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Is social engagement linked to body image and depression among aging women?

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Abstract

Maintaining an active and engaged social life is a critical component of aging well, and women are generally more socially active than men. However, as women age their self-perceptions of their bodies may reduce social behaviors and consequently, increase depressive symptoms. Because little is known about how body image is associated with social engagement and depressive symptoms among aging women, four aspects of body image: satisfaction with cosmetic features, body function, physical appearance, and weight were assessed among women aged 65 and older ($n=123$). Regression analyses indicated that cosmetic appearance, body function, and physical appearance were associated with depressive symptoms, whereas satisfaction with weight was unrelated. Further, both greater satisfaction with cosmetic features and body function were associated with higher levels of social engagement, and social engagement mediated the association between these aspects of body satisfaction and depressive symptoms. The findings indicate that specific age-relevant aspects of body satisfaction are linked to social behavior and depression among aging women, and reduced body satisfaction may lead to lower social engagement, and consequently aging women's health and well-being may be diminished.

Keywords

Aging; body image; depression; social engagement; women

Introduction

For older adults, maintaining an active and engaged social life is a critical component of aging well. Higher levels of social engagement appear to protect against negative health outcomes among this population (Bath & Deeg, 2005; Herzog, Ofstedal, & Wheeler, 2002; Nummela, Sulander, Rahkonen, Karisto, & Uutela, 2008), and women in particular may reap these benefits as they are, on average, more socially engaged than men (Antonucci, 1994). However, older women may also face bodily concerns that inhibit them from engaging socially (Donnelly, Clarke, Phinney, & MacEntee, 2015), and may impact mental health. Body perceptions have been associated with social behavior among younger women (Davison & McCabe, 2005; Geiger, Sabik, Lupis, Rene, & Wolf, 2014), and it is possible that older women who are less satisfied with their bodies may be less socially engaged.

As women age, they may move further from cultural beauty ideals which are based on maintaining a youthful appearance (Garner, 1999; Peat, Peyerl, & Muehlenkamp, 2008). While this may suggest that body image has less of an impact on older women, research has suggested that body image is a significant predictor of health and well-being for aging women (Kilpela, Becker, Wesley, & Stewart, 2015), and appearance may not be the most salient aspect of body image. Older women's body concerns may change with age, and older women have reported placing value on different aspects of the body as they age, such as valuing functional aspects of the body over cosmetic or appearance related features (Hurd, 2000). Further, body perceptions are a consistent predictor of depressive symptoms among women at midlife (Sabik, 2015), yet less is known about whether older women experience depressive symptoms in conjunction with low body esteem. Tracing the pattern of association between body perceptions, social engagement, and depression among older women is a critical first step in interrupting potential negative pathways that affect quality of life for women in later stages of life.

Social Engagement and Aging

Social integration theory explains that social relations, and specifically integration into the social structure, shape an individual's health (Thomas, 2011). Social integration includes social relationships and the norms and cultural values that are shared between members of society. Social engagement has a powerful influence over individual's health and well-being, and has been defined as the many and varied activities performed in the context of the social environment (Herzog et al., 2002). These activities may include social interaction with family, friends, and acquaintances, personal care or housework, productive involvement in the community (e.g., volunteering), leisure activities, and educational activities (Herzog et al., 2002). Sustained engagement in productive activities and social relationships in old age is one component of successful aging (Rowe & Kahn, 1997).

Researchers have found higher levels of social engagement among older adults to be associated with lower mortality rates (Kiely & Flacker, 2003), lower dementia risk (Fratiglioni, Paillard-Borg, & Winblad, 2004), lower levels of depressive symptoms (Glass, De Leon, Bassuk, & Berkman, 2006) and better self-reported health (Nummela et al., 2008). For older women in particular, more time spent socially engaged has been linked to lower levels of physical and cognitive limitations (Thomas, 2011). Despite a significant body of work linking social engagement to psychological and health related outcomes, psychosocial influences on engagement are underexplored among this population.

Older women's social interactions may be influenced by social norms and cues that indicate that women's social value decreases with age. As women move beyond their reproductive years, they may be less visible in society (Garner, 1999; Saucier, 2004; Wilcox, 1997). One way this is evident is in cultural representations of aging women's bodies. The cultural focus on representations of youthful, thin bodies may be of particular concern for women ages 65 and older, as many visible signs of aging begin to emerge at this developmental period (Bedford & Johnson, 2006).

Impact of Aging Women's Body Perceptions

Negative representations of aging women's bodies and the cultural emphasis on retaining a youthful appearance have the potential to impact older women's self-perceptions, because individuals internalize cultural messages about the body (Fredrickson & Roberts, 1997) as well as age (Levy, 2009). Specifically, Levy (2009) proposed stereotype embodiment theory to explain how stereotypes about older adults are internalized, and the embodiment of these negative images of aging influences health and functioning. Research has demonstrated that cultural messages about age impact self-perceptions of the body (Sabik, 2015), and these perceptions have the potential to affect social participation, as women who are less satisfied with their bodies may withdraw socially.

As women age, they experience physical changes that may influence self-perceptions of the body. Body image is a multidimensional construct that impacts many aspects of life, including quality of life, psychological well-being, and health behaviors (Cash & Fleming, 2002; Grogan, 2006). Body image is shaped throughout the lifespan by cultural influences, interpersonal relationships, individual experiences, and physical appearance (Chrisler & Ghiz, 1993). It is possible that older women may be at risk for negative body image because aging women's bodies are underrepresented in popular media (Bessenoff & Del Priore, 2007), and are often viewed or portrayed as unattractive or desexualized (Saucier, 2004). Evidence suggests that throughout the adult years, body satisfaction remains relatively stable (Bedford & Johnson, 2006; Prais & Janowsky, 2010; Tiggemann, 2004), although some older adults report less investment in appearance (Tiggemann, 2004; Tiggemann & Lynch, 2001), which may protect against negative body perceptions. Other studies have found that even as older women report being relieved from societal pressure to attend to body appearance, they continue to report concern about appearance and weight (Gosselink, Cox, McClure, & De Jong, 2008; Hurd, 2000). Further, researchers have suggested that women remain susceptible to body image concerns and associated unhealthy behavioral patterns, such as disordered eating (Clarke & Korotchenko, 2011; Lewis & Cachelin, 2001; Mangweth-Matzek et al., 2006; Webster & Tiggemann, 2003). These equivocal findings indicate that even though older women may feel less societal pressure to conform to appearance norms and invest less in appearance, body dissatisfaction remains a central psychosocial concern for this population.

A number of studies have suggested that self-perceptions of the body are linked to social behaviors. For example, among younger women, body perceptions have been linked to social interaction and engagement. Geiger et al. (2014) found that individuals who reported more negative social exchanges and felt their appearance was judged by others had higher levels of stress. Additionally, a small number of studies have demonstrated that body dissatisfaction was associated with avoidance of social interactions and social activities (Halliwell, 2015; Mills, Fuller-Tyszkiewicz, & Holmes, 2014). Although social interactions may have positive health benefits, social relationships may be stressful, particularly for individuals with low body esteem. Indeed, researchers have found that western beauty standards have a negative impact on women's social relationships with other women, and that this negatively impacts well-being, particularly in old age (Gosselink et al., 2008). However, little work has examined these patterns among older adults. One qualitative study

of older adults living in a long-term care facility examined oral health (e.g., teeth, dentures), body esteem, and social interactions, and found that for some participants self-consciousness about oral health inhibited social engagement (Donnelly et al., 2015). There is a need for more research on the social implications of body perceptions, as interpersonal interactions and social context have received little attention (Davison & McCabe, 2005), yet may account for behavioral and health outcomes associated with low body esteem.

Body image concerns are particularly relevant to examine among aging women, because older women's bodies have undergone—and are undergoing—physical changes that may impact self-perceptions of the body. In interviews with women in their sixties and older, Hurd (2000) found that many reported a shift from concerns about appearance features to functional aspects of the body. Women are more likely than men to experience chronic disease, and bodily changes related to health conditions may result in lower body esteem (Chrisler & Ghiz, 1993; Hurd, 2000). Focusing on what the body can *do* in addition to how the body looks may be a result of the functional limitations and health issues that older women face or anticipate facing. Just as functional limitations and associated health issues can affect body perceptions (Wilcox, 1997), various aspects of appearance remain central to aging women's self-concept (Hurd, 2000; Kilpela et al., 2015; Pliner, Chaiken, & Flett, 1990).

Aging women's reported concern with features such as hair color and texture and facial skin reflects that cosmetic features may remain an important component of older women's body image (Hurd, 2000; Kilpela et al., 2015). Concern with weight persists for women across the lifespan (Gagne et al., 2012), and has been reported as a distinct concern for many aging women (Hurd, 2000). Additionally, perceptions of physical appearance may be influenced by age-related physical changes such as redistribution of body fat, loss of muscle mass, and changes in skin elasticity (Kilpela et al., 2015; Tchkonja et al., 2010). Examining age-specific body perceptions, such as satisfaction with body function, cosmetic features, weight, and physical appearance is essential to retaining a multidimensional approach.

Body perceptions are a key concern for aging women (Kilpela et al., 2015), and have been linked to mental health as well as health behaviors for women at midlife and older (Clarke & Korotchenko, 2011; Lewis & Cachelin, 2001; Mangweth-Matzek et al., 2006; Sabik, 2015; Webster & Tiggemann, 2003). Specifically, depressive symptoms have been associated with poor body image among women at midlife (Jackson et al., 2014). Negative perceptions of the body—particularly in the face of bodily changes related to the aging process—may co-occur with higher rates of depressive symptoms for women at later stages of life. Further, if negative body perceptions are associated with lower levels of social engagement for women in this age range, this may account for higher levels of depressive symptoms. In other words, there may be an indirect effect of low body satisfaction on depressive symptoms via social engagement.

Study Aims—First, I hypothesized that women who report higher body satisfaction will also report greater social engagement and fewer depressive symptoms than those with low body satisfaction. Because little is known about how different aspects of body image may be associated with depressive symptoms and social engagement among aging women, four

aspects of body image, including satisfaction with cosmetic features, body function, physical appearance, and weight will be assessed separately. Second, I hypothesized that women who report higher levels of social engagement will report lower levels of depressive symptoms, and that social engagement will mediate the association between the different dimensions of body satisfaction and depressive symptoms. Because little is known about whether these patterns may vary for women at different ages, an exploratory analysis was conducted to examine whether the associations between body satisfaction, social engagement, and depression are conditional on age.

Method

Participant Recruitment

Participants were recruited in via flyers were posted at senior residential communities that asked interested participants to contact the researchers via phone or email, and a meeting time was arranged to drop off and pick up the survey. This recruitment strategy yielded a small number of participants ($n = 22$). The second recruitment strategy involved mailing a letter with information about the study to individuals who had opted to be on a list of participants for research studies maintained by the Institute of Gerontology at the University of Michigan. Contact information for participants who met the study criteria was obtained from the Institutes of Gerontology, and packets were mailed to these women containing a letter providing background information about the study, as well as the consent forms, questionnaire, and a return envelope. Women who chose to participate completed the survey and consent forms, which they filled out and returned by mail. All participants were compensated fifteen dollars and received a debriefing and thank you letter via mail. Data were collected from 127 women aged 65 and older. Of these participants, 123 had complete data for all measures and were included in the analyses. Study protocol was approved by the University IRB.

Measures

Surveys were printed in booklet form on 8 ½ x 11-inch paper using 18 point font in order to increase readability.

Demographic Questions.—A brief questionnaire assessed basic demographic information including age, partner status, education, and number of children they had raised.

Body satisfaction.—A body satisfaction measure was developed for this study that reflected concerns about aging women's bodies that have arisen in previous research (Gagne et al., 2012; Hurd, 2000; Kilpela et al., 2015), including physical function, overall physical appearance, weight, and cosmetic features. Participants were asked to rate their satisfaction with 14 distinct aspects of the body on a scale ranging from 1 (not very satisfied) to 4 (very satisfied). The physical functioning subscale contained three items, including muscle tone and definition, strength, and physical coordination, and the alpha for this subscale was acceptable ($\alpha = .75$). The physical appearance subscale contained 5 items, including overall physical appearance, firmness of skin on the body, bust, proportions, and height, and the alpha for this subscale was adequate ($\alpha = .68$). Weight satisfaction was assessed using the

individual question regarding weight. Last, the cosmetic features subscale contained 5 items that assessed women's satisfaction with skin complexion, facial features, hair texture, hair thickness, and hair color. The alpha level for this subscale was acceptable ($\alpha = .70$). Items on each subscale were averaged and higher scores reflect greater satisfaction with body features.

Body Mass Index Category.—Body Mass Index was assessed using self-reported height and weight. Participants were asked to find their height and corresponding weight range and to circle this value in a table (National Institutes of Health, 2015). This method allowed participants to report their height and select the range that their weight falls within. This data was then coded to reflect BMI categories, including underweight (< 18.5), normal weight ($18.5\text{--}24.99$), overweight ($25\text{--}29.99$), and obese (> 30) (Centers for Disease Control and Prevention, 2015). For this study, a score of 1 corresponds to underweight, 2 = normal weight, 3 = overweight, 4 = obese. We collected information about BMI category only and did not ask participants to report their exact height and weight.

Social engagement.—Social engagement was assessed using a 20 item measure developed by Morgan et al. (1987). The scale measures the extent to which older individuals engage actively (e.g., voting, going on vacation) and symbolically (e.g., reading the newspaper) in social life (yes/no). In the present study, 2 items were omitted from analyses because they had no variance; all participants indicated that they had access to a telephone and that they had a television or radio. Additionally, 9 items were omitted because of a low ($r < .20$) item total correlation. The remaining items assessed whether participants attended religious services, gatherings or meetings; whether they voted in the last election; whether they took a vacation in the last year; whether they were planning a vacation for the coming year; whether they attended meetings of clubs, organizations, or societies; whether they are employed or do volunteer work; whether they are physically able to do all they need to do in daily life; whether they get out and about as much as they would like; and whether they have one or more friends in the area. To create a scale score, the remaining items were averaged. The mean score for this measure was .71, indicating relatively high levels of social engagement, and for the present study, the alpha is .74.

Depression.—The Geriatric Depression Scale (Yesavage et al., 1982) was designed to assess depressive symptoms among older adults. This scale contains 30 items that are answered either yes (1) or no (0). A sample item is “Are you bothered by thoughts you can't get out of your head?” Reliability analyses indicated that 5 items had a low item total correlation ($r < .20$) and were subsequently omitted from analyses. These items included “Do you often get bored?” “Do you feel that you have more problems with memory than most?” “Do you worry a lot about the past?” “Is it easy for you to make decisions?” and “Is your mind as clear as it used to be?”

For this sample, the mean score was .20, which indicates relatively low levels of depressive symptoms for the average participant. For the present study, $\alpha = .87$.

Results

The majority of participants identified as White ($n = 118$), three participants identified as Black or African American, and 2 identified as “other.” Women in the sample reported high levels of education. Within the sample, 26.7% reported attending or finishing high school or trade school, 34.1% reported attending or finishing college, 9.8% reported attending some graduate or professional school, and 28.8% reported earning a graduate degree. Overall, a small proportion (7.6%) of the sample reported their relationship status as single. Nearly half of the sample (47%) reported being widowed, 27.3% reported they were married or living with a partner, and 16.7% were separated or divorced.

First, data were carefully screened. The majority of participants had complete data ($M = 91\%$), and the percentage of missing items was very low ($M = 2.51\%$). When the number of missing items is low and the measures demonstrate good internal consistency for the sample, available item analysis performs as well as more complex methods or handling missing data, such as multiple imputation (Parent, 2013). Therefore, analyses were performed on all available data. Second, the distributions of each of the study variables were examined for violations of normality. Kline (2011) recommended that for regression analysis, skew is less than 3.00 and kurtosis is less than 10.00. All study variables were within the recommended limits (for all variables, skew < 1.45 and kurtosis < 1.71). An examination of the Mahalanobis distance revealed no multivariate outliers in the data, thus the regression analyses were based on 123 cases. All analyses controlled for BMI category and age.

Means, standard deviations, and correlations for the study variables are presented in table 1. As hypothesized, women who reported greater satisfaction with body function also reported higher levels of social engagement and lower levels of depressive symptoms. Higher satisfaction with cosmetic features and higher satisfaction with physical appearance were both associated with lower levels of depressive symptoms, and satisfaction with cosmetic features had a positive trend association with social engagement. As expected, higher levels of social engagement were associated with lower levels of depressive symptoms. Unexpectedly, satisfaction with weight was unrelated to both social engagement and depressive symptoms.

The results of the regression analyses examining satisfaction with body features and social engagement as predictors of depressive symptoms are presented in table 2. Model 1 revealed significant associations between both satisfaction with cosmetic features and social engagement with depressive symptoms. Model 2 indicated that satisfaction with body function and social engagement were both significant predictors of depressive symptoms. Similarly, model 3 showed that both satisfaction with physical appearance and social engagement predicted unique variance in depressive symptoms. Last, satisfaction with weight was not associated with depressive symptoms.

The third hypothesis posited that social engagement would mediate the association between body satisfaction and depressive symptoms. To test this, regression-based mediation analysis was performed using model 4 of the PROCESS macro developed by Hayes (2013). This analysis uses a bootstrap resampling process that is repeated 10,000 times to generate a 95%

bias-corrected confidence interval (CI) and allows for the examination of direct and indirect effects. Indirect effects are significant if the CI's do not contain 0, which suggests that mediation is present (Hayes, 2013). Social engagement had a trend association with satisfaction with cosmetic features that approached significance ($p = .054$), and thus mediation was examined for this aspect of body satisfaction. Because there was not a significant association between satisfaction with physical appearance and social engagement, nor between satisfaction with weight and social engagement, mediation was not examined for these variables.

Model 1 (see figure 1) revealed both a direct effect of satisfaction with cosmetic features on depressive symptoms ($B = -.073$, $CI = -.151, -.045$), and bootstrapping analyses showed a significant indirect via social engagement ($B = -.025$, $CI = -.061, -.003$). Path coefficients from the bootstrapping analysis are presented in Figure 1, and show that the effect of satisfaction with cosmetic features on depressive symptoms remains significant but is decreased when social engagement is added to the model. Similarly, in model 2 (Figure 1), satisfaction with body function had a significant direct effect on depressive symptoms ($B = -.113$, $CI = -.155, -.071$) as well as an indirect effect via social engagement ($B = -.035$, $CI = -.066, -.014$). Again, path coefficients from the bootstrapping analysis show that the effect of satisfaction with body function on depressive symptoms remains significant but is decreased when social engagement is added to the model. Thus, hypothesis 3 was partially supported, as social engagement mediated the association between some aspects of body satisfaction (cosmetic features and physical function) but not others (physical appearance and satisfaction with weight).

Last, an exploratory analysis examined whether the paths in the significant mediational models were conditional on age using model 59 of the PROCESS macro. Age did not moderate any of the paths in the mediational model; for all analyses, $p = .414$, and all confidence intervals contained 0.

Discussion

Maintaining social relations is a critical component of healthy aging (Bath & Deeg, 2005; Fratiglioni et al., 2004; Herzog et al., 2002), and this study is among the first to link body perceptions to social engagement and, consequently, depressive symptoms, among aging women. The results indicated mixed support for the hypotheses, indicating that while body perceptions are linked to social engagement and to depression, and social engagement mediates the association between body satisfaction and depression, these associations depend on which aspects of the body are of concern. Further, analyses examined age as a moderator of the aforementioned associations to assess whether these patterns remain consistent across women at different ages.

Interestingly, when examining the body satisfaction subscales, satisfaction with body function had the strongest association with social engagement. In other words, aging women who are less satisfied with functional aspects of their bodies (e.g., strength, coordination, and muscle tone and definition) were less likely to be socially engaged while women who were satisfied with these body features also reported higher levels of social engagement.

This may be because women who are functioning well are more able to partake in social activities; physical limitations may hinder social participation in some domains, such as volunteering to do service work that has a physical component or engaging in physical activity with friends (Herzog et al., 2002). The implications of this finding are multiple. First, the increasing positive body image through intervention programs may result in greater social participation by older women. Second, emphasizing participation in social activities that do not require a physical component may be particularly effective for women who are hindered by physical limitations.

Satisfaction with cosmetic features had a trend association with social engagement, and the pattern of association indicated that older women who were more satisfied with these features were more socially engaged, and women who expressed low satisfaction with these features reported lower levels of engagement. This finding is particularly interesting given that cosmetic features reflect physically evident signs of aging (such as facial features and hair texture and color). Previous research has indicated that older women are less invested in appearance features as compared with younger women (Hurd, 2000; Kilpela et al., 2015; Tiggemann, 2004), however, satisfaction with age-specific features are linked to social behavior for older women. That is, even if appearance is less important overall to women in this age range, the findings indicate that satisfaction with two key areas of body concern—body function and cosmetic features—may affect social behavior.

Higher satisfaction with various aspects of the body, including function, cosmetic appearance, and overall physical appearance, were associated with lower levels of depressive symptoms among women in the study. This mirrors findings among women at midlife (Sabik, 2015) and indicates that body concerns remain a key indicator of mental health well into “old age” among women. Interestingly, satisfaction with weight was not associated with depressive symptoms. Weight satisfaction has been linked to depression among young women, such as during adolescence (Goldfield et al., 2010), and overweight and obesity are associated with greater depressive symptoms for women at midlife (Simon et al., 2008). A follow-up analysis was performed to examine whether the association between weight satisfaction and depression was contingent on BMI category. Interestingly, the interaction between BMI category and weight satisfaction was a significant predictor of depressive symptoms with greater satisfaction with weight was associated with lower levels of depressive symptoms among women classified as overweight or obese. This pattern suggests that for overweight older women, perceptions of weight do, in fact, differentiate between levels of depressive symptoms, though this pattern indicates that higher satisfaction with weight was associated with lower levels of depressive symptoms for women at higher BMI. In other words, for older women who are overweight, satisfaction with weight acts as a buffer, and greater satisfaction is associated with fewer depressive symptoms. As expected based on previous research (Glass et al., 2006), higher levels of social engagement were associated with lower levels of depressive symptoms.

Mediation analyses revealed that there was a significant direct effect of satisfaction with cosmetic features on depressive symptoms as well as an indirect via social engagement, indicating that mediation was taking place. This suggests that lower satisfaction with cosmetic features were associated with lower levels of social engagement, and higher levels

of depressive symptoms. Although the data were correlational and can not determine causality, the observation that the effect of satisfaction with cosmetic features on depressive symptoms was reduced when social engagement was added into the model provides insight into one potential pathway that may account for poor mental health for older women who are less satisfied with their bodies. Similarly, satisfaction with body function had a significant direct effect on depressive symptoms as well as an indirect effect via social engagement, indicating that the association between satisfaction with body function and depressive symptoms remains significant but is decreased when social engagement is added to the model. These findings provide support for the notion that women's body perceptions—particularly with regard to aspects of the body that may reflect the aging process—have the potential to impact both social behaviors and psychological well-being.

While the cross-section study design requires that that study implications be drawn with caution, the results of this study suggest that the significant links between body satisfaction and social engagement may have implications for aging women's health and well-being. For example, policies that are designed to increase social participation among women in old age must consider the prohibitive effects of body dissatisfaction. While social interactions often provide positive effects, this may not always be the case. For women in particular, concerns about social judgment can inhibit social connection or increase social anxiety (Amorose & Hollembeak, 2005; Geiger et al., 2014), and fear of negative evaluation, particularly based on appearance, might inhibit social behavior.

It is noteworthy that not all aspects of appearance were linked to social behavior and depression for study participants. Specifically, mediation was not examined for satisfaction with weight or overall appearance, as these were not associated with social engagement. These aspects of the body may be less likely to reflect visible signs of aging, and this may account for why satisfaction with these features was unrelated to social engagement. In other words, it appears to be women who are self-conscious about body features that reflect signs of aging, that are at higher risk for less social engagement and subsequently greater depressive symptoms.

In order to examine whether the paths in the mediational model differed for women at different ages, a moderated mediation analysis was performed. The results of this analysis showed that age did not moderate any of the paths in the mediational model, indicating that the associations in the model held for women across all ages in the sample. While one might expect that older women would be more sensitive to the effects of low body satisfaction on engagement and depression, this was not the case. The results suggest that interventions targeting body satisfaction and social engagement may be helpful for reducing depression across all ages.

Limitations and Future Directions

There were a number of limitations that need to be considered when interpreting the findings of this study. First, the model tested was correlational, and although the pathways were supported by statistical analysis, causal links between these factors cannot be determined without further research. For example, a longitudinal study could address the temporal links between the study variables to see if changes in body satisfaction or physical function affect

social engagement and depression over time. Second, participants were primarily White and were well-educated, which limits generalizability. Third, the study relied on self-report data. This decision was based on previous research indicating that self-perceptions of body image are a significant predictor of health and well being among older women (Kilpela et al., 2015; Sabik, 2015; Saucier, 2004), however the addition of more objective measures of aspects of body image relevant to older women, such as physical functioning, may provide additional insight into these patterns. It is possible that physical limitations hinder social engagement (Thomas, 2011) and further research is needed to explore how physical limitations or chronic health conditions are linked to body perceptions and social behaviors among this population.

Conclusion

Social engagement is critical to retaining a high quality of life in old age, and women in particular are at higher risk for depression (Buschmann & Rossen, 1993; Jackson et al., 2014), interventions and policies that target encouraging and retaining high levels of social engagement are critical. Taking into account women's body concerns may increase the effectiveness of these programs, as this psychological factor may impact social participation, particularly for women who express dissatisfaction with age-specific aspects of the body. Increasing women's body satisfaction, or directly addressing this factor as an impediment to social participation and as a risk factor for poor mental health will allow healthcare practitioners and policy makers to more effectively address these factors among this population.

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References

- Amorose AJ, & Hollembeak J (2005). Examining the moderating effect of appearance impression motivation on the relationship between perceived physical appearance and social physique anxiety. *Research Quarterly for Exercise and Sport*, 76(4), 507–513. [PubMed: 16739689]
- Antonucci TC (1994). A life-span view of women's social relations *Women growing older: Psychological perspectives*. (pp. 239–269): Sage Publications, Inc, Thousand Oaks, CA.
- Bath P, & Deeg D (2005). Social engagement and health outcomes among older people: introduction to a special section. *European Journal of Ageing*, 2(1), 24–30. doi:10.1007/s10433-005-0019-4 [PubMed: 28794713]
- Bedford JL, & Johnson CS (2006). Societal influences on body image dissatisfaction in younger and older women. *Journal of Women & Aging*, 18(1), 41–55.
- Bessenoff GR, & Del Priore RE (2007). Women, weight, and age: Social comparison to magazine images across the lifespan. *Sex Roles*, 56(3–4), 215–222. doi:10.1007/s11199-006-9164-2
- Buschmann MT, & Rossen EK (1993). Depression in older women. *Journal of Women's Health*, 2(3), 317–322.
- Cash TF, & Fleming EC (2002). The impact of body image experiences: Development of the Body Image Quality of Life Inventory. *International Journal of Eating Disorders*, 31(4), 455–460. doi: 10.1002/eat.10033 [PubMed: 11948650]

- Centers for Disease Control and Prevention. (2015). About BMI for Adults. Retrieved from http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html
- Chrisler JC, & Ghiz L (1993). Body image issues of older women. *Women & Therapy*, 14(1–2), 67–75.
- Clarke LH, & Korotchenko A (2011). Aging and the body: A review. *Canadian Journal on Aging*, 30(3), 495–510. doi:10.1017/S0714980811000274 [PubMed: 24976674]
- Davison T, & McCabe M (2005). Relationships between men's and women's body image and their psychological, social, and sexual functioning. *Sex Roles*, 52(7–8), 463–475. doi:10.1007/s11199-005-3712-z
- Donnelly LR, Clarke LH, Phinney A, & MacEntee MI (2015). The impact of oral health on body image and social interactions among elders in long-term care. *Gerodontology*. doi:10.1111/ger.12187
- Fratiglioni L, Paillard-Borg S, & Winblad B (2004). An active and socially integrated lifestyle in late life might protect against dementia. *Lancet Neurology*, 3(6), 343–353. doi:10.1016/s1474-4422(04)00767-7 [PubMed: 15157849]
- Fredrickson BL, & Roberts T-A (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, 21(2), 173–206.
- Gagne DA, Von Holle A, Brownley KA, Runfola CD, Hofmeier S, Branch KE, & Bulik CM (2012). Eating disorder symptoms and weight and shape concerns in a large web-based convenience sample of women ages 50 and above: Results of the gender and body image (GABI) study. *International Journal of Eating Disorders*, 45(7), 832–844. doi:10.1002/eat.22030 [PubMed: 22729743]
- Garner JD (1999). Feminism and feminist gerontology. *Journal of Women & Aging*, 11(2–3), 3–12. doi:10.1300/J074v11n02_02
- Geiger AM, Sabik NJ, Lupis SB, Rene KM, & Wolf JM (2014). Perceived appearance judgments moderate the biological stress effects of social exchanges. *Biological Psychology*, 103, 297–304. [PubMed: 25457637]
- Glass TA, De Leon CFM, Bassuk SS, & Berkman LF (2006). Social engagement and depressive symptoms in late life longitudinal findings. *Journal of Aging and Health*, 18(4), 604–628. [PubMed: 16835392]
- Goldfield GS, Moore C, Henderson K, Buchholz A, Obeid N, & Flament MF (2010). Body dissatisfaction, dietary restraint, depression, and weight status in adolescents. *Journal of School Health*, 80(4), 186–192. [PubMed: 20433644]
- Gosselink DL, Cox DL, McClure SJ, & De Jong MLG (2008). Ravishing or ravaged: Women's relationships with women in the context of aging and Western beauty culture. *The International Journal of Aging & Human Development*, 66(4), 307–327. doi:10.2190/AG.66.4.c [PubMed: 18507332]
- Grogan S (2006). Body image and health: Contemporary perspectives. *Journal of Health Psychology*, 11(4), 523–530. doi:10.1177/1359105306065013 [PubMed: 16769732]
- Halliwel E (2015). Future directions for positive body image research. *Body Image*, 14, 177–189. doi:10.1016/j.bodyim.2015.03.003 [PubMed: 25861909]
- Hayes AF (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*: Guilford Press, New York, NY.
- Herzog AR, Ofstedal MB, & Wheeler LM (2002). Social engagement and its relationship to health. *Clinics in Geriatric Medicine*, 18(3), 593–+. doi:10.1016/s0749-0690(02)00025-3 [PubMed: 12424874]
- Hurd LC (2000). Older women's body image and embodied experience: An exploration. *Journal of Women & Aging*, 12(3–4), 77–97. doi:10.1300/J074v12n03_06
- Jackson KL, Janssen I, Appelhans BM, Kazlauskaitė R, Karavolos K, Dugan SA, . . . Kravitz HM (2014). Body image satisfaction and depression in midlife women: the Study of Women's Health Across the Nation (SWAN). *Archives of women's mental health*, 17(3), 177–187. doi:10.1007/s00737-014-0416-9

- Kiely DK, & Flacker JM (2003). The protective effect of social engagement on 1-year mortality in a long-stay nursing home population. *Journal of Clinical Epidemiology*, 56(5), 472–478. [PubMed: 12812822]
- Kilpela LS, Becker CB, Wesley N, & Stewart T (2015). Body image in adult women: moving beyond the younger years. *Advances in Eating Disorders: Theory, Research and Practice*, 3(2), 144–164. doi:10.1080/21662630.2015.1012728
- Kline RB (2011). *Principles and practice of structural equation modeling* (3rd ed.): Guilford Press, New York, NY.
- Levy BR (2009). Stereotype embodiment a psychosocial approach to aging. *Current Directions in Psychological Science*, 18(6), 332–336. doi:10.1111/j.1467-8721.2009.01662.x [PubMed: 20802838]
- Lewis DM, & Cachelin FM (2001). Body image, body dissatisfaction, and eating attitudes in midlife and elderly women. *Eating Disorders*, 9(1), 29–39. [PubMed: 16864371]
- Mangweth-Matzek B, Rupp CI, Hausmann A, Assmayr K, Mariacher E, Kemmler G, . . . Biebl W (2006). Never too old for eating disorders or body dissatisfaction: A community study of elderly women. *International Journal of Eating Disorders*, 39(7), 583–586. doi:10.1002/eat.20327 [PubMed: 17078123]
- Mills J, Fuller-Tyszkiewicz M, & Holmes M (2014). State body dissatisfaction and social interactions: An experience sampling study. *Psychology of Women Quarterly*, 38(4), 551–562. doi: 10.1177/0361684314521139
- Morgan K, Dallosso HM, Arie T, Byrne EJ, Jones R, & Waite J (1987). Mental health and psychological well-being among the old and the very old living at home. *British Journal of Psychiatry*, 150, 801–807. [PubMed: 3651735]
- National Institutes of Health. (2015). Body Mass Index Table. Retrieved from http://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi_tbl.htm
- Nummela O, Sulander T, Rahkonen O, Karisto A, & Uutela A (2008). Social participation, trust and self-rated health: A study among ageing people in urban, semi-urban and rural settings. *Health & Place*, 14(2), 243–253. doi:10.1016/j.healthplace.2007.06.006 [PubMed: 17686647]
- Parent MC (2013). Handling item-level missing data: Simpler is just as good. *The Counseling Psychologist*, 41(4), 568–600. doi:10.1177/0011000012445176
- Peat CM, Peyerl NL, & Muehlenkamp JJ (2008). Body image and eating disorders in older adults: A review. *Journal of General Psychology*, 135(4), 343–358. doi:10.3200/GENP.135.4.343-358 [PubMed: 18959226]
- Pliner P, Chaiken S, & Flett GL (1990). Gender differences in concern with body weight and physical appearance over the life span. *Personality and Social Psychology Bulletin*, 16(2), 263–273. doi: 10.1177/0146167290162007
- Pruis TA, & Janowsky JS (2010). Assessment of body image in younger and older women. *The Journal of General Psychology: Experimental, Psychological, and Comparative Psychology*, 137(3), 225–238.
- Rowe JW, & Kahn RL (1997). Successful aging. *The Gerontologist*, 37(4), 433–440. doi:10.1093/geront/37.4.433 [PubMed: 9279031]
- Sabik NJ (2015). Ageism and body esteem: Associations with psychological well-being among late middle-aged African American and European American women. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 70(2), 189–199. doi:10.1093/geronb/gbt080
- Saucier MG (2004). Midlife and Beyond: Issues for Aging Women. *Journal of Counseling & Development*, 82(4), 420–425.
- Simon GE, Ludman EJ, Linde JA, Operskalski BH, Ichikawa L, Rohde P, . . . Jeffery RW (2008). Association between obesity and depression in middle-aged women. *General Hospital Psychiatry*, 30(1), 32–39. [PubMed: 18164938]
- Tchkonja T, Morbeck DE, von Zglinicki T, van Deursen J, Lustgarten J, Scrbale H, . . . Kirkland JL (2010). Fat tissue, aging, and cellular senescence. *Aging Cell*, 9(5), 667–684. doi:10.1111/j.1474-9726.2010.00608.x [PubMed: 20701600]
- Thomas PA (2011). Gender, social engagement, and limitations in late life. *Social Science & Medicine*, 73(9), 1428–1435. doi:10.1016/j.socscimed.2011.07.035 [PubMed: 21906863]

- Tiggemann M (2004). Body image across the adult life span: Stability and change. *Body Image*, 1, 29–41. doi:10.1016/S1740-1445(03)00002-0. Document Type: journal.Citation. DOI: 10.1016/S1740-1445(03)00002-0. [PubMed: 18089139]
- Tiggemann M, & Lynch JE (2001). Body image across the life span in adult women: the role of self-objectification. *Developmental Psychology*, 37(2), 243–253. [PubMed: 11269392]
- Webster J, & Tiggemann M (2003). The relationship between women's body satisfaction and self-image across the life span: The role of cognitive control. *Journal of Genetic Psychology*, 164, 241–252. doi:10.1080/00221320309597980. Document Type: journal.Citation. DOI: 10.1080/00221320309597980. [PubMed: 12856818]
- Wilcox S (1997). Age and gender in relation to body attitudes: Is there a double standard of aging? *Psychology of Women Quarterly*, 21, 549–565. doi:10.1111/j.1471-6402.1997.tb00130.x.
- Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, & Leirer VO (1982). Development and validation of a geriatric depression screening scale: a preliminary report. *Journal of Psychiatric Research*, 17(1), 37–49. [PubMed: 7183759]

Model 1:

Model 2:

Figure 1.

Regression models examining whether social engagement mediates the association between satisfaction with cosmetic features and depressive symptoms (model 1) and between satisfaction with body function and depressive symptoms (model 2).

Note. The path coefficients are included for the direct and indirect effects. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 1.
Means, standard deviations, and intercorrelations for study variables controlling for age and BMI category.

Variable	M	SD	Range	1	2	3	4	5	6
1. Satisfaction with cosmetic features	2.89	.65	1-4	—	.49***	.50***	.18 [†]	.18 [†]	-.32***
2. Satisfaction with body function	2.40	.78	1-4	—	—	.56***	.21*	.33***	-.44***
3. Satisfaction with physical appearance	2.69	.61	1-4	—	—	—	.36***	.15	-.42***
4. Satisfaction with weight	2.38	1.17	1-4	—	—	—	—	.02	-.13
5. Social engagement	.71	.25	0-1	—	—	—	—	—	-.51***
6. Depressive symptoms	.20	.21	0-1	—	—	—	—	—	—

Note.

[†] $p < .10$.

* $p < .05$

** $p < .01$

*** $p < .001$.

Table 2. Regression analysis summary for aspects of body satisfaction predicting depressive symptoms.

Model 1: Cosmetic Features; $R^2 = .396, p < .001$					
Predictor Variable	<i>B</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
Age	.003	.002	-.002, .008	1.32	.191
BMI category	-.006	.016	-.038, .026	-.392	.696
Satisfaction with cosmetic features	-.073	.024	-.120, -.025	-3.05	.003
Social engagement	-3.92	.065	-.520, -.264	-6.07	<.001
Model 2: Body Function; $R^2 = .387, p < .001$					
Predictor Variable	<i>B</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
Age	.003	.002	-.002, .007	1.15	.255
BMI category	-.007	.016	-.038, .034	-.458	.648
Satisfaction with body function	-.079	.020	-.119, -.039	-3.88	<.001
Social engagement	-.344	.066	-.474, -.214	-5.22	<.001
Model 3: Physical Appearance; $R^2 = .418, p < .001$					
Predictor Variable	<i>B</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
Age	.002	.002	-.002, .007	1.07	.248
BMI category	-.026	.016	-.057, .005	-1.65	.103
Satisfaction with physical appearance	-.117	.025	-.166, -.068	-4.72	<.001
Social engagement	-.383	.061	-.505, -.262	-6.42	<.001
Model 4: Weight; $R^2 = .321, p < .001$					
Predictor Variable	<i>B</i>	<i>SE</i>	95% CI	<i>t</i>	<i>p</i>
Age	.003	.003	-.002, .008	1.66	.099
BMI category	-.023	.020	-.062, .016	-1.17	.245
Satisfaction with weight	-.025	.017	-.058, .008	-1.48	.141
Social engagement	-.425	.066	-.555, -.295	-6.49	<.001

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. The dependent variable for all regression analyses was depressive symptoms.