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A mixed-methods approach to assessing barriers to physical activity among women with class I, class II, and class III obesity

Anna M. Adachi-Mejia, Ph.D.^{a,b,c,d,e} and Karen E. Schifferdecker, Ph.D, M.P.H.^{a,d}

^aDepartment of Community and Family Medicine, Geisel School of Medicine at Dartmouth, Lebanon, NH, USA

^bThe Dartmouth Institute for Health Policy and Clinical Practice, Lebanon, NH, USA

^cCancer Control Research Program, Norris Cotton Cancer Center, Lebanon, NH, USA

^dCenter for Program Design and Evaluation at Dartmouth, Lebanon, NH, USA

^ePediatrics, Geisel School of Medicine at Dartmouth, Lebanon, NH, USA

Introduction

Across the lifespan, females are less active than males¹⁻⁴ even though recommendations for optimal levels of physical activity are the same for both men and women.^{5, 6} In addition, having higher body mass index (BMI) is a barrier to physical activity in of itself.⁷⁻⁹ Therefore, being both female and having a higher BMI may confer a double-bind of challenges to being active.

Another key consideration in the assessment of barriers to physical activity is in regards to the methodological approach used to measure these concepts. For example, closed- versus open-ended survey questions may elicit different characterizations of barriers or facilitators from participants. Therefore, we sought to conduct a mixed-methods approach to elicit perceptions of women's barriers to physical activity by weight class. We speculated that barriers to physical activity among women vary by weight class, and that these barriers vary by method used to elicit barriers (e.g., open or closed-ended survey).

Methods

The research protocol was reviewed and approved by Dartmouth College's Committee for the Protection of Human Subjects. Data for this analysis were drawn from participants who enrolled in a community-based program focused on physical activity and nutrition for vulnerable populations in three participating communities.¹⁰ Measurement sessions were completed in June 2012 through September 2012 in three community sites (one rural location, one town, one city). Trained administrators obtained height, weight, and they

Correspondence concerning this article should be addressed to: Anna M. Adachi-Mejia, Ph.D., One Medical Center Drive, HB 7925, Cancer Control Research Program, Dartmouth-Hitchcock Norris Cotton Cancer Center, Lebanon, NH 03756, USA; Tel (603) 653-6124, Fax (603) 653-9090, anna.m.adachi-mejia@dartmouth.edu.

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monitored self-administered surveys. We calculated body mass index (BMI) from height and weight measurements with the following classifications: Normal Range 18.5-24.99 (12.8%, N=10); Pre-Obese 25.00-29.99 (11.5%, N=9); Obese Class I 30-34.99 (29.5%, N=23); Obese Class II 35-39.99 (25.6%, N=20); Obese Class III 40 or greater (20.5%, N=16).

Survey questions included a standardized, 15-question section on barriers to physical activity that asked the following question for each barrier: “How often does [barrier] prevent you from getting regular physical activity?”¹¹ We also asked open-ended questions that addressed barriers to physical activity as follows: “What makes it hard for you to be physically active?” with the opportunity to enter up to three responses.

Analysis

We used a grounded theory approach with frequent comparative analysis of the data to code emergent themes. We then used the categories from the primary closed-ended survey of barriers plus themes mentioned in 8 studies to derive 33 possible codes. These 8 studies, which described 7 different lists of barriers, were selected because they featured the following: women, middle age, not pertinent to a specific disease/illness/procedure/problem unless it was overweight.^{9, 12-18} Using the themes that we elicited from our data combined with the themes in the literature we coded the open-ended responses into the following six overarching categories: physical, psychological, social, resources, time, and activity. For each individual, we coded their responses into a number ranging from 0-4 for each category. For most respondents, the range was 0-3 to match their ability to list up to three open-ended responses. We then used the final codes for the quantitative analysis described above.

Results

For the parent study, 97 people consented to participate in the measurement session, of which 82 reported being female. Among those, 4 were girls. Therefore, for this study our final sample for analysis was 78 adult females. Among the 78 women, the mean age was 52.8 years (range 19-86; standard deviation 14.5). The sample was predominantly white (92.3%, N=72) and non-Hispanic/Latino (94.9%, N=74). Almost one-third graduated from high school or received a GED (26.9%, N=21), and one-third had an annual household income of \$20,000 or less (30.7%, N=23). BMI ranged from 21.3 to 64.6; the mean was 35.4 (standard deviation 9.2).

Closed-ended survey approach

The closed-ended survey responses showed that among those in the normal weight range, the most frequently mentioned barriers were a tie between lack of time, lack of energy, lack of company, and lack of facilities. Among those in the pre-obese range, the most frequently mentioned barrier was lack of company. Among those in all three obese classes, the most frequently mentioned barrier was lack of self-discipline. Comparing across weight classes, as weight increased, we saw a significant increase ($p<0.05$) in the following barriers: lack of self-discipline, lack of good health, and fear of injury. Lack of facilities was perceived as a major barrier for people in the normal range compared to people in the other weight classes.

Open-ended survey approach

The open-ended approach also showed variation by weight class, although the types of barriers that respondents focused on were different. Participants described more types of physical barriers as weight class increased (Table). We also saw more types of psychological barriers described in the higher weight classes compared to the lower ones, whereas other barriers (social, resources, time, and activity) did not show as notable variation by weight class. We also saw themes that emerged across weight classes. Knee issues were described as a barrier in all weight classes. Lack of motivation was mentioned for four out of five weight classes. Depression was mentioned as a barrier in all three obese classes. Lacking company was a barrier across all weight classes. The weather being too hot outside was mentioned as a barrier in four out of five weight classes. Lacking time and work were mentioned as barriers in all five of the weight classes. Asthma and weight were mentioned as barriers in all obese classes.

Conclusions

The general recommendation to the public has been to “move more,” however our study suggests that barriers to physical activity may vary by weight class and by the method used to inquire about barriers (e.g., open or closed-ended survey). Therefore, optimal approaches for overcoming barriers to and utilizing facilitators for achieving adequate physical activity levels will depend on tailoring proactive support that takes this variation into account. Whereas the results of the closed-ended survey approach revealed barriers that might lead one to counsel women on overcoming psychological barriers and talking about general health, in contrast, based on the results from the open-ended survey approach in our study, one might instead be inclined to encourage women with physical challenges to work with experts in physical rehabilitation or occupational therapy to help troubleshoot the immediate challenges in being active and eventually work towards greater ability to be active. Therefore, we suggest that helping people achieve physically active lifestyles may not be a one-size-fits-all approach. Future interventions to increase physical activity in women should consider that facilitators and barriers vary by weight class and by how the questions are asked.

Our study found that the higher the obesity class, the more issues of physical impairment. When a patient presents with an injury or is known to have an impairment that could be associated with limited certain types of physical activity, we suggest that physicians, allied health professionals, and caregivers recognize the potential slippery slope that the injury or impairment could lead to. We suggest that this time presents a critical window to help the injured person work through other ways to stay active and/or make modifications as needed with occupational or physical therapy. Remaining vigilant to prevent the inadvertent trigger of a predominantly sedentary lifestyle in someone who was previously active may require setting up social support mechanisms and/or other periodic checks to insure that the person continues to maintain some level of activity in spite of their injury and/or impairment. We also suggest that a mixed-methods approach to asking about barriers to physical activity may yield a more comprehensive picture of a person's challenges.

This study was limited to a specific region and may not be generalizable. However our approach was unique in that it used a mixed-methods approach to elicit barriers to physical activity. The open-ended approach revealed that knee issues, lack of motivation, lack of time, and work resonated as barriers across all weight classes. However, physical impairment and psychological challenges increased by weight class. Efforts to simply increase awareness of the need to be more active may not be adequate – women may need help overcoming specific types of physical impairment and/or psychological barriers. Poor health may be part of a vicious cycle – it prevents women from being active, which in turn could lead to poor health, and onwards. This cycle may become more pronounced as women age, when risk of physical impairment increases.¹⁹

Next steps

We hope that findings from the open-ended responses will also inform future ideas for interventions. For example, some respondents had a misperception of what activity counted as physical activity; some talked about not exercising because they perceived themselves to be not the athletic type. For those instances, patients who are not achieving optimal levels of activity might benefit from trying out utilitarian activity – going for a walk to a specific destination instead of driving. They may also benefit from short walking and/or stretch breaks interspersed throughout the day rather than extended bouts of activity. They may need encouragement to try achievable activities rather than perceiving themselves as needing to run a marathon distance. Physical impairment may require novel approaches to increasing activity among women in the highest weight categories.

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Table

Open-ended survey-based types of barriers to physical activity by BMI classification (N=78). Text is bolded if it appears in four or five weight classes.

	Normal Range N=10	Pre-obese N=9	Obese class I N=23	Obese class II N=20	Obese class III N=16
Physical	Arthritis Knee issues Lacking energy Smoking	Chronic obstructive pulmonary disease Heart problems Knee issues Lacking energy Out of shape Pain Walking too fast	Ankle injury Arthritis Asthma Back issues Chronic illness Hip issues Knee issues Low energy Out of shape Pain Tiredness Weight	Asthma Back issues Exhaustion Foot issues Health issues Knee issues Low energy Migraines Pain Tiredness Sleep issues Smoking Weight	Arthritis Asthma Chronic illness Diabetes Exhaustion Foot issues Health issues Hip issues Knee issues Out of shape Pain Tiredness, fatigue Weight
Psychological	Lack of motivation Not fun Other priorities Prefer sedentary activities	Lack of commitment	Depression Lack of motivation Mood Not fun Not thinking about doing exercise Prefer to do other things Stress	Depression Dislike exercise In a rut Lacking coordination Lack of motivation Lazy Procrastination Self-perception as non-physical	Depression Doesn't see results Lack of motivation Lazy Impatience Sadness
Social	No one to exercise with	Being alone Living alone	No one to exercise with	Being alone	Being alone
Resources	Bugs Snow	Poor weather Rainy days Snow Too hot/cold outside	Humidity Rainy days Too hot outside Too sunny	Lacking knowledge Too cold outside Too hot outside	Too dark outside Too hot outside Too sunny
Time	Family demands Lacking time Schedule Work	Caregiving duties Lacking time Schedule Sedentary desk job Work	Caregiving duties Family demands Home life Lacking time Schedule Work	Lacking time Home life Obligations Sedentary desk job Work	Lacking time Obligations Work
Activity	-	Reading Watching television	-	-	Sedentary activities