

# Focus on Exercise: Client and Clinician Perspectives on Exercise in Individuals with Serious Mental Illness

Julia Browne<sup>1</sup> · Paul Mihas<sup>2</sup> · David L. Penn<sup>1,3</sup>

Received: 16 January 2015 / Accepted: 20 May 2015 / Published online: 26 May 2015  
© Springer Science+Business Media New York 2015

**Abstract** The health benefits of exercise are well established, yet individuals with serious mental illness (SMI) have a shorter life expectancy due in large part to physical health complications associated with poor diet and lack of exercise. There is a paucity of research examining exercise in this population with the majority of studies having examined interventions with limited feasibility and sustainability. Before developing an intervention, a thorough exploration of client and clinician perspectives on exercise and its associated barriers is warranted. Twelve clients and fourteen clinicians participated in focus groups aimed at examining exercise, barriers, incentives, and attitudes about walking groups. Results indicated that clients and clinicians identified walking as the primary form of exercise, yet barriers impeded consistent participation. Distinct themes arose between groups; however, both clients and clinicians reported interest in a combination group/pedometer based walking program for individuals with SMI. Future research should consider examining walking programs for this population.

**Keywords** Serious mental illness · Exercise · Health · Walking · Focus groups

## Introduction

The impact of exercise on physical health and psychological well being are well established. Exercise reduces the risk of obesity, sedentary lifestyle, and the development of chronic illnesses such as high blood pressure, diabetes, and heart disease (Bassuk and Manson 2005; Richardson et al. 2005). Moreover, exercise enhances cognition and self-efficacy, and reduces symptoms of anxiety and depression (Brosse et al. 2002; Lawlor and Hopker 2001; McAuley et al. 2013; Smith et al. 2010; Utschig et al. 2013). Despite these known benefits, over 60 million U.S. adults are overweight and approximately 30 % of the U.S. adult population does not engage in regular physical activity (Brosse et al. 2002). Thus, there is a critical discrepancy between the known value of exercise and the current levels of physical activity in the population. Although this discrepancy has been extensively examined in the general population, there has been far less attention given to populations that would benefit most from increasing physical activity, like those with serious mental illnesses.

Individuals with serious mental illness (SMI) often die prematurely from preventable causes such as poor diet, lack of exercise, and high rates of substance use and smoking (Connolly and Kelly 2005). They are also more likely to be sedentary than the general population. Sedentary lifestyle combined with weight gain from antipsychotic medication may contribute to higher rates of obesity and subsequent development of type II diabetes in this population (Connolly and Kelly 2005). Based on imminent health issues and unhealthy lifestyle choices observed in individuals with SMI, the potential benefits of increased physical exercise are substantial.

The few studies examining the effects of exercise on physical and mental health in individuals with SMI have

---

✉ Julia Browne  
jbrowne@unc.edu

<sup>1</sup> Department of Psychology, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

<sup>2</sup> Odum Institute, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

<sup>3</sup> Australian Catholic University, Melbourne, VIC, Australia

yielded encouraging results (Gorczyński and Faulkner 2010; Pearsall et al. 2014). But, given that several of the exercise interventions required supervision from a professional trainer and/or access to a gym (Acil et al. 2008; Beebe et al. 2005; Marzolini et al. 2009; Pelham et al. 1993; Scheewe et al. 2012; Skrinar et al. 2005), it is unlikely that individuals would be able to continue the program upon study completion due to cost and availability of services. Exercise interventions aimed at this population should not only emphasize efficacious, valid protocols, but also ease of access and delivery to promote continued physical activity. Thus, there is a significant need for a valid exercise program that is not only effective, but also accessible, feasible, and sustainable for individuals with SMI.

Walking is one of the most accessible forms of exercise because it can take place without the need for equipment or a gym membership. Given that many individuals with SMI suffer from social isolation, walking groups may hold particular promise in providing a unique opportunity for social interaction, social support, and obtaining a sense of responsibility in tandem with physical health improvements (Gorczyński and Faulkner 2010; Mason and Holt 2012). Moreover, groups can be led by a trained layperson, providing further support for feasibility, sustainability, and accessibility. Although the literature suggests the potential for a successful walking group for this population, an exploration of the barriers precluding effective development and implementation would be a critical step before piloting this intervention.

Focus groups provide a unique opportunity for individuals to describe their experiences, beliefs, and ideas in the presence of others who “have a central element of their experience in common” (Schulze and Angermeyer 2003, p. 301). Focus groups have been successfully utilized in research involving individuals with SMI and mental health providers (Aschbrenner et al. 2013; Happell et al. 2012; Lester et al. 2005; Mason and Holt 2012; McDevitt et al. 2006; McKibbin et al. 2014). With regard to exercise, focus groups have typically been conducted with SMI individuals after an exercise intervention has been completed to assess barriers to attendance and participant experiences with the program (Aschbrenner et al. 2013; Mason and Holt 2012). Though, in order to ensure successful long-term implementation of exercise programs in this population, both client and clinician perspectives on exercise and its associated barriers are critical during the development phase. Since the sustainability of an intervention often hinges on staff willingness to continue administering the protocol, they serve as an invaluable resource during the development phase of an intervention. Yet, to our knowledge, no study has conducted focus groups with *both* SMI individuals and clinicians *prior to implementation* of an exercise program.

The aims of the current study were to explore client and clinician perspectives on exercise, exercise intervention, and associated barriers in individuals with SMI. Furthermore, the study sought to obtain specific input from both clients and clinicians on the potential for a walking group intervention in this population.

## Method

### Participants

Participants in client focus groups ( $n = 12$ ), were eligible if they (a) had a diagnosis of a SMI (e.g. schizophrenia spectrum, bipolar disorder, major depression) as evidenced by chart review; (b) were above the age of 18; and (c) willing and able to provide informed consent. Primary diagnoses of clients included: schizoaffective disorder ( $n = 7$ ), schizophrenia ( $n = 1$ ), bipolar disorder ( $n = 1$ ), major depressive disorder ( $n = 1$ ), and other ( $n = 2$ ). Secondary diagnoses included depression ( $n = 3$ ), posttraumatic stress disorder ( $n = 1$ ), anxiety/OCD ( $n = 2$ ), bipolar disorder ( $n = 3$ ), and substance abuse ( $n = 1$ ).

Participants in clinician focus groups ( $n = 14$ ), were eligible if they (a) currently provided treatment to individuals with SMI; (b) were above the age of 18; and (c) willing and able to provide informed consent. Clinicians were primarily master’s level social workers who had an average of 8.6 years of clinical experience. Complete demographic information can be found in Table 1.

**Table 1** Demographic characteristics

	Clients ( $n = 12$ )	Clinicians ( $n = 14$ )
Gender, % ( $n$ )		
% Female	41.7 (5)	64.2 (9)
Age		
M (SD)	39.7 (7.7)	37.3 (10.1)
Range	25–50	24–55
Race, % ( $n$ )		
Caucasian	41.7 (5)	90.9 (10)
African–American	58.3 (7)	9.1 (1)
Ethnicity, % ( $n$ )		
Hispanic	8.3 (1)	7.1 (1)
Education, % ( $n$ )		
Some high school	8.3 (1)	–
High school diploma	16.7 (2)	–
Some college	25 (3)	–
College degree	33.3 (4)	7.1 (1)
Higher than college	8.3 (1)	92.9 (13)

Three clinician participants did not provide their ages. Age listed in table represents average of 11 clinician participants

Participants ( $n = 26$ ) were recruited from local clinics through referrals, flyers, and email/listserv announcements.

## Measures

### *Discussion Questions and Walking Group Questionnaires*

The research team designed discussion questions and feedback questionnaires to obtain information regarding a potential walking group intervention for this population (e.g. recommendations for frequency/duration of groups, location, barriers). The focus group format and discussion questions were created in consultation with a qualitative analysis consultant. Similar discussion questions were asked across client and clinician groups to maintain consistency and allow for between- and within-group analyses (see Table 2).

Walking group questionnaires were created to obtain information regarding general interest in a walking group as well as recommendations for length and duration. Questions were modified to reflect the appropriate group (client vs. clinician). Clients were asked to rate their current level of physical activity, likelihood of participating in a walking group, and comfort wearing a heart rate monitor and/or pedometer. Clinicians were asked to rate their perception of how physically active their clients were, how high of a need there is for a feasible exercise intervention in this population, and the likelihood that they would refer clients to a walking group. All ratings were made using a Likert scale from 1 (not at all) to 5 (very). Both groups were also asked to choose the ideal length (20, 30, 40,

50 min) and frequency (1, 2, 3, 4+ days/week) in a multiple-choice format. Finally, open-ended questions were included in the survey to elicit potential barriers to successful implementation as well as suggestions for incentives to exercise. Information from these questionnaires provided valuable information regarding the potential for a future walking group in this population.

## Procedure

The principal investigator led each 60–75 min focus group. The discussion followed a semi-structured format that covered topics regarding experience with exercise, barriers to health and exercise, as well as specific input regarding a potential future walking group intervention. Participants completed questionnaires at the end of the discussion. All focus groups were recorded: Sessions were transcribed by trained research assistants and qualitatively analyzed to detect themes from the discussions. In addition, participants completed a feedback questionnaire containing items rated on a Likert scale, multiple choice questions, and free response. Participants were compensated \$15.00 for their time.

### *Study Location*

The study was conducted at an outpatient clinic that serves individuals with SMI located in two cities in a southeastern state. The focus groups were conducted in secure rooms at the clinics to optimize safety and convenience for both clients and clinicians.

### *Data Analysis*

Trained research assistants transcribed all four focus groups. Transcripts were entered and coded using Atlas.ti qualitative analysis software. The first and second authors analyzed the transcripts collaboratively. Analyses were completed using constant comparison with both a start-list of deductive codes and emerging, inductive codes identified across data (Boeije 2002; Onwuegbuzie et al. 2009). These deductive and inductive codes became part of a codebook of codes and definitions. Through constant comparison, we compared data with data, data with codes, and codes with codes while coding in order to understand more clearly the nuanced meaning of each code (Boeije 2002; Putter and Nolen 2010).

In both client and clinician focus groups, topics related to health, exercise, and input regarding the potential for a future walking group were considered. Analyses were primarily descriptive and allowed for examination into the co-occurrence of codes and emerging themes within client and clinician groups as well as across groups. In line with published methodology (Armstrong et al. 1997; McDevitt

**Table 2** Focus group guide

Client version
1. What do you do to try to keep healthy?
2. When I mention exercise what goes through your mind?
3. What, if anything, gets in the way of exercising?
4. If you were in charge of an exercise program what would it look like?
5. What are your thoughts about a walking group?
6. If you were in charge of the walking group, how would you get people involved?
Clinician version
1. Can you comment on the physical health of your clients?
2. How often would you say your clients exercise?
3. What times of exercise programs do you think would be more feasible for your clients?
4. What are your thoughts about a walking group for clients?
5. What obstacles do you anticipate being most prevalent?
6. How could clients be best motivated to participate in a walking group?

et al. 2006), two raters read the transcripts, coded data, and adjudicated any substantive differences.

## Results

Four focus groups were completed over a four-month period. Client focus groups consisted of six participants in each of two groups and clinician focus groups consisted of six and eight participants in each of two groups. Deductive and inductive coding of all transcribed focus groups elicited four primary themes: *reasons to exercise*, *barriers to exercise*, *incentives to exercise*, and *attitudes on walking groups*. Results from focus groups and questionnaires will be presented separately below to include both client and clinician perspectives.

### Focus Group Results

#### *Reasons to Exercise*

**Client Perspectives** Focus group transcripts revealed that the majority of clients had experience with exercise, especially with walking due to its accessibility (Fig. 1). Clients described walking primarily for its positive impact on their mood, physical health benefits, and for enjoyment. Additionally, many clients reported having depression and described walking during their “witching hour” as a coping skill.

**Clinician Perspectives** Clinicians described their clients as generally inactive except for some that used walking as a form of transportation. One clinician described the use of walking as a mode of transport:

Some [exercise]. Mostly walking, and then most of our clients don't have transportation, so that is one of the main means of getting around, so they do walk.

Focus group transcripts also revealed that the majority of clinicians believed their clients were aware of the physical health benefits of exercise but rarely engaged in it due to various barriers. One clinician explained:

There are those that are sort of aware that they're overweight and would like to exercise, [...] but say they're living in a group home, the access to a gym is not really available because they don't have the transportation.

Overall, clients and clinicians described physical health benefits and accessibility of walking as the primary reasons to engage in exercise. Yet, clinicians recognized walking as a mode of transport whereas clients endorsed exercise as a positive coping skill for depression.

#### *Barriers to Exercise*

**Client Perspectives** Clients mentioned several barriers to exercise such as physical health complications, motivation, safety, symptoms, and transportation; however, motivation was the most salient obstacle (Fig. 2). Three clients described their struggle with motivation:

I have a lot of trouble especially lately motivating myself to exercise, I struggle with depression. Its one of the hardest things is to get yourself going.  
Motivation! I have that problem with exercise.  
I just need motivation, so you know groups like this help me talk [...] and seeing other people making [...] efforts to do better with [their] health and stuff.

Clients described physical health conditions such as arthritis, diabetes, and bodily pain as preventing them from engaging in exercise. Additionally, safety was an obstacle that many clients had encountered. One client explained:

That's the really hard part about walking, You have to go somewhere safe to walk [and then] you have the extra barrier between you and doing the exercise.

**Clinician Perspectives** Clinicians identified physical health complications, motivation, socioeconomic status, stigma, symptomatology, lack of enjoyment in exercise, and transportation as barriers (Fig. 2). Clinicians believed that physical health complications, symptoms, and transportation were most salient for their clients. One clinician described:

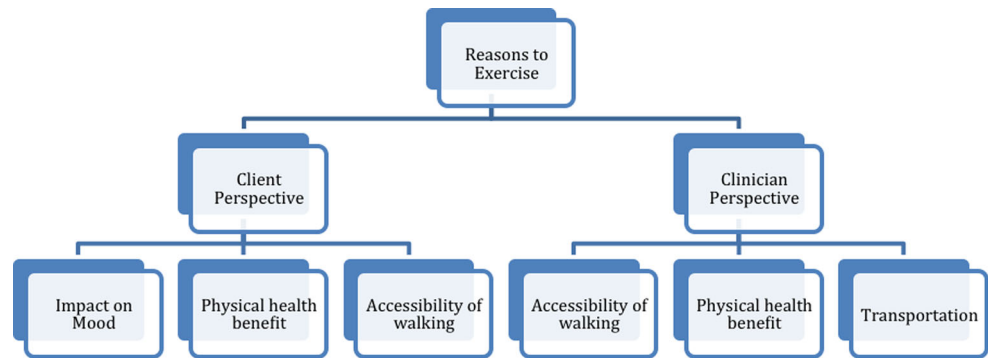
They have some other health complications but obesity I think is probably their biggest health complication. Pre-diabetes, that kind of thing. And exercise wise: I mean, none. They sit at home, watch TV. I think probably the most exercise, the most activity they get is when they come into appointments.

Clinicians explained that symptoms related to SMI (e.g. negative symptoms in schizophrenia spectrum disorders) are a major barrier for clients to exercise. One clinician described:

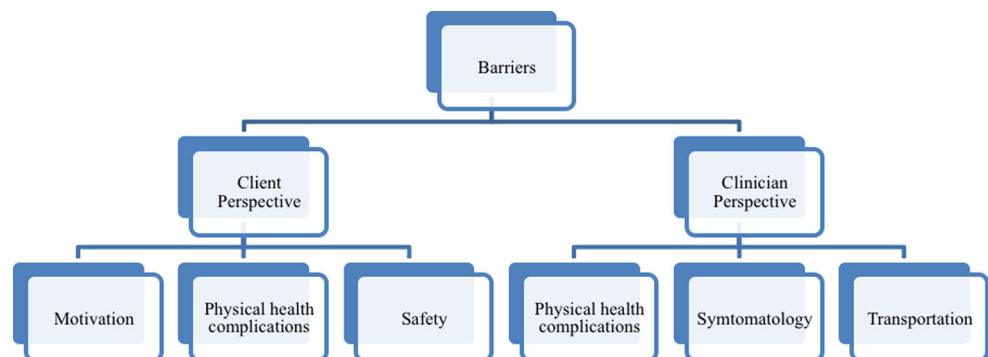
I think they see exercise as important. I think they knows that it's a component of not just weight management but it is a component of their mental health and health and I think they understand it. But there's this negative symptomatology, sort of the avolitional part [that gets in the way].

Overall, clients and clinicians recognized physical health complications as a primary barrier to exercise in this population. Yet, clients perceived motivation and safety as additional barriers whereas clinicians perceived mental health symptoms and transportation concerns as most significant.

**Fig. 1** Reasons to exercise.  
*Note.* The three most cited reasons to exercise are represented in the above figure for both clients and clinicians



**Fig. 2** Barriers to exercise.  
*Note.* The three most cited barriers are represented in the above figure for both clients and clinicians



### *Incentives to Exercise*

**Client Perspectives** Clients offered several strategies to increase motivation to exercise, especially with regards to participation in a walking group (Fig. 3). Clients described that walking with a group of individuals would give them “a sense of shared purpose”, which would serve as a strong motivator. Additionally, several clients offered the suggestion for using pedometers to track steps, provide rewards for participating, and have time after the walks to share experiences. One client described positive past experience with using a pedometer as “a sneaky way to get exercise” because of the constant feedback on one’s progress.

**Clinician Perspectives** Clinicians recommended pedometers and rewards as the most effective strategies to incentivize clients to exercise, especially in a walking group (Fig. 3). A few clinicians described the potential for motivating clients through both pedometers and rewards:

You could even split the walking into two groups, have teams, use pedometers or something to compete with some sort of a reward.

You could tie the number of steps to some [prize like] movie tickets to build and to add some enticing elements to it.

I think [pedometers] would be a great thing, have it be a little bit more fun and competitive.

Clinicians also mentioned that the sense of responsibility that would develop from group participation may also play a role in motivating clients to exercise; but tangible rewards were identified as more effective.

### *Attitudes on Walking Groups*

**Client Perspectives** Clients were most interested in a walking group because of the social interaction component. Two clients explained the impact of their struggle with isolation on exercise:

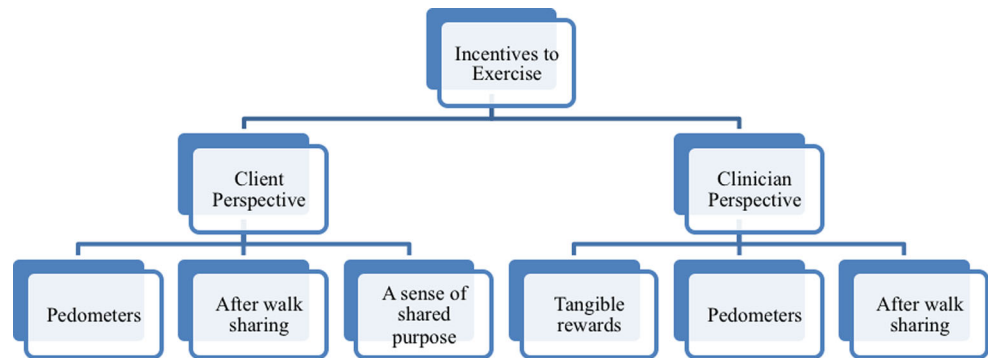
Another thing is, it’s nice to go with other people, to meet people, sometimes when you’re dealing with depression and things you get isolated, so to combine exercise with socialization is really good.

I think exercising with people I know and stuff would help me too. Because when I exercise at the Y and at the mall I was by myself so exercising with people probably might help me a little bit.

Clients were excited about the idea of participating in a walking group; but acknowledged concerns regarding effective implementation. The majority of concerns were related to logistical issues such as group scheduling, location, and length.



**Fig. 3** Incentives to exercise. *Note.* The three most cited incentives to exercise are represented in the above figure for both clients and clinicians



*Clinician Perspectives* Clinicians thought a walking group would be effective for their clients because it would provide them with the opportunity for social interaction and then they would experience the secondary gain of improved health. Two clinicians explained:

I know our clients crave contact with someone else going through something like them.  
It's kind of a great idea if you can promote the expectation that the reward is the social connection, the reward is the health benefit.

Overall, clinicians provided positive feedback regarding the potential for a walking group intervention in this population specifically because of the social interaction component above and beyond the health benefit.

#### *Walking Group Questionnaire Results*

*Perceptions of Client Physical Activity* Survey questionnaires indicated that clients perceived themselves as relatively physically active ( $M = 3.58$ ,  $SD = 1.08$ ) yet clinicians perceived their clients as mostly physically inactive ( $M = 1.93$ ,  $SD = .829$ ) (Fig. 4).

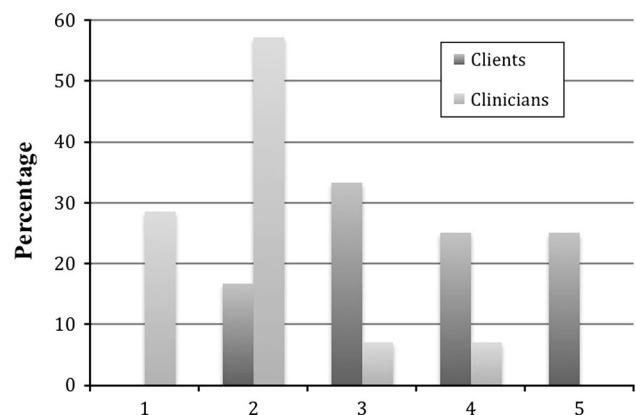
*Walking Group Input* Client participants expressed interest in attending a walking group ( $M = 3.92$ ,  $SD = 1.24$ ). Additionally, they had preferences for 2 or 3 days per week with each walk lasting approximately 30 min. Clinician participants expressed awareness of a very high need for feasible exercise interventions for this population ( $M = 4.79$ ,  $SD = .579$ ), and indicated interest in referring clients to a walking group ( $M = 4.5$ ,  $SD = .650$ ). Finally, they recommended 1 or 2 days per week with each walk lasting approximately 30 min (Fig. 5).

## Discussion

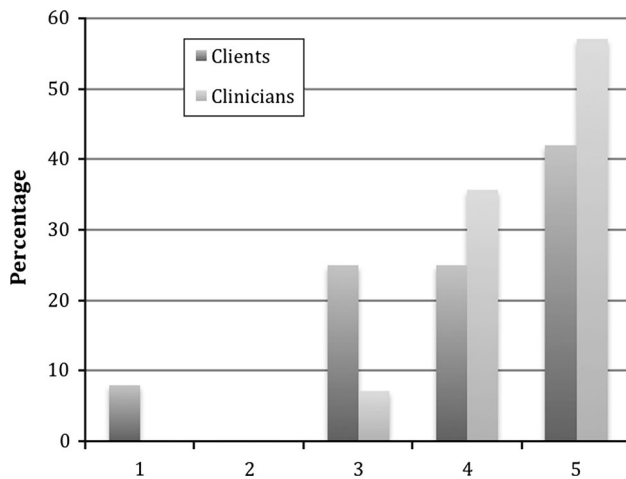
The purpose of the study was to explore client and clinician perspectives on physical activity, physical activity intervention, and associated barriers for individuals with SMI.

Moreover, the study sought to elicit input from both clients and clinicians on the potential for a walking group intervention for this population. Results from the present study are consistent with previous research indicating that individuals with SMI recognize the physical health benefits associated with exercise but experience barriers that impede participation (Gorczyński and Faulkner 2010; McDevitt et al. 2006). Both clients and clinicians described walking as the most accessible and favorable form of exercise. Moreover, both groups identified the potential benefits of exercising in a group due to the prominent social isolation experienced by individuals with SMI. Examination of client and clinician perspectives elicited several similarities as well as notable differences regarding reasons to exercise, barriers, incentives, and attitudes on walking groups.

Clients perceived themselves as relatively physically active and identified enjoyment, positive impact on mood (especially alleviating depressive symptoms), and the associated health benefit as primary reasons for engaging in exercise. Additionally, clients explained that they used exercise as a coping skill, especially for managing symptoms of depression. Clients' recognition of the mood improving effects of exercise is consistent with evidence demonstrating that exercise can significantly reduce



**Fig. 4** Perceptions of client physical activity. *Note.* Participants rated responses on a scale from 1 (not at all active) to 5 (very active)



**Fig. 5** Walking group interest. *Note.* Clients rated interest in participating in a walking group and clinicians rated likelihood of referring clients to a walking group on a scale from 1 (not at all) to 5 (very)

depressive symptoms (Lawlor and Hopker 2001). Unfortunately, several barriers such as motivation, safety, and physical health complications impeded consistent participation in exercise for these individuals.

Clinicians reported that their clients are relatively inactive due to barriers to exercise such as physical health complications, motivation, socioeconomic status, stigma, symptomatology, lack of enjoyment in exercise, and transportation (to and from a gym). They described that the majority of their clients that do engage in exercise utilize walking as the primary mode. They explained that the primary reasons for exercise are the health benefit and mode of transportation.

Although both groups identified similar reasons to exercise and barriers to exercise, notable differences emerged between the client and clinician perspective. Firstly, clients and clinicians differed in their perception of client physical activity such that clinicians viewed SMI clients as far more physically inactive than clients viewed themselves. Yet, since previous research has not examined differences in client and clinician perspectives on exercise in this population, little is known regarding the origins of these perceptions. Secondly, clients identified positive effects of exercise on mood and physical health whereas clinicians believed clients used exercise for transportation and physical health. This difference in perspective may suggest that clients experience far more positive effects of exercise than is commonly understood by clinicians. Thirdly, clients recognized motivation and safety as primary barriers to exercise whereas clinicians recognized transportation and symptoms. The barriers identified by clients' parallel typical exercise barriers in the general population (Schutzer and Graves 2004) whereas clinicians felt symptoms related

to mental illness were most salient. Clinicians' focus on symptoms as primary barriers could be a product of the typical context in which they interact with clients most often (e.g. therapy, medical care).

With regard to a walking group for SMI individuals, both clients and clinicians were highly interested and optimistic about its success. Clients and clinicians both indicated that a primary motivator to participate in a walking group would be the opportunity for social interaction. Both groups recommended organizing a time for "after walk sharing" so that connection and cohesion within the group could be fostered. This finding is in line with previous research suggesting that successful exercise programs for individuals with mental illness provide an atmosphere for social interaction (Mason and Holt 2012). Furthermore, both clients and clinicians expressed interest in using pedometers as part of the walking group to track steps for a source of tangible motivation. Pedometers have been successfully used in SMI populations as the primary intervention but have not yet been examined in combination with a walking group (Kane et al. 2012; Lindamer et al. 2008). Clients and clinicians differed in their opinions regarding the use of external rewards such as money and prizes such that clinicians felt their use was necessary to initially engage participants in an intervention.

Limitations of this study include the relatively small sample size and potential for sampling bias, especially among client participants. It is possible that clients who volunteer to participate in a focus group about exercise would be more physically active, view exercise in a positive light, and be motivated to participate in a potential exercise intervention.

This study is one of the first to explore both client and clinician perspectives on exercise in the SMI population prior to the implementation of an intervention. Different emergent themes from client and clinician focus groups demonstrate the need to recognize barriers, incentives, and implementation strategies from both the consumer and facilitator lens. Considering the varying perspectives of clients and clinicians, and addressing all salient barriers during the development phase has the potential to significantly impact the efficacy, feasibility, and sustainability of the exercise intervention. Both clients and clinicians were highly interested in the development of a walking group that also incorporated the use of pedometers for tangible motivation. Given the grave health concerns regarding physical inactivity in this population and the current lack of sustainable exercise interventions, the potential for a combination walking group and pedometer program warrants examination.

**Acknowledgments** The authors would like to acknowledge the assistance of Thava Mahadevan, M.A. and Kelly Smedley, R.N. for

aiding recruitment efforts and administrative support at STEP, Bonita Marks, Ph.D. and James Blumenthal, Ph.D. for design consultation, Kelsey Ludwig, B.A. for assistance in conducting focus groups, and Kagan Griffin for providing data management services.

**Conflict of interest** The authors declare that they have no conflict of interest.

**Human and Animal Rights** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

## References

- Acil, A. A., Dogan, S., & Dogan, O. (2008). The effects of physical exercises to mental state and quality of life in patients with schizophrenia. *Journal of Psychiatric and Mental Health Nursing, 15*(10), 808–815.
- Armstrong, D., Gosling, A., Weinman, J., & Marteau, T. (1997). The place of inter-rater reliability in qualitative research: An empirical study. *Sociology, 31*(3), 597–606.
- Aschbrenner, K., Carpenter-Song, E., Mueser, K., Kinney, A., Pratt, S., & Bartels, S. (2013). A qualitative study of social facilitators and barriers to health behavior change among persons with serious mental illness. *Community Mental Health Journal, 49*(2), 207–212.
- Bassuk, S. S., & Manson, J. E. (2005). Epidemiological evidence for the role of physical activity in reducing risk of type 2 diabetes and cardiovascular disease. *Journal of Applied Physiology, 99*(3), 1193–1204.
- Beebe, L. H., Tian, L., Morris, N., Goodwin, A., Allen, S. S., & Kuldau, J. (2005). Effects of exercise on mental and physical health parameters of persons with schizophrenia. *Issues in Mental Health Nursing, 26*(6), 661–676.
- Boeije, H. (2002). A purposeful approach to the constant comparative method in the analysis of qualitative interviews. *Quality and Quantity, 36*(4), 391–409.
- Brosse, A. L., Sheets, E. S., Lett, H. S., & Blumenthal, J. A. (2002). Exercise and the treatment of clinical depression in adults: Recent findings and future directions. *Sports Medicine, 32*(12), 741–760.
- Connolly, M., & Kelly, C. (2005). Lifestyle and physical health in schizophrenia. *Advances in Psychiatric Treatment, 11*, 125–132.
- Gorczynski, P., & Faulkner, G. (2010). Exercise therapy for schizophrenia. *Cochrane Database Systematic Review, 5*, 1–43.
- Happell, B., Scott, D., Platania-Phung, C., & Nankivell, J. (2012). Nurses' views on physical activity for people with serious mental illness. *Mental Health and Physical Activity, 5*(1), 4–12.
- Kane, I., Lee, H., Sereika, S., & Brar, J. (2012). Feasibility of pedometers for adults with schizophrenia: Pilot study. *Journal of Psychiatric and Mental Health Nursing, 19*(1), 8–14.
- Lawlor, D. A., & Hopker, S. W. (2001). The effectiveness of exercise as an intervention in the management of depression: Systematic review and meta-regression analysis of randomised controlled trials. *British Medical Journal, 322*(7289), 763.
- Lester, H., Tritter, J. Q., & Soroohan, H. (2005). Patients' and health professionals' views on primary care for people with serious mental illness: Focus group study. *British Medical Journal, 330*(7500), 1122.
- Lindamer, L. A., McKibbin, C., Norman, G. J., Jordan, L., Harrison, K., Abeyesinhe, S., & Patrick, K. (2008). Assessment of physical activity in middle-aged and older adults with schizophrenia. *Schizophrenia Research, 104*(1), 294–301.
- Marzolini, S., Jensen, B., & Melville, P. (2009). Feasibility and effects of a group-based resistance and aerobic exercise program for individuals with severe schizophrenia: a multidisciplinary approach. *Mental Health and Physical Activity, 2*(1), 29–36.
- Mason, O. J., & Holt, R. (2012). Mental health and physical activity interventions: A review of the qualitative literature. *Journal of Mental Health, 21*(3), 274–284.
- McAuley, E., Mailey, E. L., Szabo, A. N., & Gothe, N. (2013). Physical activity and personal agency: Self-efficacy as a determinant, consequence, and mediator. In P. Ekkekakis (Ed.), *Routledge handbook of physical activity and mental health* (pp. 224–235). New York: Routledge.
- McDevitt, J., Snyder, M., Miller, A., & Wilbur, J. (2006). Perceptions of barriers and benefits to physical activity among outpatients in psychiatric rehabilitation. *Journal of Nursing Scholarship, 38*(1), 50–55.
- McKibbin, C. L., Kitchen, K. A., Wykes, T. L., & Lee, A. A. (2013). Barriers and facilitators of a healthy lifestyle among persons with serious and persistent mental illness: perspectives of community mental health providers. *Community Mental Health Journal, 1*–11.
- Onwuegbuzie, A. J., Dickinson, W. B., Leech, N. L., & Zoran, A. G. (2009). A qualitative framework for collecting and analyzing data in focus group research. *International Journal of Qualitative Methods, 8*(3), 1–21.
- Pearsall, R., Smith, D. J., Pelosi, A., & Geddes, J. (2014). Exercise therapy in adults with serious mental illness: A systematic review and meta-analysis. *BMC Psychiatry, 14*(1), 117.
- Pelham, T. W., Campagna, P. D., Ritvo, P. G., & Birnie, W. A. (1993). The effects of exercise therapy on clients in a psychiatric rehabilitation program. *Psychosocial Rehabilitation Journal, 16*(4), 75–84.
- Putter, J. V., & Nolen, A. L. (2010). Comparing results from constant comparative and computer software methods: A reflection about qualitative data analysis. *Journal of Ethnographic and Qualitative Research, 5*, 99–112.
- Richardson, C. R., Faulkner, G., McDevitt, J., Skrinar, G. S., Hutchinson, D. S., & Piette, J. D. (2005). Integrating physical activity into mental health services for persons with serious mental illness. *Psychiatric Services, 56*(3), 324–333.
- Scheewe, T. W., Takken, T., Kahn, R. S., Cahn, W., & Backx, F. J. (2012). Effects of exercise therapy on cardiorespiratory fitness in patients with schizophrenia. *Medicine and Science in Sports and Exercise, 44*(10), 1834–1842.
- Schulze, B., & Angermeyer, M. C. (2003). Subjective experiences of stigma. A focus group study of schizophrenic patients, their relatives and mental health professionals. *Social Science and Medicine, 56*(2), 299–312.
- Schutzer, K. A., & Graves, B. S. (2004). Barriers and motivations to exercise in older adults. *Preventive Medicine, 39*(5), 1056–1061.
- Skrinar, G. S., Huxley, N. A., Hutchinson, D. S., Menninger, E., & Glew, P. (2005). The role of a fitness intervention on people with serious psychiatric disabilities. *Psychiatric Rehabilitation Journal, 29*(2), 122–127.
- Smith, P. J., Blumenthal, J. A., Hoffman, B. M., Cooper, H., Strauman, T. A., et al. (2010). Aerobic exercise and neurocognitive performance: A meta-analytic review of randomized controlled trials. *Psychosomatic Medicine, 72*, 239–252.
- Utschig, A. C., Otto, M. W., Powers, M. B., & Smits, J. A. J. (2013). The relationship between physical activity and anxiety and its disorders. In P. Ekkekakis (Ed.), *Routledge handbook of physical activity and mental health* (pp. 105–116). New York: Routledge.



Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.