Barriers and Enabling Factors for Work-Site Physical Activity Programs: A Qualitative Examination

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Background: Work sites offer a productive setting for physical activity (PA) promoting interventions. Still, PA participation remains low. Thus, the purpose of this study was to examine the reasoning behind commonly reported barriers and enabling factors to participation in PA programs in a work-site setting. Methods: Employees from a large city government were recruited to participate in focus groups, stratified by white- and blue-collar occupations. Responses from open-ended questions about factors influencing participation in PA programs were audio recorded and transcribed verbatim. Resulting data were analyzed with open and axial coding. Results: The sample consisted of 60 employees composing 9 focus groups. Although time was the most common barrier between both groups, white-collars workers responded that scheduling and work conflicts were the most common barrier concerning time. Blue-collar workers indicated shift work as their most common barrier. In addition, health was a significant enabling factor for both occupational categories. White-collar workers were much more concerned with appearances and were more highly motivated by weight loss and the hopefulness of quick results than were blue-collar workers. Conclusions: These findings are important in the understanding of PA as it relates to the reasoning behind participation in work-site programs in regard to occupational status.

Keywords: focus groups, occupation, blue-collar, white-collar, qualitative

Physical inactivity is associated with increases in chronic diseases including colon cancer, coronary heart disease, obesity, osteoporosis, and non-insulin-dependent diabetes mellitus.1,2 Research has indicated that those with moderate to high levels of physical activity (PA) have lower morbidity and mortality rates than do those with sedentary lifestyles.1,2 Still, it is well established that most Americans do not get the required amount of PA to offset chronic disease and provide health benefits.3,4 Although the reasoning for the apparent lack of activity among Americans remains elusive, innovative approaches to PA promotion do occur. One such promising approach is work-site PA programs. Because most American adults spend 8 or more hours a day at their workplace, an efficient way to enhance adults’ PA might be by offering PA programs at the work site.5 Programs aimed at
increasing PA have grown in recent decades and have become popular in a wide variety of work settings.6

Previous studies conducted in the workplace using occupational status variables (eg, blue-collar versus white-collar) have demonstrated that the effects of physical job requirements, stress, and education are associated with leisure-time PA.7,8 White-collar and blue-collar occupations can be defined using codes from the Standard Occupational Classification Manual9 from the US Department of Commerce. White-collar occupations include administrative support, professional specialty and occupation, sales, and managerial occupations, whereas blue-collar occupations include workers in forestry, mechanics, construction, manufacturing, farming, transportation, production-oriented tasks, labor, and also those in household occupations and service.9 Historically, white-collar workers have been more likely to participate in both structured and unstructured supervised work-site exercise programs than have blue-collar workers, particularly those with low-paying jobs.10-13 Blue et al commented that low participation among blue-collar workers in work-site PA programs might be because of the lack of specifically designed programs available for this particular occupational category of workers.13

Although the lack of tailored programs might be a barrier to participation in work-site PA programs, lack of knowledge is also known to be a barrier to PA participation. Other known barriers include poor self-efficacy,14 lack of social support,15 and lack of time and self-motivation.1 Previous research has indicated different reasoning behind barriers for white- and blue-collar workers including the long work hours that impede white-collar workers from participating in a PA program because they might not have time for recreation activities or an exercise program. Conversely, no association with this barrier was found among blue-collar workers.7 In addition, white-collar workers are more likely to be younger, have more education, and are reported to have healthier lifestyles relative to blue-collar workers, which have been associated with greater levels of PA in the workplace.7

When examining enabling factors for PA participation, the empirical literature is sparse.16,17 Research indicated the biggest enabling factors to being physically active as being social support16 and self-efficacy,16,17 although not specific to occupational category. Health status17 and enjoyment18 were also found to influence participation in PA programs. Previous studies have suggested that age might play a role in enabling PA.14,18 Although weight and physical appearance have been identified as being motivational influences, particularly in the younger population, the older population tends to be more concerned with delaying the effects of aging and building a social network.18 Identifying enabling factors such as these might increase participation in a work-site PA program.

Typically, when exploring barriers and enabling factors related to PA participation, quantitative methods have been used. Because little has been studied about PA and occupational status qualitatively, methodologies such as focus groups could provide valuable information regarding barriers and enabling factors for PA participation in work-site programs. Focus groups offer a more in-depth understanding of the target population’s perspectives or opinions than is otherwise obtainable through traditional quantitative methods such as mailed surveys or telephone interviews.19 Furthermore, focus groups allow researchers to capture subjective comments and evaluate them, whereas quantitative studies might miss these subjective elements. Because focus groups are structured and directed, but also expressive, much
information can be obtained. Focus-group methodology is exploratory, with the intent being to provide an understanding of motivations, feelings, attitudes, and perceptions of the target population—something sorely absent from many quantitative studies. In addition, focus groups are cost effective, can require fewer resources than other types of research interventions, and require fewer subjects than other types of research. Thus, the purpose of this study was to qualitatively examine the different reasoning behind common barriers and enabling factors to participation in work-site sponsored PA programs, stratified by occupational status in a cohort of employees at a large city government in the intermountain western USA.

Methods

Participants

After approval by the Institutional Review Board, potential participants were selected from a pool of approximately 2600 employees working in 9 occupational divisions within the city government of a large metropolitan area located in the intermountain western USA. To be eligible to participate, workers had to be age 18 to 64, as well as a current city employee. Participants were recruited by the research staff through a personalized letter of invitation, e-mail recruitment, Web site announcement on the city Web page, flyers in each of the 9 departments, and word of mouth.

Group composition was determined as eligible participants were prescreened and categorized into white-collar (ie, sedentary) and blue-collar (ie, labor-intensive) occupation status using a prescreening instrument with questions that were adapted from the Behavior Risk Factor Surveillance System (BRFSS). This prescreening process was completed to segregate the participants into their appropriate group (ie, white-collar and blue-collar), because members of the 2 occupational categories did not meet in the same group. If participants answered yes to the question, “In a usual day, do you do any sitting or standing while working, such as desk work, using hand tools, light assembly, lab tech, or driving a car or truck for work?”, they were categorized as having a white-collar occupational status. If yes was answered to the question, “In a usual day, do you do any heavy labor or use power tools at work, such as moving furniture, carpentry, jackhammers, or using a shovel or pick?”, participants were classified as having a blue-collar occupational status.

Instrumentation

Because current PA status might affect perceived barriers and enabling factors, knowledge of the participants’ PA patterns was essential in understanding participant responses. Thus, the International Physical Activity Questionnaire short-form (IPAQ), which was originally developed to provide a self-report measure to obtain and monitor internationally comparable data on PA and inactivity, was used in this study. The IPAQ is a short, 7-question instrument that assesses vigorous, moderate, and walking activity, as well as time sitting for all PA domains (ie, occupation, leisure, transportation, and household activities). The instrument has acceptable psychometric properties in various populations.
In an effort to determine different reasoning behind commonly known factors between blue- and white-collar workers, during the focus groups, open-ended questions were asked concerning commonly reported barriers and enabling factors influencing participation in PA programs. These questions were developed by the researchers from commonly reported barriers and enabling factors indicated within the literature. Because the literature suggests time\(^1\) and social support\(^{15,16}\) as significant barriers and enabling factors, these themes were included in the focus-group questions. Other themes included in the questions were incentives and costs of being physically active, as well as the effect of team dynamics on PA participation. These 6 focus-group questions are as follows:

1. Explain how cost may affect your decision to participate in a physical activity program.
2. What types of incentives would outweigh the costs of participation in a physical activity program?
3. Explain how time would impact your decision to participate in a physical activity program.
4. Explain how coworkers, friends, and family influenced or would influence your decision to participate in a physical activity program.
5. Who or what would be the most influential in your decision to participate in a physical activity program?
6. Describe how team dynamics would influence your level of participation.

**Procedures**

Focus groups were held at the workplace and consisted of groups with 3 to 10 participants. Because participation was voluntary, incentives for participation included breakfast or lunch, depending on the time of the group, as well as an hour of flex-time off of work. On arrival at their appointed group, participants immediately completed the informed consent and a series of questionnaires to determine group composition that included a demographic questionnaire and the IPAQ. Participants were asked to create a pseudonym, which was used to identify the participant during transcription and data analysis, thus attempting confidentiality among participants.

After questionnaires were completed the focus groups began. The principal investigator and a co-facilitator moderated focus groups,\(^{20,25}\) asking a series of open-ended questions concerning barriers and enabling factors influencing participation in PA programs (see the list of questions in the previous section). During the focus groups, participants were given the opportunity to ask questions if they were unsure of the meaning of a particular question or if they needed clarification regarding specific terminology. Participants were given the opportunity to respond multiple times to each question. Therefore, any 1 participant could have answered each question once or multiple times. These aggregate responses were audio recorded using a digital recorder. At the conclusion of the group, participants were thanked for their responses and the group was completed. Additional groups were repeated until theoretical saturation (ie, themes repeatedly voiced) among groups was reached.
Data Analysis

Descriptive statistics were calculated to examine the group composition and produce summary statistics for PA. Responses from the IPAQ were reduced and analyzed according to standard protocol\textsuperscript{26} using SAS version 9.1. IPAQ variables (mean minutes of vigorous PA, moderate PA, and total walking) were normally distributed. Thus independent \( t \) tests were used to examine significant differences of time in PA between occupational categories (ie, white-collar and blue-collar).

For focus-group data, researchers transcribed the recordings verbatim and checked against the cofacilitator’s notes for accuracy. The principal investigator’s notes, the cofacilitator’s notes, and the audio recordings were used to provide a comprehensive record of each focus group. This process resulted in 1 document used for transcription that provided researchers with a reliable source of information for data analysis.\textsuperscript{27} Each transcript was then analyzed using the qualitative data-analysis program QSR NUD*IST\textsuperscript{®} version N6 (Victoria, Australia). A 2-step process was used to code the data. Open coding was used for the first step in which 1 study investigator grouped data similar in theme into a category and assigned a label capturing its theme. A second investigator then reviewed the categories and labels created.\textsuperscript{28} Any suggested changes in either the composition of the categories or the labels were discussed with an additional investigator. When agreement among investigators on the composition and label of each category was reached, the second step in the coding process was taken. In this step, axial coding was conducted. This process consisted of relating categories to the central phenomena of interest.\textsuperscript{29} In the current study, this step involved relating the categories created during open coding to barriers and incentives for participation in work-site PA programming. As part of this step, relationships among categories were assessed, and categories found to be similar were combined.

Results

Participant Characteristics

The sample for all groups consisted of 60 employees. These participants composed 9 focus groups (white-collar occupations: \( n = 29 \), 5 focus groups, age = 44.4 ± 8.8 years, 44.8% male, 90.3% Caucasian; blue-collar occupations: \( n = 31 \), 4 focus groups, age = 39.2 ± 8.1 years, 93.5% male, 82.8% Caucasian). Additional participant characteristics are located in Table 1.

The IPAQ results indicated significant differences in PA patterns between occupational categories for walking (\( t_{57} = -2.21, P > .0310 \)) and moderate activity (\( t_{45.2} = -4.38, P < .0001 \)). Vigorous activity, however, was not significantly different between occupational categories (\( t_{55} = -1.80, P > .08; \) Table 2).

Barriers to PA Participation

Both white-collar and blue-collar occupational categories noted time as being the most frequently reported barrier to being active in a work-site sponsored PA program. Other common barriers included lack of knowledge, lack of instruction, fear, and self-consciousness surrounding PA. These barriers that participants voiced
Table 1  Participant Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Blue-collar (n = 31)</th>
<th>White-collar (n = 29)</th>
<th>Total sample (N = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$25,001–$35,000</td>
<td>—</td>
<td>4 (14.3%)</td>
<td>4 (6.9%)</td>
</tr>
<tr>
<td>$35,001–$50,000</td>
<td>2 (6.7%)</td>
<td>1 (3.6%)</td>
<td>3 (5.2%)</td>
</tr>
<tr>
<td>$50,001–$75,000</td>
<td>16 (53.3%)</td>
<td>9 (32.1%)</td>
<td>25 (43.1%)</td>
</tr>
<tr>
<td>&gt;$75,001</td>
<td>12 (40.0%)</td>
<td>14 (50.0%)</td>
<td>26 (44.8%)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school/GED</td>
<td>7 (22.6%)</td>
<td>4 (21.1%)</td>
<td>11 (22.0%)</td>
</tr>
<tr>
<td>Some college</td>
<td>14 (45.2%)</td>
<td>2 (10.5%)</td>
<td>16 (32.0%)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>8 (25.8%)</td>
<td>9 (47.4%)</td>
<td>17 (34.0%)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>2 (6.5%)</td>
<td>4 (21.1%)</td>
<td>6 (12.0%)</td>
</tr>
</tbody>
</table>

Note. There were 10 participants who did not answer the education question.

Table 2  Physical Activity of the Sample

<table>
<thead>
<tr>
<th>Variablea</th>
<th>Blue-collar (n = 31)</th>
<th>White-collar (n = 29)</th>
<th>Total sample (N = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPA</td>
<td>416.94 ± 346.02</td>
<td>266.92 ± 271.08</td>
<td>348.51 ± 320.36</td>
</tr>
<tr>
<td>MPA</td>
<td>498.39 ± 378.76b</td>
<td>160.58 ± 185.30</td>
<td>344.30 ± 347.83</td>
</tr>
<tr>
<td>Walking</td>
<td>485.32 ± 445.76b</td>
<td>259.82 ± 319.15</td>
<td>378.31 ± 403.84</td>
</tr>
</tbody>
</table>

Abbreviations: VPA, vigorous physical activity; MPA, moderate physical activity.

a All variables are mean minutes per week ± SD.
b P < .05, blue-collar > white-collar.

might have indicated a lack of self-efficacy, or one’s belief in his or her own ability to perform a certain health behavior.17

Although time was the most frequently reported barrier among both groups, the reasoning behind this common barrier differed by occupational category. Long work hours were identified as barriers more often by white-collar workers, whereas blue-collar workers claimed that long night shifts, abnormal hours, as well as being on call were reasons for time being a barrier. In addition, other differences in barriers emerged between the 2 groups. Although social support was an important enabler for both groups, coordinating schedules with other individuals was identified as a barrier only by white-collar workers. On the other hand, blue-collar workers had more difficulty getting proper work-site facilities for PA but did not mention the coordination of schedules.

White-Collar Barriers. Most white-collar workers identified time, scheduling, long work hours, fear, and lack of knowledge and instruction as barriers to being physically active at the work site. Similar to blue-collar workers, they also considered their own perceptions of PA, as well as being able to make PA a priority in their lives as being barriers. Evidence of this is located in the following statements:
**Time:** “I just don’t take the time to do it. I’ve got a busy enough schedule where I don’t break away to, so it’s, it’s not a monetary things for me. . . . It’s just a matter of time.”

**Scheduling:** “If someone is with me, trying to find both of us getting a schedule that works is difficult!”

**Long work hours:** “I work a half a day in the morning, and a half a day in the afternoon, and half a day at night. So basically you are working all day.”

**Perception:** “I think people really are terrified of doing something they don’t know how to do. I think that is the biggest thing. For fear that they are going to damage themselves or also fear of looking stupid.”

**Priority level:** “I wish that I could have that structure. That it was so important to me, and it should be, for health reasons and I just wish that it could be . . . that the lights would go on for me, like they have with several people. Where it is an important thing that you do that.”

**Blue-Collar Barriers.** Specifically, most blue-collar workers identified time, abnormal work hours, injury liability, their own perceptions of PA, and the structure of work-site programs as barriers to PA. Evidence of this is located in the following statements:

**Time:** “If uh, you say, well I’m going to do it at 4 o’clock in the afternoon and if you let other priorities take over and at 4 o’clock in the afternoon you don’t take the time to exercise.”

**Abnormal hours/on call:** “Our schedule is weird, what we do is weird, our hours are weird, so it’s like putting a square peg into a round hole. It just does not work for us.”

**Injury liability:** “We’re not allowed to play ball sports on duty anymore, because of the workers compensation claims and injuries.”

**Perception:** “What is fit? Are we all supposed to be an Ironman? I personally don’t want that. . . .”

**Perception:** “I think that the program is more designed for the ladies in the front office or something. . . .”

**Enabling Factors for PA Participation**

Although social support and self-motivation were the most commonly cited enabling factors for both occupational categories, differences emerged between groups. Although both agreed that self-motivation was a factor, white-collar workers were more motivated externally, and blue-collar workers were not. Both groups considered health and the way they felt to be a major enabler to being physically active, although a higher value was placed on appearance, quick results, and weight loss by white-collar workers than by blue-collar workers. Although several differences were evident between the 2 categories, both agreed that being part of a team and competition as well as having fun and interesting activities in which to participate would increase their likelihood of engaging in work-site sponsored PA. Interestingly, although blue-collar workers voiced a decreased desire to participate
in a work-site wellness program compared with white-collar workers, blue-collar workers repeatedly responded that leisure-time PA was more of a priority than did white-collar workers.

**White-Collar Enabling Factors.** Most white-collar workers identified social support, self-motivation, feeling good, and being healthy as the most commonly mentioned enabling factors to being physically active. External motivators such as appearance, weight loss, and seeing quick results were large enablers for white-collar workers to participate in a work-site PA program. Other enabling factors included being part of a team and having fun activities to participate in. Evidence of this is located in the following statements:

- **Social support:** “For me, it’s as much the social interaction that you know working with people on a non-professional level. For me it’s, it’s more of a social kind of a thing that like I say uh ya know friends or, or buddies are depending on me or it’s not going to happen . . .”

- **Self-motivation:** “For me it doesn’t matter. I am going to do it regardless. It is just what I have decided to do. What I need to do for health, so I’ll do it. But it is more for myself . . . and what I want to do.”

- **External motivators:** “If they can guarantee that I would lose 65 lb I would join instantly.”

- **External motivators:** “. . . the way I look when I get out of the shower has a big impact!”

- **Team:** “. . . when we did the walk for fitness and it was a team, I made sure every night that I had gone out and done my part because it was a team thing. You didn’t want to let your team down. . . . I didn’t want them saying, ‘come on you slacker!’”

- **Fun activities:** “. . . I think it’s uh finding people’s interests, I’m we’re not interested in the same thing. . . . I think that’s kind of tough to find things that everybody can participate in and have fun. They won’t do it if it’s not fun. We already know that.”

**Blue-Collar Enabling Factors.** Most blue-collar workers identified social support, self-motivation, feeling good, and being healthy as their top enabling factors to participating in PA programs. Other factors included being part of a team, having fun activities to participate in, and making it a priority in their own lives. Evidence of this is located in the following statements:

- **Social support:** “It’s always better when you have someone. You never want to go to the gym and work out by yourself. You always want someone to be there to help spot, motivate you to get to that next level. And I think that if the crews could work out together, I think that would be beneficial.”

- **Self-motivation:** “If you’re not willing to do it, it doesn’t matter who you are with, what type of a group; you’ve got to have that motivating factor. It comes down to you are responsible for yourself.”

- **Fun activities:** “It would depend a lot on the activity. I can’t stand just going and riding on a bicycle, but I would play racquetball all day long.”
Priority: “I think all of us have super busy lives and if you are going to exercise you have to plan it out whether it is to get up early or stay up late or whatever. If you don’t plan it the day will pass you by and you won’t do it.”

Discussion

This qualitative study examined the reasoning behind commonly reported barriers and enabling factors to participating in work-site PA programs according to white- and blue-collar workers. Results from this study indicated that there were notable differences in barriers and enabling factors toward PA participation between white- and blue-collar occupations; however, there were also similarities between the 2 categories.

Barriers

Similar to previous research, both occupational categories noted that time was one of the most significant barriers to being active. Although time was a significant barrier for both occupational categories, the reasoning behind time differed. Consistent with previous research, common time barriers for being physically active for white-collar workers included that of scheduling and work conflicts, including long work hours that impede engaging in PA. For blue-collar workers, however, the most common barrier concerning time was shift work, including night shifts, as well as shifts lasting for several days. This finding might represent an important component of effective PA programs. That is, workers who are employed in shift work or work that requires long hours might benefit from on-site facilities that can be used at nontraditional times (ie, early morning or late night), whereas time-management interventions might be a more useful programming component with white-collar workers.

Participation rates in PA programs differ between occupational categories. As Blue et al comments, low participation among blue-collar workers in a work-site PA program might be because available programs have not been specifically designed for this occupational category of workers; they might already get their PA at the work site, leaving a minimal need for a work-site PA program. In the current study, this was found to be a perception of blue-collar workers, and they noted that work-site PA programs “were for the ladies in the front office.” Being physically active at work, they said, decreased the likelihood of their participation in a work-site PA program. However, as indicated in Table 2, blue-collar workers were still more active than their white-collar counterparts, likely the result of occupational PA. This finding also represents an important component of this study. Although this study did not attempt to quantify the health benefits associated with PA, it is plausible that blue-collar workers were realizing increased health benefits from PA compared with their white-collar counterparts. Thus, white-collar workers might represent a target population in which greater change is needed, and from a public health perspective, potentially greater health benefits could be available.

Findings from this study also uncovered inconsistencies with previous research. Examples of this included that white-collar workers were more likely to want instruction, be self-conscious, and be more fearful of others’ opinions during PA. They also felt that lack of knowledge was a barrier to their beginning and
maintaining a PA program. Although previous research does not list these specific findings,\textsuperscript{13} it does make note of “perceived self-efficacy.” Although self-efficacy was a barrier for both blue- and white-collar workers, it might be a contributing factor as to why white-collar workers were more self-conscious, because their perceptions of their abilities might lead to these fears and insecurities that we found to be significant barriers toward participation in PA. This information might be helpful in the future planning of work-site PA programs. Program planners in work-site PA programs should conduct needs assessments that include identification of the barriers surrounding white-collar workers and perhaps develop programs that address their self-consciousness, need for instruction, and lack of perceived self-efficacy.

**Enabling Factors**

Although health was important to both occupational categories in this study, we found that white-collar workers were much more concerned with appearances and were highly motivated by weight loss and the hopefulness of quick results. Literature supporting these findings is not specific to white-collar workers; however, previous researchers have indicated that weight and physical appearance are motivational influences for PA.\textsuperscript{30,31} Conversely, these findings indicated that blue-collar workers found little motivation in external factors including appearance and weight loss but that maintaining health was their greatest motivator.

Previous research has demonstrated that enabling factors to being physically active include social support\textsuperscript{16} and self-efficacy.\textsuperscript{16} The findings of this study indicated that this was true for both occupational categories. Social support was important to both occupational categories. White-collar workers were more likely to participate in a program if social support was readily available, whereas blue-collar workers were more likely to be more physically active on their own. Surprisingly, blue-collar workers made PA more of a priority than did white-collar workers. This finding is inconsistent with previous research indicating that blue-collar workers typically exhibit lower levels of PA\textsuperscript{8} and are 50\% more likely to be classified as inactive than are white-collar or professional workers.

One interesting finding for both groups was the dichotomy surrounding the need for both social support and self-motivation for being physically active. Although both groups stated that they would be more active with a good social-support system, they also contradicted this by stating that despite all other factors (including social support), self-motivation was still one of the most important enabling factor toward activity. Therefore, researchers and program planners should be aware of the dual nature of social support. When conducting needs assessments, program planners should seek to determine the intrinsic factors that motivate participation in work-site PA programs to create a good social-support system, as well as increase self-motivation. This could be beneficial in the creation and maintenance of such a program.

This study is not without limitations. First, the sample for this study was predominantly Caucasian, educated, and middle class, leaving little room for a diverse sample. Selection bias is also possible, which is common for focus-group data collection.\textsuperscript{32} The nature of qualitative data-collection methods such as focus groups should also be noted. These data cannot be generalized and should not be
interpreted as being representative of other settings. Furthermore, a gender effect also emerged, with 44.8% of white-collar participants being male, whereas 93.5% of blue-collar participants were male. Thus, findings regarding body image and appearance in white-collar participants might have been skewed because females tend to have more body concerns than do males.33

In conclusion, the results of this study indicate that although there are similarities in barriers and enabling factors toward PA participation between white-collar and blue-collar occupations, there are also important differences between occupational groups. Based on this information, it might be beneficial to tailor work-site PA programs to each occupational category’s needs and interests separately, because there are notable differences between blue-collar and white-collar barriers, interests, needs, and motivators in regard to PA. Furthermore, because of the variation we found among genders and occupational category, future researchers should attempt to include greater numbers of blue-collar females when conducting similar studies. These findings are important for health educators and should be incorporated in the planning of PA interventions in work-site settings in the future.

References


