

Lucija Vinkšel ^{1,*}
Saša CeciĆ Erpič ²

SUBJECTIVE PERCEPTION OF THE IMPACT OF PHYSICAL ACTIVITY ON THE MENTAL HEALTH OF OLDER WOMEN WITH SEVERE MENTAL DISTRESS

SUBJEKTIVNA ZAZNAVA VPLIVA REDNE TELESNE DEJAVNOSTI NA DUŠEVNO ZDRAVJE STAREJŠIH ŽENSK Z IZKUŠNJO HUDE DUŠEVNE STISKE

ABSTRACT

Depressive symptoms among older adults are the second leading cause of disability and functional decline. Physical activity has gained considerable attention for its benefits in preventing and treating depressive symptoms. The majority of existing studies are quantitative in nature, but qualitative research into how people with depressive symptoms view physical activity in relation to their mental health is insufficient. We recruited 23 female participants from a recreational center in Ljubljana to participate in semi-structured interviews. Our aim was to identify how physical activity influences everyday life and its perceived effect on mental health among our participants. We used mixed methods, with an accent on qualitative methods. Conventional content analysis was used to explore the data from the interviews. We identified that increased satisfaction, well-being, and improved physical health are key factors through which participants find physical activity useful in stress and depression management. We can conclude that intentional physical activity in the form of walking, running, cycling, or group or individual workouts has a positive impact on physical and psychological wellbeing and has a positive impact on a person's life. Our findings can be used in future studies to assess any successful non-pharmacological treatments for depression symptoms, such as different exercise programs, support groups, or different social activities.

Keywords: Older adults, physical activity, mental health, depressive symptoms, public health

¹*Centre of active Fužine, Retirement home Fužine, Ljubljana, Slovenia*

²*Faculty of sport, University of Ljubljana, Ljubljana, Slovenia*

IZVLEČEK

Depresivni simptomi so drugi najpogostejši vzrok nezmožnosti in funkcionalnega upada pri starejših. Telesna dejavnost je v zadnjih letih pridobila več veljave pri preventivi in zdravljenju depresije. Dosedanje raziskave so večinoma kvantitativne, primanjkuje pa kvalitativnih raziskav, kjer bi pridobili globlji vpogled v subjektivno zaznavanje vpliva telesne dejavnosti na duševno zdravje pri posameznikih. V naši raziskavi je sodelovalo 23 udeležencev iz Centra aktivnih Fužine. Naš cilj je bil predstaviti, kako udeleženci subjektivno zaznavajo vpliv telesne dejavnosti na vsakodnevno življenje in duševno zdravje. Za analizo smo uporabili mešane metode s poudarkom na kvalitativnih metodah. Za analizo podatkov iz intervjujev smo uporabili konvencionalno metodo. Ugotovili smo, da so povečanje zadovoljstva, blagostanje in povečano telesno zdravje ključni dejavniki, zaradi katerih naši udeleženci menijo, da je telesna dejavnost koristna pri stresu in depresiji. Sklepamo lahko, da namerna telesna dejavnost, kot je hoja, tek, kolesarjenje, individualne in skupinske vadbe, pozitivno vplivajo na telesno in duševno blagostanje. Izsledki naše raziskave lahko uporabimo kot osnovo za nadaljnje delo na področju razvoja učinkovitih nefarmakoloških oblik zdravljenja, kot različni programi telesne vadbe, podporne skupine in interesne dejavnosti za zmanjšanje simptomov depresije s telesno dejavnostjo.

Ključne besede: Starejši odrasli, telesna dejavnost, duševno zdravje, simptomi depresije, javno zdravje

Corresponding author:* Lucija Vinkšel,

Centre of active Fužine, Retirement home Fužine, Nove Fužine 40, 1000 Ljubljana, Slovenia

E-mail: lucija.vinksel@gmail.com

INTRODUCTION

Depression is a highly prevalent mental disorder, affecting around 340 million people worldwide and critically impacting the world's public health (Dinas et al., 2011; Pickett et al., 2017). The World Health Organization (WHO) lists depression as the second leading cause of disability and functional decline in later adulthood (Lopez et al., 2006). According to data from the international EURODEP study, depressive symptoms occur in 14.5% of older women patients (Copeland et al., 2004), with women being 2-to-3 times more likely than men to be affected (Kessler, 2003).

Depression is a mood disorder categorized by the presence of various signs and symptoms such as negative thinking, loss of interest and energy, feelings of hopelessness and helplessness, sleep disturbances, appetite changes, and reckless behaviour (American Psychiatric Association, 2000). This disorder is commonly treated with medication (antidepressants) and/or psychotherapy (Mead et al, 2008). Negative side effects of antidepressants are a common cause of unsuccessful treatment, causing 50% of patients to discontinue treatment (Cassano & Fava, 2002). Furthermore, the majority of elderly depressed people do not receive adequate treatment (Heinzel et al, 2015), likely because of specific challenges associated with treating depression later in life, such as a higher prevalence of other comorbid disorders (Birrer & Vemuri, 2004) and a lower awareness and social unacceptance of mental disorders (Heinzel et al, 2015). Furthermore, when compared to younger people, older people do not respond as effectively to standard treatment (Cuijpers et al, 2006).

While depression is less common among older adults, the prevalence is higher if accompanied by a cognitive, functional, or physical decline (Bruce, 2001). Older adults face specific challenges that can affect the onset of depression, such as physical illness (cardiovascular diseases, genetic predisposition, virus infection, etc.) or life changes (retirement, loss of social interaction, loss of important others, decreasing health and lack of social support) that are specific to late adulthood (Alonso and Hernandez, 2009).

In recent years, physical activity (PA) has gained considerable attention for treating depressive symptoms. Regular PA is not only good at preventing depression but it can also be used as a treatment, by itself or in combination with standard treatments (Josefsson et al, 2014; Nyström et al, 2015). Moreover, similar results are observed in older adults. Blumenthal and colleagues (1999) conducted one of the first randomized control trials with a sample of older adults diagnosed with depression and favoured exercise compared to standard treatment. Longitudinal

studies with non-depressed and depressed older adults show a correlation between regular PA and depression, with individuals who have regular PA throughout life being less likely to suffer from depression. Indeed, PA can improve the quality of life and protect against other mental illnesses (Gudmundsson et al., 2015; Ku et al., 2012).

This present qualitative study addresses the personal experiences of physical activity among older people suffering with depression at any point in their lifetime through semi-structured interviews, perceived PA, and the effects on their health, mood, and everyday life.

METHODS

Ethical approval

Upon our written request, as it is regulated at the Faculty of Sport, University of Ljubljana, Slovenia, the Ethics Committee of the Faculty granted us written consent and approval to conduct the study. Participants provided written informed consent for the use of interview evidence where their anonymity was guaranteed.

Methodological approach

We employed a mixed methods approach with an emphasis on qualitative methodology. Quantitative data provides significant insight into the phenomena, but it lacks understanding and patients' view of the problem. If we want to treat depression with alternative methods such as exercise, we should consider the patients' perception of this approach. It may offer a new insight that we can otherwise dismiss due to our own beliefs as researchers. Therefore, it is an important contribution to the existing quantitative data for a better understanding of the phenomena (Hsieh & Shannon, 2005). Within qualitative methods, we used content analysis as it has been widely applied in health research (Danielsson et al, 2016; Elo & Kyngäs, 2008; Hsieh & Shannon, 2005; Sweeney et al, 2019). Content analysis focuses on the characteristics of language as communication with attention to the content or contextual meaning (Madill et al, 2000). Content analysis was used as the aim of the study was to provide an overall view, new insights, knowledge and practical guidance on the data. The method allows the researcher to be flexible in terms of research design (Elo & Kyngäs, 2008). We used conventional content analysis because there was no conceptualization beforehand, as the method uses an open and flexible approach, discovering similarities and differences in the data that arise during data analysis (Hsieh and Shannon, 2005). In addition, it is recommended to use this type of method

for sensitive topics such as mental health problems, ((Danielsson et al, 2016; Elo & Kyngäs, 2008).

The aim of our study was to answer the following questions: a.) which aspects of physical activity are important to them; b.) how participants perceive PA and its impact on mental health; c.) what motivates them to be physically active; and d.) how PA affects their lives.

Sampling and participant recruitment

Participants were recruited from the local centre for recreation in Ljubljana (Center aktivnih Fužine) based on purposive sampling. The head of the centre selected potential participants, and contact details were provided to the researchers. After an initial phone call, sharing the details of the research and eligibility with participants, each participant was scheduled for a private face-to-face interview. The ethics of research were reviewed, and all participants signed a written consent allowing the use of their data.

The inclusion criteria are as follows: a.) women aged 65 or older, b.) being physically active for at least 6 months prior to the study, and c.) having previously experienced depression or low mood.

Instruments

In our study, we designed a semi-structured interview. The scheme was divided into five different topics: a.) general demographic characteristics (7 questions), b.) experience with physical activity (6 questions), c.) experience with PA and its effect on mood (10 questions), d.) motivation and PA (4 questions), and e.) influence of PA on everyday life (8 questions). In addition, we also assessed the presence of depressive symptoms during the study. Participants themselves filled out the questionnaire before the interview. The results of the questionnaires were analysed after the interview. We used Zung's self-rating depression scale (Zung, 1965), which consists of 20 items that rate the four common characteristics of depression: the persuasive effect, the physiological equivalents, other disturbances, and psychomotor activities. There are ten positively and ten negatively phrased questions. Each item was scored on a scale of 1-4 (from a little of the time to most of the time). The sum of the scores can vary from 25 to 100, with 25 to 49 indicating the absence of depression and higher scores indicating more severe depression.

Procedure and data analysis

All face-to-face semi-structured interviews were conducted in a private room. All interviews were audio recorded for downstream analysis. Participants were informed that there were no right or wrong answers. The answers were reflective, and participants were encouraged to talk freely about their experience. The semi-structured interview allowed the researcher to ask questions to reconfirm and evaluate the participant's narrative. The duration of the interviews was not set.

Content analysis started after transcription of the recorded data. Each transcription was systematically read, and words and statements that were deemed to be relevant were highlighted. Using MSWord, we used different colours to highlight the relevant and related themes and then break them down into sub-categories. We read the interview questions multiple times to link similarities and differences among the emerging themes. The main categories were highlighted with bold colours, and sub-categories with the same shade in lighter colours. The codes were organized based on our questionnaire. The questionnaire (attached in the appendix) was then divided into four categories (physical activity, mental health, motivation, and daily living), which served as our main codes. The other codes were determined from the participants' narrative. We organized them based on the hypernym and hyponym. For example, our second order code was psychological factors, which is a hypernym for the specific psychological states participants described (better mood, feeling of satisfaction, etc.). In some cases, further distinction was needed, and we formed fourth order codes. We used inductive and deductive reasoning and a method of constant comparison between and within the participant samples to look for valuable similarities and differences (Hsieh & Shannon, 2005). We wanted to distinguish and recognize all possible aspects of each main category and see if there were any differences and similarities as well as overall common themes that emerged.

Memo

PA effects many aspects of a person's life. We wanted to identify how older women perceived PA and its effect on their lives. Interviews were performed individually in a quiet setting. The interviews lasted from 30 minutes to an hour. It was observed that some participants were more open to discussion, and others were answering with more caution and needed more encouragement to talk about their experiences. Reflecting on the past provoked stronger emotions in some participants, such as sadness and grief. Others reacted in a positive way and showed acceptance of past events. We noticed some clear patterns that emerged in almost every

interview. Our questions were organized by the general themes we thought were relevant to our research questions, such as general characteristics of PA, motivation, effect on mental health, and effect on everyday life. Those were our 4 pre-disposed first order codes to guide the interviews. General characteristics were organized by general experience and characteristics of PA (2nd order), then each to more specific themes such as why and why not being active (3rd order) and types of PA (3rd order), and the 4th order codes were specific things the participants mentioned. In our study, motivation was organized by psychological, physical, and psychosocial (2nd order); specific aspects were our 3rd order codes; and in some cases, further grouping was needed for 4th order codes. Effects on mental health were broken down into short-term and long-term effects, which were further described as specific effects that participants explained in the interviews. Everyday life was divided into 3 main 2nd order codes (everyday chores and life; interpersonal relationships and social life; and non-activity due to illness or other obstacles) that we formed from participants' specific narrations (3rd order codes). Some needed further grouping to form 4th order codes (non-activity, for example, was described as a sense of faulty and declining health, which were recognized as psychological and physical factors, so we made a 4th order code).

RESULTS

A total of 23 women were included in the study. During the study, only one of the participants had an acute depressive episode. On average, they scored 37 points ($SD=13,6$) on Zung's self-rating depression scale (in appendix), indicating the absence of depressive symptoms. The participants' age varied between 60 and 76 years ($mean \pm SD$, $66,8 \pm 4$, 63 years) and all were retired ($11,6 \pm 5,5$ years). The majority of the sample had a V. level of education and were married or in long-term relationships ($N=12$), nine were widowed and two were single. With the exception of one, all had children. They attended regular PA in the centre between three and ten years ($6,8 \pm 2,2$ years). The participants had depressive episodes after retirement (ranging between 22 and four years ago), but we did not ask for a specific time period.

In Tables 1-4, we presented codes in the order derived from the content analysis. We organized them by 4 aspects of PA (General PA, motivation, mental health, and everyday life).

Table 1. Codes derived from the interview and number of answers for physical activity.

First order code	Second order code	Third order code	Forth order code	N
Physical activity (PA)	PA experience	Regular PA	Awareness of the importance of PA	10
			Need to move	12
			Habit from childhood	3
		Reasons for non-activity	Lack of time	13
			Family obligations	11
			Unawareness of the importance of PA	3
	PA characteristics	Type of PA	Various types of PA	23
				12
		Feeling fatigued		
		Environment not important		20
		A friendly relationship with a personal trainer		23

Table 1 represents the general characteristics and experience of PA. Referring to the past and present experiences, it was observed that participants were regularly active because they were aware of the benefits, felt they needed to move, and were used to being active since childhood. One participant described: »I have to move, for my health and to feel better. That is why I come here almost every day.

In many cases, family obligations and work were the main factors in the past for not being active. Participant said: »There has been a lot of work; I had to take care of my ill mom, family obligations, children, always something.«

Table 2. Codes derived from the interview and number of answers for motivation for physical activity.

First order code	Second order code	Third order code	Forth order code	N
Motivation for PA	Psychological factors	Feeling of satisfaction		15
		Improved mood		16
		Need to move		12
		Satisfying own interests		23
	Physical factors	Maintaining physical health		23
		Improving health		10
		Maintaining/improving physical abilities		12
		Managing other illnesses		8
	Psychosocial factors	Independence		21
		Autonomy		21
		Socialising	New friendships	8
			Inclusions in a social group	10
	Overcoming low motivation	Schedule		13
		Awareness of the positive effect of PA		12
		Feeling guilty		10

Table 2 represents the motivation for PA. The main psychological factors were feelings of satisfaction and satisfying their interests. They enjoyed exercising, so the activity itself is a motivation. participant's quote: »Because I like to be active, I like to dance. I feel satisfied that I did something for myself.«

Physical factors were related to general physical health, which were recognized as very important. Participant stated: »Mainly I want to take care of my health. I want to stay in good shape at this stage of life. To be able to take care of me.«

The latter is correlated to the psychosocial aspect because they mentioned how important it is to stay independent from others and stay autonomous. Overcoming low motivation evoked negative feelings. A feeling of guilt was the most prominent. Strategies to overcome it were

awareness of positive effects and a schedule. They felt obligated to be there. A participant explained: »I feel very bad when I do not go, I feel disappointed. So that is why I usually go. I know it is on my schedule and I try not to second think to go or not. «

Table 3. Codes derived from the interview and number of answers for effect of physical activity on mental health.

First order code	Second order code	Third order code	Forth order code	N
Effects of PA on mental health	Short-term changes	Increased energy		19
		Psychological relaxation		15
		Physical relaxation		7
		Positive mood	Distraction from negative thoughts	23
			Postponing the problem	10
	Long term changes	Satisfaction		15
		Improvement in mood		23
		Positive thinking		18
		Psychological resilience		21
		Better stress management	Constructive problem solving	9
			Positive thinking	18
			Acceptance of unpleasant events	10
		Forming new interpersonal relationships and socializing	Interpersonal support	11
			Acceptance in a social group	8
			Reaching goals	20
		Personal development	Satisfying interests	23
			Better self-esteem	23
			Sens of usefulness	18

Table 3 represents the effect of PA on mental health. Short-term effects are increased energy, relaxation, and positive mood. In addition, a positive mood right after the workout was described as a distraction from negative thoughts and postponing the problem. To quote a participant: »It helps me if I am in a low mood. I come here and I see my friends. I forget about problems at home. For the time I focus on myself and that helps me to relax. «

Long-term changes were described as increased satisfaction, improved mood, better stress management, and improved social life and personal development. Overall, it had a positive effect on their mental health. One participant concluded: "Coming to the center helped me not to fall back into depression. It gives me positive energy, and I am happier throughout the day. That is the key. You have to accept certain things in life and move on. My activities maintain my happiness, mood, and overall well-being. And later added, "Otherwise I would just sit at home and think about negative events that happened to me."

Table 4. Codes derived from the interview and the d number of answers for the effect of physical activity on everyday life.

First order code	Second order code	Third order code	Forth order code	N
Effect of PA in everyday life	Everyday chores and life	More active life		23
		Better organization		20
		Sense of meaning		20
		Doing housework with ease		23
	Interpersonal relationships and social life	Improvising interpersonal relationships	Improving marital relations	14
		Socializing as motivation for PA		15
		Sense of belonging		10
		Forming closer relationships	Help	11
			Sharing life experiences	8
		Decreasing loneliness		7
	Non-activity due to physical illness or other obstacles	Psychologically factors	Feeling of usefulness	20
			Sense of faulty	20
			Dissatisfaction	13

Physical factors	Loneliness	10
	Decreased mood	12
	Declining health	12
	Decline in physical abilities	15
	Less efficacy in everyday chores	9

Everyday life was affected in different ways, such as better organization and a feeling of meaning in a day. It also affected interpersonal relations with important others as well as better social networking. The result was decreased loneliness, support, and help from newfound friendships. As the participant described: »It gives me structure. I know what I will do each day, what is coming, and what activities I have. Otherwise, I would sit at home alone and watch TV. I think that would not be good.

Family obligations or physical illnesses were the main obstacles to missing a workout. Negative feelings emerged, such as a sense of failure, loneliness, and decreased mood. Participant concluded: »There was a short time when I was injured and I could not go. I felt bad and I quickly noticed my physical performance went down fast. That made me unhappy.«

DISCUSSION

Our study is one of the first in Slovenia to examine how older people perceive physical activity and its relationship to mental stress or depressive symptoms, with promising results for future research. Overall, we can conclude that PA is one of the preferable activities for older women. The majority of people believe it is a viable strategy for dealing with mental stress while also improving physical health. The most prevalent factors were increased satisfaction, increased well-being, and improved physical health.

Our findings were consistent with other studies on the type of PA in many ways. We found that participants did not prefer a specific type of PA but rather participated in activities they found interesting. We recognized a slight trend toward aerobic exercise, which we also found in many other meta-analysis (Josefsson et al, 2014; Nyström et al, 2015; Strohle, 2009), but that is likely due to the nature of the available activities rather than their personal choice. (Callaghan et al, 2011) found that the preferred type of PA had better results than the prescribed type in

decreasing depressive symptoms. Indeed, the subjective experience of PA has more influence on depressive symptoms than its specific characteristics.

We noticed similar patterns among our participants regarding the effects of PA on mental health. Changes were described as being short-term and long-term. Participants noticed increased energy, physical and mental relaxation, positive thinking, and pleasure. Indeed, participants can notice increased self-esteem, pleasure, energy, and positive thinking following PA (Glenister, 1996).

Diversion from negative thoughts seems to be the most distinctive short-term effect. Participants described how they forget about their worries and negative thoughts during PA, which provides them with a short relief from depressive symptoms. This has been suggested in some other studies researching possible mechanisms (Buckworth et al, 2013). Our findings are in line with other similar research (Cooney et al, 2013), suggesting that physical activity influences self-esteem and self-image, and that there is a positive relationship between self-esteem and decreased depressive symptoms (Ossip-Klein et al, 1989). Moreover, feelings of confidence or competence in one part of life (PA) can translate to others and affect overall mental health (Strohle, 2009).

One of the main symptoms of depression is a lack of motivation. In our study, all participants showed very strong intrinsic motivation (enjoying activity), which was not the case in similar studies (Pickett et al, 2017). This is likely because our participants did not have depression during our interview and the crisis had already been resolved. Motivation in the early stages of depression is mainly extrinsic and, through time, participants become intrinsically motivated (Pickett et al., 2017).

The effects of social interaction during exercise seem to be complex and intertwined with affecting mood and motivation. In the motivational domain, we found social interaction to be an important motivational factor, but due to the nature of our study, we cannot determine its impact on depressive symptoms. Some research suggests that social interaction is more important at the early stages of an exercise program, especially as a motivator (North et al, 1990). Other qualitative research (Kratz et al, 2014) reveals that the main motivation for those suffering from depression is to participate in activities that they find enjoyable and comfortable with (Miller et al, 2019).

In the mental health domain, we recognized decreased feelings of loneliness, feelings of acceptance, and increased social support. Indeed, group-based interventions outperformed

home-based interventions (Nyström et al., 2015), owing to improved motivation and external control (Burke et al, 2005). While many studies focus on the role that social interaction plays in symptom reduction, there can be a variety of outcomes. For example, there is a positive link between social interaction and a reduction in depression (Ernst et al, 1998), but social interaction does not impact depressive symptoms (Glenister, 1996).

Physical activity may have a positive impact on the overall improvement in quality of life. Indeed, our participants recognized positive outcomes from PA, especially staying independent and having a structured and meaningful day. This is critical for promoting PA and motivating people to participate in regular exercise, especially among older adults, where PA can help them stay independent longer (Schuch et al, 2016). As research shows, PA is one of the best and most accessible ways to improve the quality of life in older adults (Rejeski & Mihalko, 2001; Schuch et al, 2016).

Lastly, we examined obstacles to not being active. While lack of motivation, low mood, and fatigue are commonly reported reasons for non-compliance in exercise programs (Srensen, 2006), we found that our participants were highly motivated and valued PA. Again, this is likely because our participants were not showing depressive symptoms during our interviews.

We managed to answer all the main questions we presented prior to the study. During the analysis, we found some additional insights that we were not expecting. One of the most interesting was the complex influence that social interaction has on different aspects, such as motivation and mental health.

Limitations

The current study has several limitations. Since we only sampled a small number of participants from one recreational centre, all individuals were women who had had a positive experience with physical activity, and they may not accurately represent the larger sample. We did not separate between clinically and non-clinically depressed patients, making our results difficult to relate to other more standard treatment options. In addition, since our participants self-evaluated their experiences as stressful, the stressful life events could have been long resolved with little or no association to the current situation. We cannot estimate the impact that PA has on depressive symptoms.

Future directions

Since our study suggests a subjective perception that PA does indeed help with mental health, it would be appropriate to expand the topic further. There is a need for more controlled studies with proper diagnosis of mood disorders. A comparison of different free time activities with PA or an examination of obstacles and motivations for participation in PA would help us create a standard guideline. Longitudinal studies would elucidate long-term changes in mental health when people are physically active.

CONCLUSION

Our study presents promising results regarding physical activity and depressive symptoms, suggesting that PA has a positive impact on a person's mood if they are motivated to participate in physical activity. This is critical when applying guidelines for people suffering from mental illness. Regular PA has been shown to improve mental and physical functioning as well as other aspects of life, such as stress management, improved quality of life, and increased independence and autonomy, all of which are crucial later in life.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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