; World Health Organization Quality of Life Group, 1998), a 26-item, trait measure of quality of life that was omitted from analyses.

 In the two groups with models, the coordinator introduced the model (a 28-year-old woman) and the session began with short poses (“gestures”) by the model that lasted about a minute each for a total of 10 minutes. This was followed by two longer poses held for 5 minutes each, and finally a longer pose of 30 minutes. The same model posed for both groups, but for one group she was nude whereas for the other she wore her everyday clothes (jeans, shoes, and a long-sleeved blouse). In the non-human object group, the coordinator placed a bowl of fruit on a table, with participants free to draw for 10 minutes. The coordinator then re-arranged the bowl and fruit; she did so again after 10 minutes for a final segment lasting 30 minutes. Following the final pose or set-up, participants were given the post-test questionnaire to complete, which included the BISS and the QLS. All data were anonymous and participants returned completed questionnaires in an envelope to the investigator. Participants received no remuneration beyond free attendance at the life drawing session and were allowed to keep their artworks. At the completion of the session, participants were given written debrief information.

**Results and Discussion**

One-way analyses of variance (ANOVAs) showed that there were no significant between-group differences in mean age, *F*(2, 87) = 0.39, *p* = .681, ηp2 < .01, and in mean BMI, *F*(2, 87) = 1.54, *p* = .220, ηp2 = .03. There were also no significant between-group differences in the distribution of ethnic groups, χ2(4) = 1.37, *p* = .849. Next, a 3 (experimental condition: nude model vs. clothed model vs. non-human object) x 2 (testing session: pre- vs. post-drawing) mixed ANOVA was conducted, with BISS scores as the dependent variable. The results revealed a significant interaction, *F*(2, 87) = 5.35, *p* = .006, ηp2 = .11, indicating that the experimental manipulation had an effect on state body image (see Figure 1). A one-way ANOVA showed no significant between-group differences in state body image during the first testing session, *F*(2, 87) = 0.19, *p* = .829, ηp2 < .01. During the post-drawing session, however, there were significant between-group differences, *F*(2, 87) = 8.19, *p* = .001, ηp2 = .16. *Post hoc* Tukey tests showed that participants who drew a nude model had significantly more positive state body image than those who drew a clothed model, *p* = .022, and non-human objects, *p* < .001, whereas those in the latter two groups were not significantly different from each other, *p* = .421.

 To further examine the interaction, a series of pairwise *t*-test were conducted for each group separately. In the non-human object group, there was no significant increase between pre-drawing (*M* = 5.51, *SD* = 1.30) and post-drawing scores (*M* = 5.62, *SD* = 1.01), *t*(30) = 0.42, *p* = .678, dependence-corrected *d* = 0.09. In the group with the clothed model, there was a significant increase in state body image across testing points (pre-drawing *M* = 5.31, *SD* = 1.19; post-drawing *M* = 5.94, *SD* = 0.92), *t*(29) = 2.49, *p* = .019, dependence-corrected *d* = 0.60. Finally, in the group with the nude model, there was also a significant increase in appearance satisfaction across testing points (pre-drawing *M* = 5.30, *SD* = 1.16; post-drawing *M* = 6.67, *SD* = 1.14), *t*(28) = 4.44, *p* < .001, dependence-corrected *d* = 0.84. The ANOVA results also showed that there was a main effect of testing time, *F*(1, 87) = 19.87, *p* < .001, ηp2 = .19, but no main effect of group, *F*(2, 87) = 1.45, *p* = .240, ηp2 = .03.

 The results of Study 1 corroborate previous work (Swami, 2016) showing that participation in a life drawing session has a positive impact on women’s state body image. Beyond this, however, the results of Study 1 contribute to knowledge in two important ways. First, it was demonstrated that merely engaging in drawing without exposure to a live, human model does not have a significant impact on women’s body image. This result suggests that it is the process of engaging with, and artistically reproducing, a live human model that brings a positive and immediate impact for body image. Second, the results of Study 1 suggest that life drawing with a model – whether or clothed or nude – had a positive impact on women’s body image. However, a nude model had a stronger, positive impact than a clothed model, as evidenced by the effect sizes of differences between pre- and post-drawing scores on state body image.

**Study 2**

The results of Study 1 showed, for the first time, that life drawing with a human model – but not drawing non-human objects – had a positive impact on women’s body image. However, as in Swami (2016), all participants in Study 1 were female and, in two of the three groups, were exposed to a female model. It remains unknown what impact such sex congruence between the artists and the model has on body image. To investigate, a second study was conducted in which female or male artists were exposed to a sex-congruent or -incongruent model. Given the dearth of previous research, Study 2 was more exploratory in nature. As a preliminary hypothesis, however, it was predicted that sex-incongruent sessions (i.e., where female artists observed male models and where male artists observed female models) would have a stronger, positive effect on state body image than sex-congruent sessions, possibly because the former are less likely to activate own-body anxieties (cf. Stanhope, 2013).

**Participants**

 Participants of Study 2 were 60 female and 61 male university students from a university in Cambridge, UK, who had not taken part in Study 1. Female participants ranged in age from 18 to 44 years (*M* = 19.45, *SD* = 4.13) and in self-reported BMI from 14.34 to 30.30 kg/m2 (*M* = 20.92, *SD* = 4.10). Male participants ranged in age from 18 to 46 years (*M* = 19.18, *SD* = 3.83) and in self-reported BMI from 17.50 to 32.00 kg/m2 (*M* = 25.07, *SD* = 3.15). The majority of female (86.7%) and male (83.6%) participants were of British White ancestry.

**Measures**

 **State body image**. At both time-points, participants completed the BISS, as described in Study 1. Cash et al. (2002) reported adequate psychometric properties for the BISS in both women and men, although men had significantly more positive state body image than women. In the present study, Cronbach’s α was ≥ .81 for both women and men at both time-points.

 **Demographics**. Participants were asked to provide their demographic information consisting of sex, age, ethnicity, height, and weight. The latter two items were used to calculate participants’ BMI as kg/m2.

**Procedure**

The procedures for Study 2 were similar to those for Study 1. Participation for a study on art and well-being was solicited through flyers placed on university campus locations and eligible participants (adult age, no previous life drawing experiences, and not have taken part in Study 1) provided written informed consent. A total of 127 participants were initially recruited, but 6 (2 women, 4 men) did not show at the appointed time, leaving a final sample of 121 individuals. The latter were semi-randomly allocated to one of four groups (female sex-congruent, *n* = 30; female sex-incongruent, *n* = 30; male sex-congruent, *n* = 31; male sex-incongruent, *n* = 30). On eight separate afternoons in March and April 2016, participants were invited to an arts studio in Cambridge where sessions were organised especially for this project with the cooperation of the coordinator. Participants took part in same-sex groups and were given a selection of drawing materials and completed the pre-test questionnaire consisting of the BISS, the QLS (included to minimise the risk of hypothesis guessing), and a request for demographic information. The same two life drawing (naked) models were used across groups: a 37-year-old woman and a 33-year-old man. The format of the sessions followed that reported for Study 1 and was followed by completion of the post-test questionnaire (i.e., the BISS and the QLS). All data were anonymous and participants returned completed questionnaires in an envelope to the investigator. Participants did not receive any remuneration beyond free attendance at their session and were allowed to keep their artwork. At the completion of the session, participants were given written debrief information.

**Results and Discussion**

To check for between-group differences in age and BMI, 2 (participant sex: women versus men) x 2 (sex congruence: congruent versus incongruent) ANOVAs were used. The ANOVA for age showed no significant interaction, *F*(1, 117) = 1.61, *p* = .207, ηp2 = .01, and no main effects of sex congruence, *F*(1, 117) = 0.09, *p* = .761, ηp2 < .01, or participant sex, *F*(1, 117) = 0.15, *p* = .701, ηp2 < .01. The ANOVA with BMI likewise revealed no significant interaction, *F*(1, 117) = 0.88, *p* = .350, ηp2 < .01, and no main effect of sex congruence, *F*(1, 117) = 1.97, *p* = .164, ηp2 = .02. There was, however, a main effect of BMI: men had significantly higher BMIs compared to women, *F*(1, 117) = 39.49, *p* < .001, ηp2 = .25. Across the four groups, there was no significant difference in the distribution of ethnic groups, χ2(9) = 10.31, *p* = .326. These preliminary analyses suggest that the groups were generally equivalent in terms of basic demographics, with the exception that men had higher BMIs than women (which was to be expected).

 To examine Study 2’s hypotheses, a 2 (participant sex: women versus men) x 2 (sex congruence: sex congruent versus incongruent) x 2 (testing session: pre- versus post-drawing) mixed ANOVA was used, with BISS scores as the dependent variable. The results showed that there was no significant three-way interaction, *F*(1, 117) = 1.00, *p* = .319, ηp2 < .01. In addition, none of the two-way interactions reached significance (all *F*s ≤ 0.40, all *p*s ≥ .528). There was also no main effect of sex congruence, *F*(1, 117) = 0.24, *p* = .628, ηp2 < .01. There was, however, a significant main effect of participant sex, *F*(1, 117) = 13.65, *p* < .001, ηp2 = .10. Across testing sessions, men had significantly more positive state body image than women (pre-drawing: women *M* = 4.90, *SD* = 1.55, men *M* = 5.63, *SD* = 1.65; post-drawing: women: *M* = 5.77, *SD* = 1.30, men *M* = 6.57, *SD* = 1.16). Finally, there was a main effect of testing session, *F*(1, 117) = 33.05, *p* < .001, ηp2 = .22. Irrespective of group, participants reported more positive state body image during the second testing session (*M* = 6.17, *SD* = 1.29) compared to the first (*M* = 5.27, *SD* = 1.64).

 The results of Study 2 corroborate those of the earlier study: in general, participating in a life drawing session had a positive impact on state body image. However, the results of this study extend previous work in showing that positive effects of life drawing are similar for women and men. Although men generally had more positive state body image than women, participating in a life drawing session elevated state body image for both groups of participants. Finally, and contrary to the hypothesis, sex-congruence did not appear to have an effect on the results. That is, the positive impact of life drawing occurred irrespective of whether participants were exposed to a sex-congruent or -incongruent model. Overall, the results of Studies 1 and 2 highlight the positive impact of life drawing, irrespective of participant sex and the sex congruence between artist and model.

**Study 3**

 Studies 1 and 2 showed that life drawing has an impact of women’s and men’s state body image, but longer-term prospective effects on trait body image remain unclear. Swami (2016, Study 1) reported that lifetime attendance at life drawing sessions was associated with higher body appreciation in women and men, but the cross-sectional nature of that dataset prevents causal conclusions. For example, it is possible that individuals with higher body appreciation are more likely to take part in embodying activities such as life drawing. A prospective study is required to demonstrate that life drawing has long-term positive effects on body image, which is what Study 3 aimed to accomplish. Specifically, a group of participants was invited to participate in life drawing sessions over a period of 6 weeks and measures of trait body image were obtained before the first session and after the final session.

To capture multiple aspects of trait body image, participants completed measures of positive body image (body appreciation and body pride) and negative body image (drive for thinness in women and drive for muscularity in men). In addition, to examine the hypothesis that life drawing is embodying in nature, participants were also asked to complete a measure of embodiment. Finally, to assess an immediate corporeal outcome, participants were also asked to complete a measure of social physique anxiety. Based on the results of Studies 1 and 2, it was hypothesised that participants would demonstrate more positive body image and less negative body image and social physique anxiety at the end of the 6-week period. In line with Embodiment Model of Positive Body Image (Menzel & Levine, 2011), it was also predicted that participants would have significantly higher embodiment at the end of the testing period.

**Method**

**Design**

 Study 3 employed a prospective design in which respondents completed a questionnaire-based survey immediately before taking part in the first life drawing session (Time 1). They then attended weekly life drawing sessions for a period of 6 weeks before completing the same measures (Time 2).

**Participants**

Participants of Study 3 were 23 self-selecting undergraduate students from a university in Cambridge, of whom 13 were women and 10 were men. Participants ranged in age from 18 to 28 years (*M* = 19.74, *SD* = 2.22) and in self-reported BMI from 16.23 to 25.97 kg/m2 (*M* = 24.18, *SD* = 3.71). The majority of participants were of White ancestry (82.6%).

**Materials**

 **Body appreciation**. Participants completed the Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015b), a 10-item scale that assesses the extent to which individuals appreciate, accept, respect, and feel positive about their bodies. All items were rated on a 5-point scale (sample item: “I respect my body”), ranging from 1 (*Never*) to 5 (*Always*), and an overall score was computed as the mean of all items. Higher scores on this scale reflect more positive body image. Tylka and Wood-Barcalow (2015b) have reported using both exploratory and confirmatory factor analyses that BAS-2 scores are one-dimensional. In addition, they reported that BAS-2 scores have adequate internal consistency, good test-retest reliability up to 3 weeks, and good patterns of convergent and divergent validity in samples of college and community adults. In the present study, Cronbach’s α for this scale was .87 at Time 1 and .83 at Time 2.

**Body pride**. To measure body pride, we used the Authentic Pride subscale of the Body and Appearance Self-Conscious Emotions Scale (BASES-AP; Castonguay, Sabiston, Crocker, & Mack, 2014). This is a 6-item measure that reflects body pride as a sense of personal appearance-related achievement (sample item: “I am proud that I maintain my desired appearance”). Items were rated on a 5-point scale, ranging from 1 (*Never*) to 5 (*Always*), and scores were averaged so that higher scores reflected greater authentic body pride. Data drawn from North American adults supports the factor structure of the BASES, and estimates supported the internal consistency, test-retest reliability after 2 weeks, and validity of the BASES subscales (Castonguay et al., 2014). In the present study, Cronbach’s α for this subscale was .93 at Time 1 and .87 at Time 2.

 **Drive for thinness.** Women were asked to complete the 7-item Drive for Thinness subscale of the Eating Disorders Inventory-3 (EDI-3-DT; Garner, 2004), which measures preoccupation with body weight, intense fear of becoming fat, and excessive concern with dieting (sample item: “I think about thinness”). Items were rated on a 6-point Likert-type scale, ranging from 1 (*Never*) to 6 (*Always*), and an overall score was computed as the mean of all items. Higher scores indicate greater drive for thinness. Scores on this subscale of the EDI-3 have good psychometric properties, including adequate internal consistency and indices of validity, in adult women (Garner, 2004). In this study, Cronbach’s α for the EDI-3-DT was .75 at Time 1 and .83 at Time 2.

 **Drive for muscularity**. Men were asked to complete the 7-item Muscularity-Oriented Body Image Attitudes subscale of the Drive for Muscularity Scale (DMS-A; McCreary & Sasse, 2000). This subscale measures an intense attitudinal desire to be more muscular (sample item: “I wish that I were more muscular”). All items were rated on a 6-point scale, ranging from 1 (*Always*) to 6 (*Never*). Scores were reverse-coded prior to analyses and an overall subscale score was computed as the mean of all items. Higher scores on this subscale indicate greater attitudinal drive for muscularity. McCreary (2007) reported that the DMS and its subscales have acceptable reliability as well as good construct, concurrent, convergent, and discriminant validities. In the present study, Cronbach’s α for the DMS-S was .83 at Time 1 and .84 at Time 2.

 **Embodiment**. The Physical Body Experiences Questionnaire (PBEQ; Menzel, 2010) was used to measure the degree to which individuals experience mind-body connection as a result of participating in embodying activities (sample item: “I feel that my body is a source of strength, endurance, and energy”). Following a review of relevant measures, Mahlo and Tiggemann (2016) concluded that the PBEQ was the most comprehensive measure of embodiment currently available. The scale consists of 18 items that were rated on a 7-point scale (1 = *Not at all true about me*, 7 = *Very true about me*). Two items were reverse-coded and an overall score was computed as the mean of all items. Higher scores on this measure reflect greater feelings of embodiment. Menzel (2010) reported that PBEQ scores have adequate construct validity and internal consistency in adult women. Comparable indices are not available for men, and it was not possible to examine factorial validity given the small sample size in Study 3, but internal consistency coefficients were adequate in the present study at Time 1 (α = .84) and Time 2 (α = 91).

**Social physique anxiety**. Participants completed the Social Physique Anxiety Scale (SPAS; Hart et al., 1989), a 12-item measure of anxiety associated with perceived evaluation of one’s body or physical appearance (sample item: “When in a bathing suit, I often feel nervous about the shape of my body”). Items were rated on a 5-point type ranging from 1 (*Not at all like me*) to 5 (*Like me a lot*). An overall score was computed as the mean of all items, with higher scores indicating greater social physique anxiety. SPAS scores has been shown to have adequate construct validity, and internal consistency in adult women and men (Hart et al., 1989). In the present study, Cronbach’s α for this scale was .72 at Time 1 and .76 at Time 2.

**Procedure**

Participation for a prospective study on the psychology of art was solicited through flyers placed on university campus locations and eligible participants (adult age, no previous life drawing experiences, and not have taken part in Studies 1 or 2) provided written informed consent. A total of 36 participants were initially recruited but 13 (5 women, 8 men) did not complete the six-week course, representing a dropout rate of 36.1% (4 dropped out before the first session, 3 after the first session, 4 after the second session, and 2 after the fourth session). Exit interviews with contactable participants (*n* = 10) indicated that a lack of time and/or a clash with pre-existing activities were the main reasons for dropping out. Of the remaining 23 participants, all attended six weekly life drawing sessions on Tuesday evenings at an arts studio in Cambridge in July and August 2016. The sessions were organised especially for the project in cooperation with the studio organiser.

 All 23 participants attended the same sessions and, as in the earlier studies, were given a selection of drawing materials at the start of each session. Participants were exposed to a new (naked) life model at each session: first session, a 28-year-old man; second session, a 46-year-old woman; third session, a 33-year-old man; fourth session, a 26-year-old woman; fifth session, a 57-year-old man, and; sixth session, a 49-year-old woman. Each session began with an introduction from the coordinator, followed by short “gestures” by the life model lasting a minute each and totalling 10 minutes. This was followed by five longer poses of 5 minutes each and a 25-minute pose. Following a 10-minute break, there was one final pose of 30 minutes. Immediately before the first session and the day after the sixth session, participants were asked to complete paper-and-pencil questionnaires in which the order of presentation of the scales above was randomised for each respondent. Nominal codes were used to link the data across testing sessions. Participants were emailed reminders about the sessions two days in advance, and all codes and email addresses were destroyed prior to analyses so as to maintain participants’ right to anonymity. Following return of completed questionnaires after the sixth session, participants were given written debrief information. Participants did not receive any compensation beyond free attendance at the six life drawing sessions; they were also allowed to keep all artworks they produced.

**Results and Discussion**

 Because of the small sample size (and following the results of Study 2), data for Study 3 were pooled across participant sex1 for all analyses, with the exception of DMS-A and EDI-3-DT scores. A series of paired-samples *t*-tests were conducted to examine the study’s hypotheses. Because of the large number of comparisons, a Bonferroni correction was applied, such that *p* = .005/6 = .008. Descriptive statistics and the results of the comparisons are reported in Table 1. As can be see, participants reported significantly higher body appreciation, body pride, and embodiment, and significantly lower social physique anxiety, after 6 weeks. The effect sizes of these differences were generally moderate. On the other hand, there were no significant pre- and post-test differences in either drive for thinness in women or drive for muscularity in men.

The results of Study 3 provide the first evidence that extended participation in life drawing sessions has a prospective, positive effect on body image. Specifically, the results of this study indicated that participants had improved positive body image, as indexed by measures of body appreciation and body pride, after attending six sessions of life drawing. Participants also reported significantly lower social physique anxiety at the end of the 6-week period. In addition, and consistent with Embodiment Model of Positive Body Image (Menzel & Levine, 2011), the present study showed that participants had significantly greater feelings of embodiment after the 6 weeks of life drawing. Contrary to the hypotheses, however, attending life drawing sessions did not appear to have any effect on indices of negative body image (i.e., drive for thinness in women or drive for muscularity in men). Although these findings might suggest that the positive effects of life drawing may be limited to promoting more positive body image, rather than alleviating negative body image, it should also be noted that these effects may have been an outcome of the small sample size in study (particularly for single-sex comparisons).

**General Discussion**

 Previous research has suggested that life drawing may have a positive impact on body image (Swami, 2016), but evidence of a prospective, causal effect was limited. The three studies reported here provide fresh evidence that life drawing promotes more positive body image, but extends existing knowledge in a number of ways. First, they demonstrate that the positive effects of life drawing cannot be attributed to act of drawing itself (Study 1); rather, positive effects on body image are accrued when participants are exposed to live, human model. Second, they showed that the positive effects on body image are similar for women and men, irrespective of the sex-congruence between artist and model (Study 2). Finally, and perhaps most importantly, they showed that longer-term participation in life drawing sessions has a positive impact on trait body image (Study 3); specifically, life drawing appeared to moderately elevate positive body image and feelings of embodiment and reduce social physique anxiety, though it had no appreciable effect on indices of negative body image.

 Taken together, the three studies reported here suggest that life drawing has a positive effect on women’s and men’s body image, possibly because it an embodying activity. Based on the Embodiment Model of Positive Body Image (Menzel & Levine, 2011), it can be proposed that life drawing promotes embodiment characterised by mind-body integration, which in turn promotes more positive body image. More specifically, the process of observing and reproducing the human body in art form may contain embodying elements that promote positive body image. Aside from offering a space in which individuals can become absorbed in a specific activity, life drawing may also offer opportunities to explore relationships with one’s own body and to question and challenge the normativity of beauty ideals (Swami, 2016). More broadly, life drawing may provide opportunities to actively inhabit one’s body as a subjective site and to challenge objectified consciousness (Mayhew, 2010; Swami, 2016). In short, the evidence presented here suggests that life drawing can be considered to be an embodying activity that promotes more positive body image.

 An interesting result to emerge from Study 3 was the finding that life drawing promoted more positive body image but had no significant effect on indices of negative body image. Previously, Swami (2016, Study 1) reported that greater attendance at life drawing sessions was associated with significantly lower drive for thinness in women, though the association was weak (*r* = -.24); Swami also reported no significant association between attendance at sessions at drive for muscularity in men (*r* = -.16). Taken together, the available evidence suggests that life drawing may be more effective at elevating positive body image, rather than reducing negative body image. Broadly speaking, this would be consistent with the argument that positive and negative body are not polar opposites and that interventions may have different effects on positive and negative body image (Tylka & Wood-Barcalow, 2015a). Nevertheless, it should also be noted that the pattern of findings in Study 3 may have been an outcome of the small sample size included in this study, particularly where comparisons were made for each sex separately.

 Nevertheless, a number of limitations across and within the three studies should be considered. First, the study was limited to a sample of university students, which limits the possibility of generalising these findings to wider sections of society. The self-selecting nature of the samples amplifies these concerns, as it is possible that respondents who are most interested in artistic activities benefit more from life drawing than those who are less interested. Moreover, the reliance on a relative homogenous sample, particularly in terms of ethnicity and BMIs, again raises questions about the generalisability of the present findings to other sections of society (e.g., overweight or obese groups). In a similar vein, the small sample sizes in Studies 2 and 3 and the absence of a control group in Study 3 means that findings of that study should be interpreted with caution. The former issue may have led to inflated effects and will need urgent replication with larger (and ideally more diverse) samples. The latter limitation, on the other hand, could be addressed in a future parallel-groups randomised controlled trial, which has the advantage of proper randomisation that minimises allocation biases and balances both known and unknown prognostic factors in the pre-intervention stage (Moher et al., 2010).

 Across the three studies, hypothesis-guessing and socially-desirable responding also cannot be ruled out. In Studies 1 and 2, the attempt to mask the study hypotheses may not have been adequate, whereas in Study 3 the lack of a mask may have meant that participants were able to decipher the study aims and responded in a socially-desirable manner. The knowledge that participants were taking part in an empirical project may also have compromised the ecological validity of the studies. In addition, specific elements of the design across studies may also mean that the results are limited or are difficult to replicate. For example, although attempts were made to keep the study designs consistent (e.g., the use of the same model across groups in Study 1), it is possible that were unexamined elements that affected the results. Such factors – which include the degree of perceived similarity between artist and model, feelings of rapport and likeability, participant mood, and the studio layout and décor – will undoubtedly vary from study to study and may be more difficult to control for in experimental set-ups. Future work could also focus on other lower-level issues, such as the effects of the body size of life models and the perceived similarity between the body sizes or appearance of models and artists.

 A further limitation was the drawback of the present study was the reliance on a limited range of outcome measures. Although there are only a handful of state body image measures that have been validated for use in women and men, future studies on immediate effects of life drawing may consider inclusion of measures of state social physique anxiety (Martin Ginis, Murru, Conlin, & Strong, 2011) and physical appearance state anxiety (Reed, Thompson, Brannick, & Sacco, 1991). In terms of trait measures, future work would benefit from the inclusion of a wider range of measures of negative body image (e.g., attitudinal and perceptual body dissatisfaction) and related constructs, such as self-objectification. As recommended by Swami (2016), future work should also seek to capture artist-related factors, such as artistic ability, drawing medium preferences, and artistic confidence.

 These limitations highlight the necessity of further research on the impact of life drawing on women and men’s body image. Further research on this topic may also help to highlight potential avenues for therapeutic and transformational interventions. Beyond body image, engagement with the creative arts – including drawing and painting – has been shown to be an effective therapeutic route for improving physical and mental well-being (for reviews, see Leckey, 2011; Slayton, D’Archer, & Kaplan, 2011; Stuckey & Nobel, 2010). The evidence presented here and elsewhere (Swami, 2016) suggests that life drawing in particular may hold promise as a means for promoting more positive body experiences. Future quantitative studies and in-depth qualitative investigations should seek to carefully establish the benefits of life drawing for body image and to identify elements of life drawing that can be promoted as a therapeutic and transformational tool.

**Footnotes**

1 Independent-samples *t*-tests indicated that there was no significant sex difference in mean age between women (*M* = 19.62, *SD* = 1.66) and men (*M* = 19.90, *SD* = 2.88), *t*(21) = 0.30, *p* = .768, *d* = 0.13. There was also no significant difference in mean BMI between women (*M* = 23.12, *SD* = 4.14) and men (*M* = 25.57, *SD* = 2.66), *t*(21) = 1.63, *p* = .119, *d* = 0.71.

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Table 1. *Descriptive Statistics for Variables Included in Study 3 and the Results of Bonferroni-Corrected Paired-Samples t-Tests*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Pre-Test | Post-Test | *t* | *p*a | *d*b |
|  | *M* | *SD* | *M* | *SD* |  |  |  |
| Body appreciation | 3.39 | 0.51 | 3.68 | 0.52 | 3.85 | .001 | 0.57 |
| Body pride | 2.84 | 0.83 | 3.50 | 0.38 | 3.64 | .001 | 0.54 |
| Drive for thinnessc | 4.37 | 0.71 | 3.98 | 0.74 | 2.74 | .018 | 0.55 |
| Drive for muscularityd | 4.04 | 0.84 | 3.71 | 0.89 | 1.02 | .334 | 0.38 |
| Embodiment | 4.12 | 0.81 | 4.82 | 0.89 | 4.30 | < .001 | 0.82 |
| Social physique anxiety | 3.03 | 0.53 | 2.56 | 0.45 | 3.22 | .004 | 0.48 |

*Note*.aBonferroni-corrected so that *p* = .008; bDependence-corrected; cWomen (*n* = 13) only; dMen (*n* = 10) only.



Figure 1. *State Body Image Pre- and Post-Drawing in Participants Exposed to a Nude Model, Clothed Model, or Non-Human Objects in Study 1*