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Exercise self-efficacy correlates in people with psychosis

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ABSTRACT

Despite the recognition of the importance of exercise self-efficacy in exercise adoption and maintenance, previous investigations on exercise self-efficacy in people with psychosis is scarce. The present study aimed to (1) explore if exercise self-efficacy differed between stages of behavior change in Ugandan outpatients with psychosis, and (2) assess sociodemographic, clinical and motivational correlates of exercise self-efficacy. In total, 48 patients (24 women) completed the Exercise Self-Efficacy Scale (ESES), the Patient-centered Assessment and Counseling for Exercise questionnaire, the Brief Symptoms Inventory-18 (BSI-18), and questions pertaining to intrinsic motivation in the Behavioral Regulation in Exercise Questionnaire-2. Additionally, participants were asked about their exercise behavior in the past 7 days and screened for cardio-metabolic risk factors. Higher ESES-scores were observed in those in the maintenance (n = 17) versus those in the pre-action stage (n = 17) of behavior change. Higher ESES-scores were also significantly associated with lower BSI-18 somatization and higher intrinsic motivation scores. Our data indicated that health care professionals should assist patients with psychosis in interpreting physiological states during exercise. Future research should explore whether bolstering such sources of information might directly or indirectly effect exercise self-efficacy.

1. Introduction

Exercise has important physical and mental health benefits for people with psychosis (Firth et al., 2015, 2017; Rosenbaum et al., 2014; Soundy et al., 2015; Vancampfort et al., 2015). Despite these benefits, dropout from exercise interventions is high. In a recent meta-analysis the dropout rate in 19 exercise trials in people with schizophrenia was found to be 26.7%, which is higher than in most other sedentary populations (Stubbs et al., 2016a). Therefore, determining the factors that contribute to continued exercise behavior in people with psychosis is of clinical relevance.

There is strong evidence that perceived self-efficacy is an important mediator of exercise behavior in people with schizophrenia (Beebe et al., 2010; Chuang et al., 2016; Gorczynski et al., 2014, 2010; Twyford and Lusher, 2016; Vancampfort et al., 2012). Self-efficacy is a psychological concept defined as an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977). The theory of self-efficacy argues that patients' confidence in their ability to perform exercise influences their engagement and actual exercise performance, which in turn influences health outcomes (Bandura, 1982). Studies exploring exercise self-efficacy are however only based on studies from Western, high-income countries (Beebe et al., 2010; Gorczynski et al., 2014). The lack of studies from low- and middle-income countries (LMICs) highlights the gap between where most research has been completed and where the largest public health impacts of physical inactivity can be gained (Sallis et al., 2016). Exploring exercise self-efficacy in LMICs is of interest as most individual-focused behavior change models are found not to be applicable in LMICs and in immigrants from these countries (Rathod et al., 2017; Zimmerman et al., 2016). Therefore, we want to explore whether self-efficacy could explain exercise behavior in non-Western, low resourced settings. To this end, we will explore whether the level of self-efficacy differs across different stages of changes as defined by the transtheoretical model (TTM) of behavior change (Prochaska and DiClemente, 1992) in outpatients with psychosis in Uganda. Within the TTM, patients are placed into one of five stages: pre-contemplation (not considering changing their exercise behavior); contemplation (intending to change their exercise behavior in 6

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months); preparation (intending to change their exercise behavior in 30 days); action (engaged in exercise for less than 6 months); and maintenance (engaged in exercise for more than 6 months).

Despite the recognition of the prominent role of exercise self-efficacy in decisions of exercise adoption and maintenance in high-income countries, no information on exercise self-efficacy correlates is available on people with psychosis. This is likely due to an interest in demonstrating to what extent self-efficacy affects exercise behavior, rather than specifying and demonstrating factors that affect self-efficacy. Thus, it is important to identify factors associated with a person's exercise self-efficacy when trying to facilitate increased exercise participation in people with psychosis. In this study, we want to explore the associations of exercise self-efficacy, socio-demographic, mental and physical health parameters and intrinsic motivation in patients with psychosis. Intrinsic motivation refers to performing an activity due to its inherent satisfaction (Ryan and Deci, 2000). We hypothesize that higher levels of psychological distress, the presence of cardio-metabolic risks and lower levels of intrinsic motivation towards physical activity are associated with a lower exercise self-efficacy. Based on previous research (Clark and Nothwehr, 1999; Firth et al., 2016a; Wilcox et al., 2005) we hypothesize that increasing age, female gender and the presence of cardio-metabolic risks will be associated with lower exercise self-efficacy. Additionally, we hypothesized that individuals who perceive themselves to be less confident in their capabilities to participate in exercise are likely to experience less interest in such an activity.

In summary, the present study aimed to (a) explore if exercise self-efficacy differs between different stages of behavior change in a non-Western population of outpatients with psychosis, and (b) assess sociodemographic (age, gender), clinical (mental and physical health parameters), and motivational (the level of intrinsic motivation) correlates of exercise self-efficacy.

2. Methods

2.1. Participants and procedure

In a 3-month period all consecutive outpatients with a DSM 5 diagnosis of psychosis (delusional disorder, substance/medication- induced psychotic disorder, unspecified psychotic disorder, schizophrenia, schizoaffective disorder, bipolar disorder with psychotic features) as diagnosed by the treating psychiatrist of the Butabika National Referral Hospital, Kampala, Uganda, were invited to participate in this study. Individuals were included if they had a full or partial remission in psychotic symptoms and were able to concentrate during the interview as determined by the treating psychiatrist. All questionnaires were interviewer-administered. The study procedure was approved by the ethical committee of Mengo Hospital. All participants gave their written informed consent.

2.2. Exercise self-efficacy scale (ESES)

The ESES consists of 10 items about level of self-confidence with regard to performing regular physical activities and exercise (Kroll et al., 2007). A sample item is: “I am confident that I can overcome barriers and challenges with regard to physical activity and exercise if I try hard enough”. Respondents answer using a 4-point scale: not at all true, rarely true, sometimes true, and always true. ESES scores ranged from 10 to 40, in which a higher score indicates a higher level of exercise self-efficacy.

2.3. Patient-centered assessment and counseling for exercise (PACE)

The Patient-centered Assessment and Counseling for Exercise (PACE) questionnaire (Long et al., 1996) was used to assess the stages of change as derived from the trans-theoretical model (Prochaska and DiClemente, 1992). The algorithm used was a single item followed by four questions. In the present study, exercise was defined as performing physical activity of at least moderate intensity (activities that take moderate physical effort and make you breathe somewhat harder than normal) for a minimum 30 min per day (in at least 10 min bouts) at least five days of the week, and the four questions were used to determine the stage of change. Participants had to answer either ‘yes’ or ‘no’ to each of the following questions: (1) Do you currently engage in regular exercise? (2) Do you intend to engage in regular exercise in the next 6 months? (3) Do you intend to engage in regular exercise in the next 30 days? (4) Have you been regularly exercising for the past 6 months? If they answered ‘no’ to questions 1 and 2, they were classified as being in pre-contemplation. If they answered ‘no’ to questions 1 and 3, but ‘yes’ to question 2, they were considered to be in contemplation. If they answered ‘no’ to question 1, but ‘yes’ to question 3, they were classified as being in preparation. If they answered ‘yes’ to question 1, but ‘no’ to question 4, they were considered in action and, if they answered ‘yes’ to questions 1 and 4, they were considered to be in maintenance. In this study those in the (pre-) contemplation and preparation stages were labeled as being in the pre-action stage.

2.4. Brief symptoms inventory - 18 (BSI -18)

The BSI-18 (Derogatis, 2001) is a self-reported screening inventory designed to assess participants’ level of psychological distress on three dimensions: somatization, depression, and anxiety. The 18 items are divided equally across the three dimensions and were presented with the standard instructions asking participants to rate how much they have been “distressed or bothered” in the past 7 days, including today, by the given symptom, using a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Each item contributes to only one subscale, which is scored by summing the scores on each of the six subscale items. The three raw subscale scores range from 0 to 24.

2.5. Intrinsic motivation: behavioral regulation in exercise questionnaire 2 (BREQ-2)

We used the 4 items of the intrinsic motivation factor of the BREQ-2 (Markland and Tobin, 2004): (1) I exercise because it's fun, (2) I enjoy my exercise sessions, (3) I find exercise a pleasurable activity, (4) I get pleasure and satisfaction from participating in exercise. Each item is measured on a five-point Likert-scale, from 0 ('Not true for me') to 4 ('Very true to me').

2.6. Cardio-metabolic risks

We assessed the presence of three cardio-metabolic risk factors: (1) abdominal obesity, (2) hypertension, and (3) smoking. Waist circumference (WC) was measured to nearest 1 cm at the level of the umbilicus and at the end of expiration with the subject upright. Based on criteria for Sub-Saharan Africans, a waist circumference of > 90 cm is considered a cardio-metabolic risk factor for both men and women (Crowther and Norris, 2012; Kalk et al., 2011). Hypertension was diagnosed when the systolic pressure was ≥ 140 mmHg and/or diastolic pressure was ≥ 90 mmHg (Chobanian et al., 2003) or when taking antihypertensive medication. Blood pressure measurements were taken on the left arm with the participant in the sitting position using a calibrated electronic blood pressure device (Omron®). Two systolic and diastolic blood pressure measurements were taken at least five minutes apart. The average was used in this analysis. Smoking status was self-reported by participants. If they smoked, the mean number of cigarettes smoked per day was recorded. When patients fulfilled 2 of the 3 risks factors, they were we considered as at risk.

2.7. Medication use

Data on current use of antidepressants, mood stabilizers and