

Original Article

Physical activity for a meaningful and purposeful life in typical adults: a cross-sectional study¹

Atividade física para uma vida significativa e com propósito em adultos típicos: estudo transversal

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Abstract

Introduction: Physical activity is a part of life and an essential element for health and well-being. Investigating the meaning and purpose that physical activity adds to life will guide occupation-based interventions. **Objective:** This cross-sectional study aimed to examine the relationship between physical activity level and meaning and purpose in life in typical adults. **Method:** The study included a total of 300 typical adults (181 female, 119 male). Demographic characteristics of the participants, such as age, gender, and educational status, were recorded. The International Physical Activity Questionnaire, the Life Attitude Profile-Revised, and the Purpose in Life Test were used as measurement tools. Spearman correlation coefficient was used to analyse the relationship between nonparametric variables. **Results:** A weak positive correlation was found between the physical activity total scores, meaning in life sub-scores and total scores ($r=0.25$, $p<0.01$), and purpose in life total scores ($r=0.16$, $p<0.01$). **Conclusion:** Our findings revealed that people engaging in more physical activity had a sense of meaning and purpose in life. Physical activity must take place in occupational therapy practices as an occupation that adds meaning and purpose to an individual's life. Further research is needed on this subject.

Keywords: Physical Activity, Salutogenesis, Activities of Daily Living.

¹Research ethics: The authors hereby declare that this manuscript is entirely original work. The study was performed following the ethical codes of the World Medical Association (Declaration of Helsinki) and was approved (Protocol no: GO 20/01, Date: 2020). All participants gave written informed consent.

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Resumo

Introdução: A atividade física faz parte da vida e é um elemento essencial para a saúde e o bem-estar. Investigar o significado e o propósito que a atividade física acrescenta à vida guiará as intervenções baseadas na ocupação. **Objetivo:** Este estudo transversal tem como objetivo examinar a relação entre o nível de atividade física e o significado e propósito de vida em adultos típicos. **Método:** O estudo incluiu um total de 300 adultos típicos (181 mulheres, 119 homens). As características demográficas dos participantes, como idade, sexo e escolaridade, foram registradas. O *International Physical Activity Questionnaire*, *The Life Attitude Profile-Revised* e o *Purpose in Life Test* foram usados como ferramentas de mensuração. O coeficiente de correlação de *Spearman* foi usado para analisar a relação entre variáveis não paramétricas. **Resultados:** Foi encontrada uma correlação positiva fraca entre os escores totais de atividade física e os subescores de significado da vida e escores totais de significado da vida ($r=0.25$, $p<0.01$), e escores totais de propósito de vida ($r=0.16$, $p<0.01$). **Conclusão:** Nossos resultados revelaram que as pessoas que praticam mais atividades físicas têm um sentido de significado e propósito na vida. É importante que a atividade física ocupe seu lugar nas práticas de terapia ocupacional como uma ocupação que agrega significado e propósito à vida do indivíduo. Mais pesquisas são necessárias sobre este assunto.

Palavras-chave: Atividade Física, Senso de Coerência, Atividades Cotidianas.

Introduction

Physical activity (PA) is defined as any bodily movement produced by skeletal muscles resulting in energy expenditure, including self-care, housework, work/school, and leisure activities (Caspersen et al., 1985). Everyone performs physical activity to maintain one's life, however, the extent of this depends on personal preferences and may vary from person to person over time (Dunton, 2018). The importance of PA in promoting health and wellbeing has become more evident in the last decade. Today, we have been facing many diseases due to sedentary life. Especially lifestyles such as tobacco use, physical inactivity, and unhealthy diet constitute risk factors for non-communicable diseases (NCD) such as cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases (Dragos-Florin, 2018; Love et al., 2018). On the other hand, it is reported that regular PA has many positive effects on health and well-being. PA reduces the risk of dying from heart disease or stroke, the risk of developing heart disease, colon cancer, and type 2 diabetes, helps control weight, promotes psychological well-being, reduces stress, anxiety, and depression, and improves the quality of life (Buecker et al., 2021; Hills et al., 2015; Panza et al., 2019).

PA is not only important for physical health but also plays an essential role in psychological well-being. The stress buffer and "feel good" effects of PA are widely reported in many studies (Biddle et al., 2015; Gerber & Pühse, 2009; Heaney et al., 2014). PA helps to produce positive emotions, prevent and reduce more negative experiences and states (e.g. stress, depression). There is also good evidence to

demonstrate that increasing PA levels lead to improvements in mental and physical well-being (Zayed et al., 2018).

Finding a sense of meaning in life (SML) and purpose in life (PIL) are two inseparable structures that contribute to people's well-being and are handled in positive psychology. As a matter of fact, these two concepts are frequently used interchangeably in the literature. PIL can be defined as having goals and a sense of direction (Musich et al., 2018), and PIL is associated with engagement in goal-driven and meaningful activities. SML is another component of psychological well-being. SML is handled in logotherapy which is based on the meaning-focused existential philosophy of Viktor Frankl. The driving force behind logotherapy is the idea that human beings are most motivated by searching for meaning (Schulenberg et al., 2008). SML is closely related to the goals that make a person's life valuable. It differs from person to person and is a basic motivating factor for life to continue (Seligman & Csikszentmihalyi, 2014).

From the point of view of occupational therapy, people need to engage in occupations to develop and to find meaning in life. Occupational engagement provides mental and physical health and a sense of meaning and purpose to existence (Wilcock, 1993; Yerxa, 1990). Occupations are what we do. They provide us with the basis for feelings about ourselves and enable us to survive. They develop our talents and skills, allow us to pursue our interests, relate to other people, and express our values (Christiansen et al., 2005). Briefly, all of them contribute to mental well-being. Purpose and meaning in life are the well-being needs of people. These needs are met through the fulfilment of individually or collectively valuable occupations and participation in roles (Hammell, 2017). That is, doing occupations help people to find meaning in life and meaning is an essential part of an occupational perspective of the human being (Jonsson & Josephsson, 2005). The importance of meaning has been emphasized throughout the history of occupational therapy. Engaging in meaningful occupations contribute positively to health and well-being and enables physical, mental, and social benefits for people. Occupations are central to a client's identity and sense of competence and have particular meaning and value to that client. Meaningful activity may serve in fostering a sense of meaning in life by the fulfilment of basic psychological needs (Christiansen et al., 2005; Eakman, 2013). The lack of a sense of meaning and purpose causes people to not enjoy life and to give up the struggle. Participation in activities, maintaining a daily routine, and being active can help cope with these challenges and thus contributing to health and well-being. Experiences derived through participation in day-to-day life are influenced by and contribute to, a person's evaluation of meaning in her or his life (Eakman, 2013). In addition, intrinsic motivation and personal meaning are important factors in physically active participation (Cole, 2014).

Since occupational therapy interventions are intended to promote health, well-being, and participation in life through engagement in occupations (American Occupational Therapy Association, 2020), participation in PA as a healthy occupation ensures physical and mental well-being. Occupational therapy recognizes the value of PA for mental health benefits, that is, PA is not just physical exercise, but also includes other activities that are both fun and increase social participation in a broader sense, encompassing sports, leisure, and everyday activities such as gardening, housework, cycling, walking to school (Cole, 2014). Occupational therapists use some strategies for

more active lifestyle, such as educating clients on the harms of sedentary behavior and the benefits of physical activity as well as helping clients overcome barriers to being active and teaching the modification of daily habits and routines to decrease sedentary life (Reynolds, 2001; Bailey, 2017). Therefore, an important role of the occupational therapists is to analyze the barriers influencing the engagement and to plan healthy lifestyle interventions, in order to incorporate PA within their daily occupational lives (Cole, 2014).

Participation in meaningful activities, the focus of occupational therapy, is a determinant of health and provides a sense of value and purpose to life (Bilics et al., 2011; Hammell, 2004). Yet, the linking occupation to meaning and purpose in life has not been well developed within occupational therapy. This knowledge gap may be due to definitional ambiguity surrounding the concept of meaning and purpose and greater emphasis on meaningful and purposeful activity (Hammell, 2004). However, finding meaning and purpose in life is one of the issues that has not lost its importance in human existence since ancient times. Participation in activities can help the person to make sense of this existential effort (Ikiugu et al., 2021; Pourebrahim & Rasouli, 2019).

In the literature, the relationship of physical activity with health, well-being and quality of life has been well documented (Barwais et al., 2013; Baxter & Porter-Armstrong, 2012; Kılıç, 2019; Rodrigues et al., 2014). However, there is limited research examining its association with a sense of meaning and purpose in life, and these have mostly focused on older ages (Ju, 2017; Takkinen et al., 2001; Yemiscigil & Vlaev, 2021).

Mee & Sumsion (2001) showed that doing something purposeful is related to the meaning of one's day and also that engagement in occupations that are personally meaningful contributes to a sense of purpose. Hammell (2017) proposed that identify the qualities of meaningful living that are valued contributors to human well-being, which occupations fulfil these dimensions of value for a person, group, or community, and how these well-being needs might be met through their occupational engagement (Hammell, 2017). Accordingly, the present study aims to answer the question that whether physical activity makes life meaningful and purposeful. To our knowledge, very little attention has been paid to how physical activity and meaning and purpose in life work together in typical adults. The purpose of the present study was to explore the relationship between the sense of meaning in life (SML) and purpose in life (PIL) and the physical activity levels of typical adults.

Methods

Study design and participants

The present study was designed as a cross-sectional survey carried out between January and April 2020. All participants gave written informed consent. The study was approved by Non-Interventional Clinical Researches Ethics Board of Hacettepe University (Protocol no: GO 20/01, Date: 2020) and was undertaken in accordance with the ethical principles of the Helsinki Declaration.

A total of 300 typical adults were included in the study. The sample size was determined using the Cochran formula. Participants were recruited through the snowball sampling technique. An initial set of invitees was chosen from colleagues or friends of the researchers who are suitable for the study by considering age and gender representation. The second group forwarded the questionnaires to their acquaintances in the same way. The inclusion criteria were healthy volunteers aged 20-60 years old. The exclusion criteria were self-reported by participants and include any history of medical, neurological, or psychiatric conditions, past or present drug or alcohol misuse, being pregnant or lactating, history of any head trauma, having other medical conditions, or being under medication treatment that may preclude muscle functions or physical activity.

Measures

Demographics

Sociodemographic data, including age, gender, marital status, education level, and employment status were recorded.

Physical activity

The short form of the International Physical Activity Questionnaire (IPAQ-SF) (Craig et al., 2003) was used to assess physical activity participation. The questionnaire is a reliable and valid widely used self-reported instrument that has been tested for health-related physical activity behaviour in different sociocultural settings and in many countries worldwide. The items of the IPAQ-SF are structured to estimate weekly energy expenditure based on the frequency (number of days) and duration (minutes) of physical activity during the previous seven days for at least ten minutes. Physical activity intensity is categorized into three levels: vigorous-intensity, moderate-intensity, and walking. According to the scoring protocol of the questionnaire, by multiplying the metabolic equivalent task (MET) values with the duration and frequency of each activity level (vigorous: 8 METs, moderate: 4 METs, walking: 3.3 METs), a score is obtained as "MET-minute/week". The total score is calculated by summing MET-min/wk scores of three categories. The IPAQ-SF sitting item, which is an indicator of the time spent in sedentary activity, is not included in the total physical activity score. All participants of this study completed the Turkish version of the IPAQ-SF, which was confirmed by Sağlam et al. (2010) in terms of validity and reliability.

Meaning in life

The Life Attitude Profile-Revised (LAP-R) by Reker (1992) was utilized to assess the sense of meaning in life. The LAP-R a multidimensional questionnaire, including six subscales: purpose, coherence, choice/responsibility, death acceptance, existential vacuum, and goal-seeking. LAP-R refers to a sense of having life goals, having a mission in life, having a sense of direction, having a sense of order and reason for existence, and having an integrated and consistent understanding of self, others, and life in general.

The questionnaire is composed of 48 items evaluated on a 7-point Likert scale ranged from 1 (strongly disagree) to 7 (strongly agree). The validity and reliability of the Turkish version of the LAP-R were tested by Erci (2008). Two dimensions (death acceptance and existential vacuum) due to low-reliability coefficients and four items due to inadequate factor loadings were excluded from the Turkish version of the LAP-R. Therefore, the Turkish version of the questionnaire was formed from four subscales and 30 items. The total score was calculated by summing the subscales scores and range between 30-210. Higher scores indicate that the life attitude profile is positive, that is, the individual has a purpose in life and a meaning of life events (Erci, 2008).

Purpose in life

Purpose in Life Test (PIL) was used to measure the level of purpose in life that experienced by the individual. The test was developed by Crumbaugh & Maholick (1969) based on Victor Frankl's concept of existentialism. It consists of 20 items measured on a 7-point scale ranged from 1 to 7. Higher scores show a clear purpose in life. The adaptation study of the scale into Turkish was conducted by Kırac (2015) and four items were excluded from the test due to low factor loading. For the Turkish version of the test, the total score calculated by summing the values of 16 items varies from 16 to 112 (Kırac, 2015).

With the idea that the concepts logotherapy are fundamental to the human condition, some researchers developed tools to measure meaning and meaning-related concepts. The PIL was designed to be general measures of the meaning construct; the LAP-R was designed to measure both current levels of life purpose and desire to find meaning in life. The PIL is typically conceptualized as one-dimensional, on the other hand, the LAP-R have been conceptualized as multidimensional (Melton & Schulenberg, 2008).

Statistical Analysis

All statistical analyses were performed with the Statistical Package for the Social Sciences (SPSS) Version 23.0. Descriptive statistics were presented based on frequencies (number), percentages, median, and interquartile ranges (IQRs). Data were analysed for normality with the Kolmogorov-Smirnov normality test. The correlation between variables was tested by Spearman's rank correlation since the data were not normally distributed. The statistical significance level was considered as $p \leq 0.05$.

Results

Three hundred and fourteen individuals were invited to the study. Two of them did not meet the inclusion criteria. Twelve participants were excluded because of missing data. 300 typical adults provided complete responses to the questionnaires. The median age was 28 (range 20-58 years) and 60.3% of participants were female. Most of the participants were in the age range of 20-29 years (52%). The most common level of education was a bachelor's degree (53%), followed by high school (22%). Most of the participants were single 59% or married (35%) and a small sample was separated or divorced (6%). The basic demographic characteristics of the sample are presented in Table 1.

Table 1. Demographic Characteristics of Participants.

Characteristics		
Age (year)	n	%
20-29 years	156	52
30-39 years	65	21.7
40-49 years	43	14.3
50-59 years	36	12
Gender		
Female	181	60.3
Male	119	39.7
Marital Status		
Single	177	59
Married	105	35
Separated/divorced	18	6
Education		
Less than high school	6	2
High school	66	22
Bachelor's degree	159	53
Master's degree	50	16.7
PhD	19	6.3

Table 2 summarizes the descriptive statistics and bivariate correlations of variables. There was a weak positive correlation between IPAQ total scores and LAP-R total, LAP-R subscales and PIL total scores. Both IPAQ vigorous and moderate subscales were weakly but significantly correlated with LAP-R total, purpose and choice/responsibleness subscales and PIL total. IPAQ vigorous was also weakly correlated with LAP-R coherence. There was a weak positive correlation between IPAQ walking and LAP-R total, choice/responsibleness and goal-seeking subscales.

Table 2. Descriptive Statistics and Bivariate Correlations of the Variables (N=300).

	Median [IQR]	1	2	3	4	5	6	7	8	9	10
1 IPAQ Vigorous (METmin week ⁻¹)	0 (480)										
2 IPAQ Moderate (METmin week ⁻¹)	170 (720)	.28**									
3 IPAQ Walking (METmin week ⁻¹)	1039.5 (1043.63)	.16**	.16**								
4 IPAQ Total (METmin week ⁻¹)	1638 (2433.75)	.56**	.56**	.75**							
5 LAP-R Purpose	44.5 (7.75)	.23**	.15*	.08	.22**						
6 LAP-R Coherence	37 (6)	.17**	.09	.05	.14*	.52**					
7 LAP-R Choice/Responsibleness	45 (8)	.17**	.14*	.14*	.23**	.56**	.46**				
8 LAP-R Goal Seeking	42 (6)	.08	.06	.14*	.17**	.37**	.31**	.45**			
9 LAP-R Total	167 (23)	.21**	.15**	.12*	.25**	.80**	.70**	.82**	.69**		
10 PIL Total	82 (20)	.20**	.16**	-.01	.16**	.68**	.51**	.54**	.37**	.68**	

IPAQ = International Physical Activity Questionnaire; LAP-R = Life Attitude Profile-Revised Scale; PIL = Purpose in Life Scale; IQR = Interquartile range. **p<0.01; *p<0.05 (2-tailed).

Discussion

The purpose of the current study was to investigate the association between PA, sense of meaning, and purpose in life in the general population. The results showed that self-reported PA was weakly associated with a sense of meaning and purpose in life. In other words, the sense of meaning and purpose in life of people who participate in physical activity may increase. This can make them more attached to life. Consistent with previous empirical findings (Ju, 2017; Musich et al., 2018; Takkinen et al., 2001), current findings suggested that people who engage in vigorous/moderate physical activity may have a sense of meaning in life. Physical activity is a healthy occupation with physical and mental benefits. Increasing physical activity levels lead to improvement in total wellness (Barwais et al., 2013). Also, Rodrigues et al. (2014) showed that university students who practice regular physical activity have higher levels of psychological well-being and adopt more positive lifestyles as opposed to those who do not exercise regularly. Participants who were more physically active, compared to those who were less active, experienced higher levels of psychological wellbeing and were generally more satisfied with their lives (Zayed et al., 2018). In a longitudinal study of elderly individuals, physical activity had a positive effect on meaning in life, self-rated health, and functioning (Takkinen et al., 2001). According to the results of a study conducted with adolescents, participation in physical activity has been positively related to the belief that one's life is meaningful and goal-directed. They proposed that searching for meaning in life can serve as a positive factor in health-promoting activities among adolescents (Brassai et al., 2015). On the other hand, Dyer et al. (2007) claimed that those who lack a sense of meaning may be less motivated to protect their health and therefore less likely to be physically active. It is also proposed that meaning supports a more positive health orientation among people, which in turn is related to more positive health behaviors and health (Steger et al., 2015). In line with the literature, findings of the current study support that participating in PA may make life more meaningful, especially in those who participate in vigorous-moderate PA.

Current study findings showed that moderate and vigorous PA levels were weakly positively correlated with PIL. In other words, people engaging in moderate and vigorous PA had a sense of purpose in life which was consistent with the previous findings. A growing body of literature suggests that having a sense of purpose in life promotes healthy behaviors. Studies that examined the relationship between the PIL and PA showed that people with higher PIL were more likely to be physically active, engaged in meaningful activities and positive health behaviors (Holahan et al., 2011; Wensley & Slade, 2012). Hooker & Masters (2014) examined the relationship between purpose in life and physical activity measured by the accelerometer in community volunteers. They concluded that purpose in life was positively associated with objectively measured movement and self-reported activity. Purpose in life (the goal to maintain health) were related to more physical activity and engagement in health-promoting behaviors in the elderly (Holahan & Suzuki, 2006; Holahan et al., 2008).

People with a stronger sense of purpose in life may be more motivated to have a healthy life and engage in physical activity. On the contrary, individuals lacking purpose in life may feel hopeless and not have the motivation to live an active and healthful life

(Alimujiang et al., 2019). PIL can be explained as a motivational factor for participating PA.

There was a weak positive correlation between IPAQ walking and LAP-R total, choice/responsibleness, and goal-seeking subscales were found in this study. Wensley & Slade (2012) researched the meaning of walking for leisure with a qualitative study. The authors found the four main themes that were social connectedness, wellbeing, connection to nature, and achievement from a challenge. Walking was a way to work through problems, a means of relaxation, and a distraction to other things that might be going on in their life (Zayed et al., 2018). Although walking is the most common type of leisure physical activity, the current study found no association between walking and PIL in typical adults. It is thought that the participants consider walking as an ordinary daily activity and this is affected by multiple factors. However, more comprehensive research on the subject is needed to make inferences about walking.

Based on the results, we can say that general physical activity is one of the methods that affect well-being and contribute to the sense of meaning and purpose in life. Our findings seem to suggest that for people, maintaining an active lifestyle should be understood as one of the keys to a meaningful and purposeful life. Participants of the current study were mostly young typical adults. Given previous study findings, social contact during physical activity can contribute towards meaning in life in this age group (Wensley & Slade, 2012). It was reported in the literature that starting PA at a youth age was important in terms of contributing to both psychological wellness and physical health (Kugel et al., 2016). It was found that university students with an average age of around twenty who actively participate in sport and leisure activities and evaluate leisure times with sportive, social and outdoor activities had high subjective fitness and life quality perceptions. Therefore, training interventions can be planned in this age group about the contribution of PA on meaning and purpose in human life. In order to increase participation in PA and emphasize its effect on healthy life, awareness-raising studies can be carried out by occupational therapists. It is also recommended that occupational therapy programs should address PA as an important health maintenance occupation.

This study has some limitations that need to be considered. First, the data on PA were collected using a self-reported measure, thus recall bias may exist. Second, the demographics of participants are heterogeneous in terms of age and education, therefore it is difficult to investigate intragroup differences. Third, we measured psychological constructions (that is, sense of meaning and purpose in life) using quantitative self-rating scales. Qualitative assessments involving subjective experiences may be useful. Finally, the cross-sectional nature of the study precludes causal inferences and generalization of the findings. Future studies are recommended to include longitudinal data with larger sample sizes.

Despite the limitations, this study is a good start. It makes a unique contribution to the occupational therapy literature by examining the relationship of physical activity to meaning and purpose in life in typical young adults. It provides information for future efforts to investigate which occupations add meaning and purpose to life and to design occupation-based interventions.

Conclusions and Relevant Considerations

Identifying and using worthwhile, important and meaningful activities to encourage individuals to find value, meaning and purpose in life is central to the occupational therapy profession. Considering the positive effects of physical activity on health, it is important for occupational therapists to include physical activity, which can be associated with meaning and purpose in life, in their interventions. This is an opportunity for occupational therapists to demonstrate their skills and expertise in the use and implementation of the activity to benefit from health outcomes. In further studies, motivation related to physical activity, which types of physical activities are found to be more meaningful and why they are chosen, should be investigated in detail in terms of occupational science and health promotion. Additionally, given the subjective nature of measuring occupational experiences, there is a need for interest in qualitative occupational therapy research to explore the experiences of occupational engagement associated with PA. This would help to give depth and an interpretation of existing research from the experiences of people. Future research may generate evidence of the positive impact of PA on occupational engagement by strengthening the focus of occupational therapists who consider PA as a meaningful occupation suggesting PA programs that work with a multidisciplinary team.

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Author's Contributions

Hatice Abaoğlu and Selma Ercan Dogu researched literature and conceived the study. Hatice Abaoğlu was involved in protocol development, gaining ethical approval, patient recruitment and data analysis. Selma Ercan Dogu wrote the first draft of the manuscript. Both authors reviewed and edited the manuscript and approved the final version of the text.

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