**Psychological and sociocultural influences on body image among midlife women with, and without, a history of breast cancer: Testing the Tripartite Influence Model of Body Image**

**Abstract**

Body image concerns are common among breast cancer survivors and women in midlife. However, effective interventions are lacking for breast cancer survivors. This may be related to prior research having examined non-modifiable and medicalised influences on body image, instead of modifiable sociocultural and psychological influences. An adaptation of the ‘Tripartite Influence Model of Body Image’ was tested among women with (*n* = 169; mean age = 49.9) and without (*n =* 323; mean age = 47.6) a history of breast cancer, to investigate whether psychological and sociocultural influences on body image were similar between groups. Structural equation modelling revealed the model fit was satisfactory. Media pressure had an indirect effect on body image among both groups, and a direct effect among women treated for breast cancer. An additional influence of relevance only to women without breast cancer was pressure from friends. Overall, findings indicate common influences of media pressure and appearance comparisons on body image among both groups of women. This suggests that with some tailoring, existing evidence-based body image interventions designed for midlife women targeting these factors may also be relevant and beneficial for breast cancer survivors.

 *Keywords:* body image; breast cancer; midlife; women; tripartite influence model

**Introduction**

Breast cancer is the most commonly diagnosed cancer among women around the world (Ferlay et al., 2015). Its onset is predominantly in midlife, which is commonly defined as the period between 35 and 55 years of age (Hockey & James, 2017; Mangweth-Matzek et al., 2014). Improved prognosis has led to increasing numbers of women living with the residual consequences of the disease and its treatment (American Cancer Society, 2020; Office of National Statistics, 2016). One significant consequence of treatment is temporary or permanent changes to appearance, and bodily sensation and function. Surgery can result in scarring, breast asymmetry, loss of sensation, and lymphoedema (Collins et al., 2011). Side effects of chemotherapy, radiotherapy, and hormone therapy can include hair loss and thinnning, weight fluctuation, discolouration of the skin and nails, dermatitis, and the onset or worsening of menopausual symptoms (Lundstedt et al., 2012; Nozawa et al., 2013; Shapiro & Recht, 2001).

Appearance-related changes after treatment can cause body image distress among many women (Begovic-Juhant, Chmielewski, Iwuagwu, & Chapman, 2012; Falk Dahl, Reinertsen, Nesvold, Fosså, & Dahl, 2010). Further, longitudinal research suggests little or no improvement in body image up to five years post- treatment (Falk Dahl et al., 2010). This is alarming given body image concerns are associated with increased risk for adverse psychological and physical consequences, including depression, anxiety, sexual and intimacy concerns, and shorter length of survival (Cousson-Gelie, Bruchon-Schweitzer, Dilhuydy, & Jutand, 2007; Lam et al., 2012). Consequently, governments, health policy and services, and community organisations internationally have called for the provision of support to address the psychosocial consequences of cancer, including body image concerns (Breast Cancer Care, 2014; Centers for Disease Control and Prevention Foundation, 2004; Department of Health, Macmillan Cancer Support, & NHS Improvement, 2013).

**Aetiology of Body Image Concerns among Women with a History of Breast Cancer**

A recent systematic review found existing psychosocial interventions designed to alleviate body image concerns among women treated for breast cancer to have limited effectiveness and their long-term impacts remains unknown (Lewis‐Smith, Diedrichs, Rumsey, & Harcourt, 2018). One reason for their ineffectiveness could be the lack of research investigating modifiable psychosocial influences on body image among this group. Most research has examined how diagnostic- and treatment- related variables, such as diagnostic stage and type of surgery, relate to body image (Collins et al., 2011; Härtl et al., 2003). This knowledge may aid decision-making about treatment pathways; however, these variables are not amenable to psychosocial intervention. Further, most studies have ignored the wider psychological and sociocultural influences that have been shown to predict body image concerns among women during this life stage more broadly (e.g., general population samples of midlife and younger women). Specifically, there is a paucity of research on how cognitive processes and media, friends, and family influence breast cancer survivors’ body image.

This narrow disease-focused lens arguably pathologizes women’s experiences of their bodies and appearance. It may also be unnecessarily limiting the development and provision of effective interventions among women with a history of breast cancer by missing important modifiable influences on their body image. A more fruitful avenue for researchers and clinicians aiming to understand and improve body image outcomes among breast cancer survivors may be to look beyond individual-level and disease-focussed influences. Instead, a focus on broader sociocultural and psychological influences, which are modifiable and thus targetable, could be beneficial to informing the development of effective support. This is in accordance with an etiological approach to intervention development, such as the Medical Research Council’s framework for the development and evaluation of complex interventions (Craig et al., 2013; O'Cathain et al., 2019).

**Tripartite Influence Model of Body Image**

The Tripartite Influence Model proposes that sociocultural and psychological factors interact and directly influence body image (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). It postulates that dominant appearance ideals for women are transmitted and reinforced via three primary sociocultural sources: the media (e.g., through adverts featuring thin and youthful airbrushed models), parents (e.g., by modelling their own appearance concerns or direct criticism), and peers (e.g., through teasing and “peer pressure” regarding appearance). The model proposes two psychological processes through which these sociocultural influences exert their influence on body image: internalisation of appearance ideals (i.e., the degree to which a person cognitively “buys into” socially determined ideals of beauty) and social comparisons regarding appearance (i.e., the degree to which a person compares their own appearance with others; regardless of the direction of comparison).

This model has received substantial empirical support among young adult women and adolescent girls (e.g., Keery, Van den Berg, & Thompson, 2004; Rodgers, Chabrol, & Paxton, 2011; Shroff & Thompson, 2006). A variation of the model has received cross-sectional support among women in midlife, whereby authors focused solely on media exposure as the sociocultural source of pressure (Slevec & Tiggemann, 2011). Findings revealed that exposure to media was associated with body dissatisfaction via internalisation and appearance comparisons. Further, several elements of the Tripartite Influence Model have been studied individually and have received empirical support among midlife women (e.g., internalisation of appearance ideals, appearance comparisons; Forbes et al., 2005; Green & Pritchard, 2003; Kozar & Damhorst, 2008; Midlarsky & Nitzburg, 2008).

Until now, the Tripartite Influence Model has not been tested among midlife women who have received treatment for breast cancer. However, research suggests that sociocultural influences on body image may also be relevant to them. Specifically, perceived pressure to lose weight from the media, peers, and family members has been associated with higher levels of body dissatisfaction among women with a history of breast cancer (Przezdziecki et al., 2013). Perceptions of lower sexual interest and emotional support from partners also predict lower levels of self-perceived attractiveness, sexual desirability and femininity (Wimberly, Carver, Laurenceau, Harris, & Antoni, 2005). Whilst support is indicated for the sociocultural influences in the Tripartite Influence Model, no research has yet explored the relationship between the proposed mediators (i.e., internalisation of appearance ideals and social comparisons regarding appearance) and body image among this group. Building on these studies, it would be useful to test a more comprehensive model of psychosocial and sociocultural influences on body image among women with a history breast cancer, such as the Tripartite Influence Model. This would improve understanding of how psychosocial variables influence body image and how they might interact.

Given that women who receive treatment for breast cancer tend to be in midlife (Cancer Research UK, 2019), it is reasonable to speculate that they may be susceptible to the same sociocultural and psychological influences found to affect the body image of women in this age group more broadly. Women treated for breast cancer live in an appearance-focused society that focuses on thin, youthful, busty, blemish- and scar-free beauty ideals. Ageing-related appearance changes (e.g., appearance of wrinkles, thinning greying hair) move women in midlife away from this ideal, and the onset of treatment-related appearance changes (e.g., mastectomy, hair loss, weight gain, scarring) increases the discrepancy between women’s appearances and cultural ideals even further. Similar to women in midlife more broadly, they too are underrepresented in the media (Bazzini, McIntosh, Smith, Cook, & Harris, 1997; Hofmeier et al., 2017; Wasylkiw, Emms, Meuse, & Poirier, 2009). It is therefore arguable that the sociocultural and psychological factors proposed within the Tripartite Influence Model may also be relevant to this subgroup of women in midlife. If this reasoning holds, then existing effective interventions targeting these factors among women in midlife more generally might also be usefully adapted for breast cancer survivors. This could potentially address the existing gap in the availability of effective body image interventions for women with a personal history of breast cancer.

**Current Study**

This study tested the Tripartite Influence Model of Body Image among women in midlife who have, or have not, undergone treatment for breast cancer. Specifically, the study aimed to investigate whether psychological and sociocultural influences on body image were similar between groups. Further, by comparing the influences among women with and without a history of breast cancer, the results could provide insights as to whether existing effective body image interventions for women in midlife generally might also be relevant and beneficial for women with a history of breast cancer. Notably, the Tripartite Influence Model was extended in two ways in this study. First, the sociocultural influence of ‘parents’ was broadened to ‘family’, in order to be more inclusive and to account for the impact of other family members, such as children. This is because previous research has found family pressure beyond parents is also associated with higher levels of body dissatisfaction among both groups of women (Green & Pritchard, 2003; Przezdziecki et al., 2013). Second, a fourth sociocultural source of pressure was added to account for the previously identified influence of romantic partners on body image among both groups of midlife women (Mclaren, Kuh, Hardy, & Gauvin, 2004; Wimberly et al., 2005). Therefore, the extended Tripartite Influence Model postulated four sociocultural influences on body image: the media, family, friends, and partners. It was hypothesized that these sources of pressure would influence body image indirectly via two psychological processes: internalisation of appearance ideals and social comparisons regarding appearance (see Figure 1 for the hypothesized model). Whilst certain components of the model have been supported among breast cancer survivors previously, neither the model in its entirety nor its proposed mediating mechanisms have been tested among this group. This study therefore constitutes the first time the Tripartite Influence Model has been tested among breast cancer survivors.

**Method**

**Participants and Procedure**

Inclusion criteria required participants to identify as women; be aged 35 years or above (to represent the beginning of the age bracket commonly defined as midlife; Mangweth-Matzek et al., 2014); and English speaking/literate. Exclusion criteria included having received a diagnosis of cancer which was not breast cancer. Multiple recruitment strategies were pursued to recruit women in midlife who had, and had not, undergone treatment for breast cancer. The study was advertised on the authors’ institution staff website, and via its social media channels. All Women’s Institutes (community organisations for women) in the South West of the United Kingdom were approached to assist with recruitment, with several circulating the study to their members. It was also advertised on the forums of popular online parenting networks (e.g., Mumsnet.com). Finally, local and national breast cancer organisations also agreed to advertise the study.

A total of 492 women residing in the United Kingdom were recruited, including 169 women who had been treated for breast cancer. Using the semPower package in R (Moshagen, 2018), we calculated the achieved beta and power, based on the sample sizes, alpha level (.05), and degrees of freedom for the models tested. Using a maximum root mean square error of approximation (RMSEA) value of .08 as the largest acceptable degree of misfit, the power was very high when the groups were both combined (>.9999) and was .84 for the smaller breast cancer group when considered separately.

Table 1 displays demographic and medical information for all participants. In both groups, the majority of women were of White ethnicity (≥95%) and were in a relationship (≥73%). Women who had undergone treatment for breast cancer were significantly older (*t =* -2.86; *p* = 0.004; Mage = 49.9 years) than those who had not (Mage = 47.6 years) and were less likely to be in full- or part-time employment (χ2 *=* -28.67; *p* = 0.000). With regard to education, most women had attained an undergraduate or postgraduate degree. However, women who had undergone breast cancer treatment had received a significantly lower level of formal education than those who had not (χ2 *=* -24.20; *p* = 0.000). Further, medically induced menopause was more common among those who had undergone breast cancer treatment (χ2 *=* -121.39; *p* = 0.000). Among women who had undergone treatment for breast cancer, the majority had been diagnosed with invasive breast cancer (i.e., cancer which has spread beyond the layer of tissue in which it developed; ≥76%) four years earlier and had finished treatment two years prior to taking part. Nearly all women had undergone surgery, primarily mastectomy with immediate or delayed breast reconstruction. The majority of women also received adjuvant therapy.

The online questionnaire was hosted on the secure Qualtrics platform. Once participants had read the information page and indicated informed consent, they were directed to the questionnaire. Ethical approval for the study was obtained from the author’s university research ethics committee.

**Measures**

**Sociocultural pressures.** A four-item scale was adapted from the Perceived Sociocultural Pressures Scale (PSPS; Stice, Ziemba, Margolis, & Flick, 1996), which has demonstrated good internal reliability among women (Stice et al., 1996). Four sources of sociocultural pressures were assessed (the media, friends, family, partner), with a single item used to assess perceived pressure from each source. The original scale assessed media, friends and family only. Given that women in midlife, including those have received treatment for breast cancer, can experience appearance-related concerns beyond weight and shape (Helms, O'Hea, & Corso, 2008; Pruis & Janowsky, 2010), the scale was also amended to assess perceived pressure to alter appearance generally (e.g., “*I have felt pressure from the media* [TV, films, magazines, newspapers] *to change my appearance*”), as opposed to “*lose weight and be thin*” per the original scale. Each item was rated on a 5-point Likert scale (1 = *definitely disagree*, 5 = *definitely agree*), with higher scores indicative of greater perceived pressure to alter appearance. Each item (i.e., sociocultural source) was scored separately and used individually in the analyses; corresponding to each source of pressure.

**Internalisation of cultural appearance ideals.** The nine-item Internalisation subscale of the Sociocultural Attitudes Towards Appearance Questionnaire 3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) assessed the extent to which women had internalised cultural appearance ideals. An example item from the scale is, “*I wish I looked like people in magazines*”. Each item is rated on a 5-point Likert scale (1 = *definitely disagree*, 5 = *definitely agree*) and summed, with higher scores indicating higher levels of internalisation. This measure has displayed good internal consistency among women in midlife (α = .95; McLean, Paxton, & Wertheim, 2011) and women who have undergone treatment for breast cancer (α = .77-.85; Lewis-Smith, Diedrichs, & Harcourt, 2019). Internal consistency in the current sample was also good for both women who had (α = .90) or had not (α = .94) been treated for breast cancer.

**Upward appearance comparisons.**  The ten-item Upwards Comparison subscale (UPACS) from the Upwards and Downwards Physical Appearance Comparison Scale (O’Brien et al., 2009) assessed women’s tendency to compare themselves with individuals they considered more physically attractive. An example item is, “*I compare myself to those who are better looking than me rather than those who are not*”. Each item is rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) and summed, with higher scores indicating a greater tendency to engage in upwards comparisons with others. The subscale has demonstrated good internal consistency (α = .94) among women (O’Brien et al., 2009). The internal consistency for the UPACS in the current sample was also good among women who had (α = .96) or had not (α = .95) received treatment for breast cancer.

**Body image.** Three different scales were employed to assess body image as a latent factor, given its multidimensional nature (Grogan, 2008). This approach has been employed previously (Menzel et al., 2011), and attempts to control for measurement error within the model (Kelloway, 1998). An overall higher score indicated poorer body image.

First, the seven-item Appearance Evaluation subscale of the Multidimensional Body-Self-Relations Questionnaire (MBSRQ-3; Cash, 2000) was used to assess thoughts and feelings regarding one’s physical appearance as a whole. An example item is, “*My body is sexually appealing*”. Items were rated on a 5-point Likert scale (1 = *definitely agree*, 5 = *definitely disagree*) and summed, with higher scores indicating greater dissatisfaction with physical appearance. The subscale has demonstrated acceptable internal consistency among young adult women (α = .88; Brown, Cash, & Mikulka, 1990), women in midlife (α = .68; Chang, Yang, & Chen, 2019), and women who have received treatment for breast cancer (α = .72-.79; Lewis-Smith et al., 2019). Internal consistency was good in the present sample among women who had (α = .89) or had not (α = .90) been treated for breast cancer.

Second, the Body Areas Satisfaction Scale of the MBSRQ-3 (Cash, 2000) was used to assess satisfaction with specific aspects of appearance, including the face, hair, lower torso, mid torso, upper torso, muscle tone, weight, height, and overall appearance. Items were rated on a 5-point Likert scale (1 = very satisfied, 5 = very dissatisfied) and summed, with higher scores indicating greater body dissatisfaction. Good internal consistency has been reported previously among women in midlife (α = .81; Slevec & Tiggemann, 2010) and women who have received treatment for breast cancer (α = .76-.90; Lewis-Smith et al., 2019). Internal consistency was good in the present sample among women who had (α = .83) or had not (α = .85) been treated for breast cancer.

Finally, the 13-item Body Appreciation Scale (Avalos, Tylka, & Wood-Barcalow, 2005) was used to assess body acceptance and respect. An example item is, “*Despite its flaws, I accept my body for what it is*”. Items were rated on a 5-point Likert scale (1 = never, 5 = always) and summed, whereby higher scores indicate higher levels of body appreciation. In this study, the direction of the subscale was reversed, in order to ensure consistency of direction in all three scales within the latent variable. Avalos et al. (2005) reported good internal consistency among young adult women (α = .91–.94). The scale has also indicated good internal consistency among women in midlife (α = .92; Robbins & Reissing) and among women who have received treatment for breast cancer (α = .76-.90; Lewis-Smith et al., 2019). Internal consistency was good in the present sample among women who had (α = .93) or had not (α = .94) been treated for breast cancer.

**Control variables.** Control variables included age, BMI (calculated using self-reported weight and height), whether or not one had at least an undergraduate degree, and whether or not one had experienced menopause.

**Data Analyses**

Analyses were conducted using two-group structural equation modelling (SEM) models. First, model variables were examined and compared for significant differences between groups using a series of *t*-tests. SEM was conducted in two stages to compare the fit of the model within each subsample of women: evaluation of the measurement model, and evaluation of the structural model. Model fit was evaluated using the following indices of fit: chi-square (whereby a non-significant value indicates acceptable fit), root mean square error of approximation (RMSEA; whereby a value less than .09 indicates acceptable fit), standardized root mean square residual (SRMR; whereby a value less than .08 indicates acceptable fit), and Bentler’s comparative fit index (CFI; whereby a value greater than .95 indicates acceptable fit). We did not use modification indices since the structural model was saturated. All analyses were carried out using Mplus Version 8.0. See Figure 1 for the hypothesized and tested model.

**Results**

**Data Screening**

Examination of the data revealed no issues of skewness, kurtosis or outliers. There was little missing data on the primary study variables, ranging from 0% to 3%, except for BMI where 35 cases (7%) had missing data. Listwise deletion on the independent variables (i.e., the four sources of pressure plus the control variables) would have resulted in 40 cases (8%) being deleted. To avoid this, missing values were imputed using the EM algorithm.

**Descriptive Statistics**

The means, standard deviations, and ranges for the model variables are displayed in Table 2. Upon examination of the *t*-tests, women who had undergone treatment for breast cancer had significantly poorer body image, as indicated by both the appearance evaluation subscale and body areas satisfaction subscale of the MBSRQ-3. There was also a significant difference between groups on perceived pressure from the media to alter appearance, whereby felt pressure was higher for women who had not undergone treatment for breast cancer. No other significant differences were identified for other model variables.

**Correlations between Model Variables**

A correlational analysis was conducted to explore the bivariate relationships between variables proposed within the model, as these provide the basis for testing the proposed model (Schumacker & Lomax, 1996). Table 3 presents correlations between all variables for both groups of women, with and without controlling for BMI. Among both groups, the analyses revealed significant correlations and patterns consistent with the hypothesized model. However, correlations were stronger when BMI was not controlled for, and thus, BMI was included as a covariate in the subsequent testing of the model.

**Measurement of Body Image**

 We compared the measurement of body image between the groups of women who had, or had not, undergone treatment for breast cancer. In order to be comparable, there should be measurement invariance between the two groups (Millsap, 2012). Imposing equal factor loadings – weak factorial invariance – did not result in a significantly worse fit (χ2 (2) = 0.41, *p*  = .81) and imposing, in addition, equal intercepts – strong factorial invariance – also did not result in a significantly worse fit (χ2 (4) = 2.79, *p* = .59). Thus, the measurement of body image was comparable across the two groups. There was a non-significant trend for those in the breast cancer group to be more dissatisfied with their body (mean difference = 0.20, z = 1.90, *p* = .058).

**Evaluation of the Model**

 Initially, we ran a model where body image was predicted from each source of pressure individually and directly from internalisation and a tendency to compare oneself with others. See Table S1 in the supplementary information for these results. Having established that the study variables were all significantly related to body image, a model was constructed to evaluate the independent effects of each source of pressure on body image, with comparison tendency and internalisation as mediating variables, as per the Tripartite Influence Model. The two-group structural equation model was run with bootstrap standard errors with 10,000 replications. The overall fit of the model was satisfactory ((χ2 (44) = 108.24, p < .001; CFI = .97, RMSEA = .08; SRMR = .02). Sources of misfit arose because the only paths to indicators of body image were via the latent body image variable. The remainder of the model was saturated, and thus, no modifications were made. Table 4 displays the unstandardized and standardized path coefficients separately for the two groups of participants. Figure 2 displays the path diagram showing the significant standardised coefficients for women who had not undergone treatment for breast cancer, whilst Figure 3 displays those for women who had. Table 5 shows the indirect effects tested using bootstrap standard errors (MacKinnon, 2012).

Among women who had not undergone treatment for breast cancer, body image was predicted by both internalisation of cultural appearance ideals and the tendency to make upward social comparisons. Additionally, pressure from friends had a direct effect and pressure from the media had significant mediated effects via comparison tendency and internalisation. For women who had undergone treatment for breast cancer, pressure from the media had a direct effect and an effect significantly mediated by comparison tendency, although not by internalisation.

For women who had not undergone treatment, the model explained 55% of the variance in Internalisation, 36% of the variance in Appearance Comparisons, and 54% of the variance in Body Image. For women who had undergone treatment for breast cancer, the model explained 44% of the variance in Internalisation, 33% of the variance in Appearance Comparisons, and 50% of the variance in Body Image.

**Discussion**

The aim of this study was to evaluate an extension of the Tripartite Influence Model of body image (Thompson et al., 1999) among two groups of midlife women: those who had, and had not, undergone treatment for breast cancer. In both samples, a reduced model consisting of fewer pathways than the original Tripartite Influence Model indicated a better fit. To our knowledge, this is the first study to test the Tripartite Influence Model of body image among women who have undergone treatment for breast cancer. Additionally, it is the first to test all sociocultural influences within the Tripartite Influence Model among women in midlife.

The influence of media pressure on body image was salient for both groups of women in midlife. This is unsurprising, given the recognised underrepresentation of midlife and older women in the media and the prevalence of anti-ageing product advertising and messaging (Bazzini et al., 1997; Hofmeier et al., 2017; Wasylkiw et al., 2009). The adverse impact of media pressure on body image has been identified previously among women in midlife who have not received treatment for breast cancer (Lewis & Cachelin, 2001; Paquette & Raine, 2004; Rodgers, Paxton, McLean, & Damiano, 2016; Slevec & Tiggemann, 2011). Among this group in the present study, media pressure was suggested to have an indirect influence on body image through both internalisation of cultural appearance ideals and the tendency to make upward appearance comparisons. This finding is also consistent with previous evaluations of the model among younger groups of women (Rodgers et al., 2011; Shroff & Thompson, 2006).

Among women treated for breast cancer, however, only appearance comparisons emerged as a mediator of media pressure. This is unsurprising, given the stronger correlations between appearance comparisons and measures of body image, compared with those between internalisation and these variables. Whilst overall perceived pressure from a variety of sociocultural sources (family/friends/health professionals/media) has been related to poorer body image among this group previously (Przezdziecki et al., 2013), the present study extends these findings and suggests a mechanism by which media pressure may exert its effects. Given that treatment-related appearance changes move midlife women further from cultural appearance ideals beyond natural ageing-related appearance changes alone, it is unsurprising that these women may engage in upward appearance comparisons.

In contrast to women who had not been treated for breast cancer, internalisation did not emerge as a mediator of media pressure among breast cancer survivors. Qualitative research has highlighted a longing among women who have undergone breast cancer treatment to look like the previous version of themselves prior to the cancer diagnosis (Brunet, Sabiston, & Burke, 2013; Koçan & Gürsoy, 2016). Thus, it may be the case that internalisation of a “pre-cancer” appearance ideal of themselves is more strongly related to body image, compared with internalisation of appearance ideals presented in media as was measured in the current study. In contrast, women who have not received treatment for breast cancer may not have had to experience such a drastic change in their own appearance, and thus still internalise and strive to look like external cultural appearance ideals. Among women treated for breast cancer, an additional direct pathway was indicated between media pressure and body image. Further, bivariate relationships between media pressure and measures of body image showed moderate to strong correlations. Collectively, this suggests that this independent direct pathway may be mediated by other variables which have not been accounted for in the model. For example, appearance investment and self-compassion have been associated with body image among women treated for breast cancer (Moreira & Canavarro, 2010; Przezdziecki et al., 2013), and warrant future exploration as potential mediators.

The proposed indirect pathways between pressure from friends and body image were non-significant among both groups of women. However, a direct effect of pressure from friends emerged among women who had not undergone treatment for breast cancer. This finding is congruent with previous evaluations of the Tripartite Influence Model among younger samples of women, which have also suggested this direct, rather than indirect, pathway (Rodgers et al., 2011; Tylka, 2011). The influence of friends in the context of body image has been explored qualitatively among women in midlife (Paquette & Raine, 2004). There is recognition among women that they and their female friends transmit and reinforce sociocultural messages about appearance, and consequently increase pressure for themselves. Thus, it is likely that other mediators may account for the influence of friends’ pressure on body image among this group of midlife women in the present study. For example, ageing anxiety has been associated with poorer body image among women in midlife (Lewis & Cachelin, 2001; McKinley & Lyon, 2008). One might expect that conversations between friends regarding their fears of an ageing appearance could lead them to feel greater pressure and anxiety relating to their own ageing appearance, which in turn might lead to poorer body image. These proposed mediators are speculative, however, the moderate bivariate relationships between pressure from friends and measures of body image among this group indicate that they warrant further exploration.

In contrast, pressure from friends did not emerge as a pertinent influence among women who had received treatment breast cancer. This may be due to friends no longer representing relevant comparison targets, or friends being deliberately cautious around conversations relating to appearance. Indeed, breast cancer survivors have reported receiving compliments from their friends about their “new” appearance (e.g., the new colour and texture of their hair during re-growth; Thornton & Lewis-Smith, under review) and how this has benefited their body image. Therefore, whilst breast cancer survivors may be protected from pressure from friends, media pressure is difficult to avoid irrespective of whether one has been treated for breast cancer or not. Nonetheless, further research is needed to support this proposition.

The absence of family as a significant influence on body image among both groups of women contrasts with research conducted with adolescent girls and young women, which has indicated parental pressure as a key factor (Keery et al., 2004; Rodgers & Chabrol, 2009; Rodgers et al., 2011). The present findings also contradict previous cross-sectional research conducted among women in midlife who have not undergone treatment for breast cancer (Green & Pritchard, 2003). However, it is important to note that this previous study did not exclusively target women in midlife, with participants as young as 19 years and a lower mean age (42 years) than participants in the present research (47-49 years). Further, in contrast to our broader assessment of pressure to “change appearance”, the earlier research assessed perceived pressure to lose weight, specifically. Nonetheless, this suggests that family pressure may be more salient to younger women.

Given the “double standard of ageing” (Wilcox, 1997), whereby Western norms associate women’s ageing with a deterioration in physical attractiveness (Saucier, 2004), it is unsurprising that women in midlife report feeling irrelevant and invisible as they have gotten older (Clarke & Griffin, 2008; Hofmeier et al., 2017; Rodgers et al., 2016). Arguably, as women become more “invisible”, family members may comment less on their appearance. An alternative explanation is that women in midlife may develop resilience or ways to counteract pressure from family, due to placing less importance on appearance compared with when they were younger, and instead prioritising other aspects of their lives (Banister, 1999; Ogle & Damhorst, 2005). Indeed, previous research conducted among women in midlife highlighted a recognition of their important role as mothers in influencing their children’s body image (Rodgers et al., 2016). Serving as role models for their daughters, they wished to instil positive body image and self-worth independent of appearance. Relatedly, strong social support networks with family members have also been reported to protect midlife women from experiencing body image concerns and engaging in appearance changes (Banister, 1999; Clarke & Griffin, 2008).

Whilst the unobserved influence of partner pressure on body image among both groups contradicts previous findings (Mclaren et al., 2004; Wimberly et al., 2005), the differences in measures employed to assess partner pressure across the studies should be highlighted. McLaren and colleagues (2004) focused on partners’ comments regarding weight and shape among women in midlife, whereas Wimberly and colleagues (2005) focused on breast cancer survivors’ perceptions of partners’ adverse responses to their surgical scar. These specific examples contrast with the measure employed in the present study, which assessed perceived pressure from a partner to alter appearance more broadly. This may have consequently impacted on participants’ ability to draw on instances of perceived pressure, and thus may have not captured instances where women had actually experienced partner pressure to alter their appearance.

An alternative explanation for the findings may be related to previous research suggesting that a woman’s own perception of her partner’s preferences in relation to her appearance (e.g., body shape and size) can influence her body image (McKinley, 1999; Paquette & Raine, 2004; Tantleff-Dunn & Thompson, 1995). Similarly, studies conducted among women treated for breast cancer highlight concerns regarding partners’ perceptions, and fears that they may find their body unattractive or undesirable (Elmir, Jackson, Beale, & Schmied, 2010; Ghizzani, Bruni, & Luisi, 2018; Koçan & Gürsoy, 2016; Sheppard & Ely, 2008). Collectively, this suggests that both groups of women in midlife may pressurize themselves to look attractive for their partner, as opposed to experiencing direct pressure from their partner to change their appearance. Alternatively, other groups of women who have been in stable and long-term relationships may be less invested in appearing attractive and sexually desirable to their partner; instead caring more about companionship (Laus, Almeida, & Klos, 2018; Montemurro & Gillen, 2013). These women may also reject and challenge any direct pressures from their partners to change their appearance (e.g., being told to lose weight), due to accepting their bodies and expecting their partners to do the same (Paquette & Raine, 2004; Tunaley, Walsh, & Nicolson, 1999).

Finally, it is important to note that these inconsistent findings may be due to the small number of body image studies conducted among women in midlife. In contrast to our knowledge of body image among younger women and adolescents, the factors of relevance to women in midlife have still not been consistently measured. Nonetheless, the present study is the first to test an established and supported sociocultural model of body image among women in midlife who have undergone treatment for breast cancer and findings suggest that media pressure is the most influential source of pressure among both groups of midlife women. However, the limitations of the study are important to acknowledge.

Firstly, whilst the overall sample size was respectable, the group of women treated for breast cancer (*n* = 169) was low according to SEM guidance. The test model had 22 parameters altogether (15 paths, 6 residuals 1 residual covariance), whereas cases per parameter is recommended. Nonetheless, the sample of women was considerable larger than many other cross-sectional studies of this nature and with this group (e.g., Boquiren et al., 2016; Kowalczyk et al., 2019). An additional limitation relates to the measure of perceived pressure from media only explicitly taking traditional media (e.g., TV, magazines) into account, rather than additionally considering “newer” social media platforms (e.g., Facebook, Instagram), which also incorporate the influence of peers. It is unknown whether some women automatically considered social media regardless of its explicit mention. However, less than 50% of users aged 37 years and above are users of social media (Poushter, Bishop, & Chwe, 2018). Nonetheless, the use of such platforms has been associated with increased body image concerns among young adult women (Fardouly & Vartanian, 2016; Saiphoo & Vahedi, 2019), and thus warrants future study among women in midlife. varnic diversity among the sample must also be recognised, thus limiting generalisability and potential implications of the findings. Indeed, this is consistent limitation of breast cancer research more broadly, especially in the UK. This is potentially because Black and Minority Ethnic (BME) women tend to be diagnosed at more advanced stages of breast cancer than White women (Farooq & Coleman, 2005; Jack, Davies & Moller, 2009), cultural taboos and stigma relating to cancer may prevent some BME women from publicly discussing their experiences (Patel-Kerai, Harcourt, Rumsey, Naqvi, & White, 2016), and BME women are underserved by existing support services and networks that are often utilised to assist with recruitment in studies such as ours (Department of Health, 2011). Future research must try to recruit more diverse and representative samples, particularly as prior research indicates that BME women may be at greater risk for psychosocial distress and poorer quality of life after breast cancer treatment (Patel-Kerai et al., 2016). Finally, while SEM allows the evaluation of the strength of causal relationships as predicted by a model, it is important to recognise its limitation as a correlational technique given the present cross-sectional design. Prospective research is therefore needed to verify the directions of causality proposed within the model.

Despite the limitations of the study, these novel findings provide important implications for practice, theory, and research. They suggest novel and modifiable influences on body image which could be taken into consideration by health professionals working with women who have received treatment for breast cancer. Indeed, existing treatment approaches might be modified to encapsulate the influence of media pressure and appearance comparisons on body image. These strategies would require evaluation before implementation. The present findings also have implications for the extent to which the Tripartite Influence Model of body image is able to accurately conceptualise the body image of women in midlife, and in particular, those who have undergone treatment for breast cancer. Media was indicated as the only relevant source of pressure to influence body image among this subgroup, with appearance comparisons serving as a mediator. The consideration of these broader, targetable, and appearance-focused influences extends research in the area, which has primarily focused on the influence of non-modifiable diagnosis- and treatment- related factors (e.g., tumour characteristics, modality of treatment; Collins et al., 2011; Härtl et al., 2003). Finally, the present research constitutes a promising start to investigating broader sociocultural and psychological influences on body image among women treated for breast cancer. There was large variability with regard to time since treatment among women in this study. However, a future direction for research might be to evaluate the extended Tripartite Influence Model among women currently undergoing treatment (i.e., before the full range of treatment-related appearance changes have occurred). If the influences within the model were found to be of relevance during treatment, this might have implications for intervening earlier on, and thus ameliorating adverse effects on body image following treatment. Further, the present findings indicate that other variables not measured in this study are likely to be of relevance for this group and worthy of further research, such as those indicated to influence the body image of women in midlife (e.g., appearance investment, ageing anxiety, and self-care; McKinley & Lyon, 2008; McLean, Paxton, & Wertheim, 2010; Webster & Tiggemann, 2003).

**Conclusions**

The number of women surviving breast cancer is growing, and this group is vulnerable to experiencing body image concerns associated with treatment-related appearance changes. However, existing interventions for breast cancer survivors indicate little promise with regard to improving body image (Lewis-Smith et al., 2018). The current state of the evidence reflects researchers’ tendency to focus on identifying non-modifiable disease- and treatment- related factors. This study constitutes a promising first step to exploring modifiable sociocultural and psychological influences on body image in the group, which could inform currently used treatment approaches.

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Table 1.

*Demographic and Medical Characteristics of the Sample (N =492)*

|  |  |  |
| --- | --- | --- |
| **Characteristic** | **Women not treated for Breast Cancer (*n* = 323)** | **Women treated for Breast Cancer (*n* = 169)** |
|  | M (SD) | M (SD) |
| Age at baseline (years)\* | 47.6 (8.4) | 49.9 (8.2) |
| BMI | 26.3 (6.5) | 26.8 (5.9) |
| Months since diagnosis |  | 48.8 (51.5) |
| Months since treatment |  | 21.7 (26.4) |
|  | N (%) | N (%) |
| Ethnicity |  |  |
| White | 308 (95.3) | 165 (97.6) |
| Asian/Asian British | 9 (2.8) | 0 (0.6) |
| Black/African/Caribbean/Black British | 1 (0.3) | 1 (0.6) |
| Mixed/Multiple Ethnic Group | 5 (1.5) | 2 (1.2) |
| Relationship Status |  |  |
| Single | 26 (8.0) | 24 (14) |
| Married/In a relationship | 261 (73.6) | 124 (73.4) |
| Divorced/Separated | 31 (9.8) | 17 (10.1) |
| Widowed | 5 (1.5) | 3 (1.8) |
| Prefer not to say | 0 (0.0) | 1 (0.6) |
| Parenthood |  |  |
| At least one child | 239 (74.5) | 134 (79.9) |
| Employment status\* |  |  |
| Employed (full or part-time) | 274 (84.8) | 123 (72.8) |
| Unemployed or Homemaker | 23 (7.1) | 13 (7.7) |
| Retired | 16 (5.0) | 23 (13.6) |
| Prolonged sick leave | 3 (0.9) | 7 (4.1) |
| Student | 7 (2.2) | 0 (0) |
| Prefer not to say | 0 (0.0) | 3 (1.8) |
| Highest level of formal education\* |  |  |
| GCSE/O-Level or equivalent | 22 (6.8) | 24 (14.2) |
| A-Level or equivalent | 19 (5.9) | 15 (8.9) |
| Higher education certificate or diploma | 52 (16.1) | 33 (19.5) |
| Undergraduate/Postgraduate degree | 229 (70.9) | 94 (55.6) |
| No qualifications | 1 (0.3) | 3 (1.8) |
| Menopausal status\* |  |  |
| Premenopausal | 192 (52.9) | 41 (24.2) |
| Postmenopausal | 108 (29.7) | 67 (39.6) |
| Medical menopause | 9 (2.5) | 59 (34.9) |
| Type of cancer |  |  |
| Invasive |  | 129 (76.3) |
| Non-invasive |  | 25 (14.8) |
| Surgical treatment1 |  |  |
| Lumpectomy |  | 61 (36.1) |
| Mastectomy without reconstruction |  | 43 (25.4) |
| Mastectomy with reconstruction |  | 79 (46.7) |
| Adjuvant treatment1 |  |  |
| Chemotherapy |  | 116 (68.6) |
| Radiotherapy |  | 111 (65.7) |
| Hormonal therapy |  | 127 (75.1) |
|  |  |  |

\*p<0.005

*Note.* 1Cumulative percentage may exceed 100 as participants were allowed to select more than one type, reflecting the likelihood that they had received a combination of different treatments.

Table 2.

*Mean, Standard Deviation, and Range for Model Variables*

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Women not treated for breast cancer (*n* = 323)** | **Women treated for breast cancer****(*n* = 169)** |  |
| **Variable** | **Mean (SD)** | **Range** | **Mean (SD)** | **Range** | ***t (df* = 490)** |
| Appearance evaluation1 | 3.14 (0.93) | 1.29 – 5.222 | 3.31 (0.82) | 1.14 – 5.00 | -1.95\* |
| Body areas dissatisfaction1  | 2.97 (0.73) | 1.00 – 5.00 | 3.11 (0.69) | 1.22 – 4.89 | -2.00\* |
| Body appreciation1 | 33.83 (11.05) | 13 - 65 | 34.90 (10.14) | 13 - 62 | -1.05 |
| Internalisation | 2.20 (1.01) | 1.00 – 5.00 | 2.12 (0.87) | 1.00 – 5.00 | 0.81 |
| Comparisons | 2.65 (1.06) | 1.00 – 5.00 | 2.53 (1.07) | 1.00 – 5.00 | 1.19 |
| Media pressure | 2.54 (1.27) | 1.00 – 5.00 | 2.27 (1.19) | 1.00 – 5.00 | 2.26\* |
| Partner pressure | 1.98 (1.11) | 1.00 – 5.00 | 2.11 (1.16) | 1.00 – 5.00 | -1.13 |
| Friends pressure | 1.83 (0.97) | 1.00 – 5.00 | 1.79 (0.97) | 1.00 – 5.00 | 0.42 |
| Family pressure | 2.18 (1.25) | 1.00 – 5.00 | 2.02 (1.15) | 1.00 – 5.00 | 1.45 |

*\* p < .05*

*Note.* 1Higher values indicate poorer levels of body image. 2Upper range beyond scale as missing values imputed using the EM algorithm.

Table 3.

*Correlations between Model Variables*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Media pressure (1) | Partner pressure (2) | Family pressure (3) | Friends’ pressure (4) | Internalisation (5) | Appearance comparisons (6) | Appearance Evaluation (7) | Body Areas Satisfaction (8) | Body Appreciation (9) | BMI(10) |
| (1) |  |  | **0.41\*\*** | 0.37\* | **0.42\*\*** | 0.36\*\* | **0.41\*\*** | 0.34\*\* | **0.50\*\*** | 0.52\*\* | **0.51\*\*** | 0.55\*\* | **0.32\*\*** | 0.48\*\* | **0.52\*\*** | 0.50\*\* | **0.37\*\*** | 0.48\*\* | 0.14 |
| (2) | **0.28\*\*** | 0.28\*\* |  |  | **0.47\*\*** | 0.39\*\* | **0.52\*\*** | 0.46\*\* | **0.21\*\*** | 0.26\*\* | **0.24\*\*** | 0.26\*\* | **0.26\*\*** | 0.23\* | **0.28\*\*** | 0.21\* | **0.33\*\*** | 0.23\* | 0.06 |
| (3) | **0.40\*\*** | 0.36\*\* | **0.47\*\*** | 0.46\*\* |  |  | **0.67\*\*** | 0.62\*\* | **0.16\*** | 0.19\* | **0.24\*\*** | 0.32\*\* | **0.39\*\*** | 0.27\*\* | **0.45\*\*** | 0.23\*\* | **0.36\*\*** | 0.29\*\* | 0.27 |
| (4) | **0.38\*\*** | 0.34\*\* | **0.52\*\*** | 0.56\*\* | **0.67\*\*** | 0.64\*\* |  |  | **0.20\*\*** | 0.14 | **0.24\*\*** | 0.27\*\* | **0.40\*\*** | 0.16\* | **0.43\*\*** | 0.17\* | **0.36\*\*** | 0.13 | 0.15 |
| (5) | **0.53\*\*** | 0.55\*\* | **0.21\*\*** | 0.20\*\* | **0.16\*\*** | 0.21\*\* | **0.20\*\*** | 0.23\*\* |  |  | **0.70\*\*** | 0.62\*\* | **0.30\*\*** | 0.41\*\* | **0.40\*\*** | 0.41\*\* | **0.47\*\*** | 0.45\*\* | -.04 |
| (6) | **0.55\*\*** | 0.56\*\* | **0.24\*\*** | 0.26\*\* | **0.24\*\*** | 0.30\*\* | **0.24\*\*** | 0.29\*\* | **0.70\*\*** | 0.71\*\* |  |  | **0.32\*\*** | 0.41\*\* | **0.44\*\*** | 0.78\*\* | **0.51\*\*** | 0.49\*\* | -.12 |
| (7) | **0.32\*\*** | 0.31\*\* | **0.26\*\*** | 0.26\*\* | **0.39\*\*** | 0.27\*\* | **0.40\*\*** | 0.33\*\* | **0.30\*\*** | .39\*\* | **0.32\*\*** | 0.38\*\* |  |  | **0.84\*\*** | 0.79\*\* | **0.79\*\*** | 0.80\*\* | 0.32\*\* |
| (8) | **0.37\*\*** | 0.38\*\* | **0.28\*\*** | 0.25\*\* | **0.45\*\*** | 0.33\*\* | **0.43\*\*** | 0.35\*\* | **0.40\*\*** | 0.52\*\* | **0.44\*\*** | 0.53\*\* | **0.84\*\*** | 0.79\*\* |  |  | **0.81\*\*** | 0.77\*\* | 0.23\*\* |
| (9) | **0.37\*\*** | 0.40\*\* | **0.33\*\*** | 0.29\*\* | **0.36\*\*** | 0.26\*\* | **0.36\*\*** | 0.32\*\* | **0.47\*\*** | 0.56\*\* | **0.51\*\*** | 0.58\*\* | **0.79\*\*** | 0.75\*\* | **0.81\*\*** | 0.77\*\* |  |  | -.02 |
| (10) | 0.12\* | 0.29\* | 0.41\*\* | 0.29\*\* | -0.12\* | -0.08 | 0.44\*\* | 0.41\*\* | 0.34\*\* |  |

*Note:* Values for women treated for breast cancer are shaded; values for women not treated for breast cancer treatment are not shaded. Bold values indicate that BMI was not controlled for. \**p* $\leq $ 0.05, \*\* BMI *p* $\leq $ 0.005.

Table 4.

*Path Coefficients for Model*

|  |  |  |
| --- | --- | --- |
|  | **Unstandardised** | **Standardised** |
| **Pathway** | **Women not treated for breast cancer** | **Women treated for breast cancer** | **Women not treated for breast cancer** | **Women treated for breast cancer** |
| **Body image on** |  |  |  |  |
| Internalisation | 0.223\*\* | 0.074 | 0.271\*\* | 0.084 |
| Comparison tendency | 0.226\*\* | 0.153\* | 0.287\*\* | 0.217\* |
| Media pressure | -0.022 | 0.214\*\* | -0.034 | 0.338\*\* |
| Partner pressure | 0.023 | 0.006 | 0.031 | 0.009 |
| Friends pressure | 0.123\* | 0.012 | 0.143\* | 0.015 |
| Family pressure | 0.068 | 0.06 | 0.102 | 0.092 |
| **Internalisation on** |  |  |  |  |
| Comparisons | 0.545\*\* | 0.390\*\* | 0.567\*\* | 0.483\*\* |
| Media pressure | 0.168\*\* | 0.195\*\* | 0.211\*\* | 0.268\*\* |
| Partner pressure | 0.041 | 0.059 | 0.045 | 0.08 |
| Friends pressure | 0.01 | -0.065 | 0.01 | -0.073 |
| Family pressure | -0.073 | -0.032 | -0.09 | -0.043 |
| **Comparison tendency on** |  |  |  |  |
| Media pressure | 0.401\*\* | 0.41\*\* | 0.482\*\* | 0.456\*\* |
| Partner pressure | 0.084 | 0.056 | 0.089 | 0.06 |
| Friends pressure | 0.022 | -0.04 | 0.02 | -0.036 |
| Family pressure | 0.04 | 0.119 | 0.048 | 0.128 |

\* *p* < .05; \*\* *p* < .01

Table 5.

*Standardised Indirect Effects for Model*

|  |  |  |
| --- | --- | --- |
| **Indirect pathway** | **Women not treated for breast cancer** | **Women treated for breast cancer** |
| Media pressure – Internalisation – Body image | .057\*\* | .023 |
| Media pressure – Comparisons – Body image | .138\*\* | .099\* |
| Media pressure – Comparisons – Body image | .074\*\* | .019 |
| Partner pressure – Internalisation – Body image | .012 | .007 |
| Partner pressure – Comparisons– Body image | .025 | .013 |
| Partner pressure – Comparisons – Internalisation– Body image | .014 | .002 |
| Friends pressure – Internalisation – Body image | .003 | -.006 |
| Friends pressure – Comparisons – Body image | .006 | -.008 |
| Friends pressure – Comparisons – Internalisation – Body image | .003 | -.001 |
| Family pressure – Internalisation -– Body image | -.024 | -.004 |
| Family pressure – Comparisons– Body image | .014 | .028 |
| Family pressure – Comparisons – Internalisation – Body image | .007 | .005 |

\* *p* < .05 \*\* *p* < .01

Appearance Evaluation

Body Areas Satisfaction

Body Appreciation

Internalisation

Appearance comparisons

Media influence

Partner influence

Family influence

Friends influence

*Figure 1.* Hypothesized and tested model

AppearanceEvaluation

Body Areas Satisfaction

Body Appreciation

Internalisation

Appearance comparisons

Media influence

Partner influence

Family influence

Friends influence

0.21\*\*

**55%**

**54%**

0.81

0.27\*\*

0.48\*\*

0.86

0.14\*

0.57\*\*

0.78

0.29\*\*

**36%**

*Figure 2.* Final model with standardized coefficients for women who had not undergone treatment for breast cancer.

\* *p* <.05*; \*\* p <* 0.01.

*Note.* Only significant standardised coefficients shown. Age, BMI, menopausal status, and degree status were also entered as control variables but are not shown in the diagram.

Appearance Evaluation

Body Areas Satisfaction

Body Appreciation

Internalisation

Appearance comparisons

Media influence

Partner influence

Family influence

Friends influence

0.34\*\*

0.22\*

**44%**

0.27\*\*

0.84

**50%**

0.46\*\*

0.79

0.48\*\*

0.77

**33%**

*Figure 3.* Final model with standardized coefficients for women who had undergone treatment for breast cancer.

\* *p* <.05*; \*\* p <* 0.01

*Note.* Only significant standardised coefficients shown. Age, BMI, menopausal status, and degree status were also entered as control variables but are not shown in the diagram.