

## ORIGINAL ARTICLE

# Relationship between physical activity and perceived stress in physiotherapists

Melda SOYSAL TOMRUK, Barış GÜRPINAR, Seher ÖZYÜREK, Didem KARADİBAK, Özge ÇAKIR, Salih ANGIN

**Purpose:** Physiotherapists are the most directly involved health professionals to support the patient both emotionally and physically. Increased physical activity is important to cope with perceived stress. It can be helpful to know physical activity level of physiotherapists to cope perceived stress. The aim the study was to examine the relationship between physical activity and perceived stress in physiotherapists.

**Methods:** Ninety-six (66 females, 30 males) physiotherapists (median age: 28 years) were enrolled in this cross-sectional study. Physical activity level was determined using the International Physical Activity Questionnaire-Short Form. Perceived stress was questioned by the Perceived Stress Scale.

**Results:** The results showed that 38.5% (n=37) of the physiotherapists were physically inactive, 56.3% (n=54) were moderately active, and only 5.2% (n=5) were active. A negative significant correlation was found between perceived stress scores and physical activity level ( $r=-0.275$ ,  $p=0.007$ ).

**Conclusion:** According to the results of this study, less physical activity level is associated with higher level of perceived stress in physiotherapists. The approaches to increase physical activity in physiotherapists may reduce perceived stress.

**Keywords:** Physical activity, Psychological stress, Physiotherapist.

## Fizyoterapistlerde fiziksel aktivite ve algılanan stres arasındaki ilişki

**Amaç:** Fizyoterapistler hastayı hem emosyonel hem de fiziksel olarak desteklemeye doğrudan en fazla dahil olan sağlık profesyonelleridir. Fiziksel aktivitenin artırılması, algılanan stresle başa çıkmak için önemlidir. Fizyoterapistlerin fiziksel aktivite düzeylerini bilmesi, algılanan stresle başa çıkabilmeleri için yararlı olabilir. Çalışmanın amacı fizyoterapistlerde fiziksel aktivite ile algılanan stres arasındaki ilişkiyi incelemektir.

**Yöntem:** Kesitsel çalışmaya 96 (66 kadın, 30 erkek) fizyoterapist (ortanca yaş: 28 yıl) dahil edildi. Fiziksel aktivite düzeyi Uluslararası Fiziksel Aktivite Anketi-Kısa Form kullanılarak belirlendi. Algılanan stres ise Algılanan Stres Ölçeği ile sorgulandı.

**Bulgular:** Sonuçlar fizyoterapistlerin % 38.5'nin (n=37) fiziksel olarak inaktif, % 56.3'ünün (n=54) aktivite düzeyinin düşük ve sadece % 5.2'sinin (n=5) aktivite düzeyinin yeterli olduğunu gösterdi. Algılanan stres puanları ile fiziksel aktivite düzeyi arasında negatif yönlü bir ilişki bulundu ( $r=-0.275$ ,  $p=0.007$ ).

**Sonuç:** Bu çalışmanın sonuçlarına göre, fizyoterapistlerdeki düşük fiziksel aktivite daha yüksek düzeyde algılanan stres ile ilişkilidir. Fizyoterapistlerde fiziksel aktiviteyi artırmayı amaçlayan yaklaşımlar algılanan stresi azaltabilir.

**Anahtar kelimeler:** Fiziksel aktivite, Psikolojik stres, Fizyoterapist.

Soysal Tomruk M, Gürpınar B, Özyürek S, Karadibak D, Çakır Ö, Angın S: Relationship between physical activity and perceived stress in physiotherapists. J Exerc Ther Rehabil. 2016;3(1):15-20. *Fizyoterapistlerde fiziksel aktivite ve algılanan stres arasındaki ilişki.*



M Soysal Tomruk, B Gürpınar, S Özyürek, D Karadibak, S Angın: Dokuz Eylül University, School of Physical Therapy and Rehabilitation, Inciralti, İzmir, Türkiye.  
Ö Çakır: Cyprus International University, Faculty of Health Sciences, Department of Physical Therapy and Rehabilitation, Haspolat, Lefkoşa, Cyprus.  
Corresponding author: Melda Soysal Tomruk: fzt\_meldasoyal@hotmail.com  
Received: February 17 2016.  
Accepted: March 30 2016.

Physical inactivity is a global health problem.<sup>1-4</sup> Today, an average of 1.9 million deaths have been reported to occur from physical inactivity.<sup>5</sup> According to the American College of Sports Medicine (ACSM) at least 30 minutes, 5 days per week of moderate-intensity physical activity is recommended for adults.<sup>6</sup>

Studies showed that health care workers can play an important role in the war against physical inactivity.<sup>7,8</sup> Physiotherapists are working with a multidisciplinary team including patients, families, and other healthcare professionals. They are the most professional group which deal with functional movement and physical activity.<sup>9</sup> It is thought that physiotherapists have a major role in the development of strategies for increasing physical activity in both healthy subjects and patients.<sup>10,11</sup> It is also indicated that decreased physical activity reduces self-confidence and motivation, as this can cause social isolation that is associated with impaired mental health and perceived stress.<sup>12</sup> Physical activity has been shown to alleviate stress among adults.<sup>13,14</sup>

Physiotherapists are the most directly involved professionals in this process to support the patient both emotionally and physically.<sup>15</sup> Given the amount of time they spend together and the depth of their work implies a deep involvement in patients' life issues.<sup>16</sup>

Increased physical activity is important to cope with perceived stress. For the physiotherapists, it can be helpful to know their own physical activity level to cope perceived stress. However, in the literature there are no studies to determine the relationship between physical activity and perceived stress in physiotherapists. Therefore, this study was aimed to examine the relationship between physical activity and perceived stress in physiotherapists.

## METHODS

The study was a cross-sectional study. Physiotherapists who were enrolled in this study were the active workers. To assess the physical activity levels and perceived stress, the International Physical Activity

Questionnaire-Short Form (IPAQ-SF) and the Perceived Stress Scale were used, respectively. Physiotherapists' demographic data, work setting, and duration of their study were recorded.

The IPAQ-SF is a scale assessing physical activity undertaken across a comprehensive set of domains including leisure time, domestic and gardening (yard) activities, work-related and transport-related activity.<sup>17</sup> The items were structured to provide separate scores on walking and sitting; moderate-intensity; and vigorous-intensity activity as well as a combined total score to describe overall level of activity. Calculation of the total score of the short form requires summation of the duration (in minutes) and frequency (days) of walking, moderate-intensity and vigorous-intensity activity. In the calculation of the scale, minutes spent during the activity and how many days of the week the activity were being performed were combined, and a "MET-minute/week" score is obtained. In the calculation of walking points, walking time recorded in minutes was multiplied by 3.3 METs. In the calculation "moderate" level physical activity, 4 METs were used whereas 8 METs attributed to "high" level of physical activity. Interpretation of physical activity level was classified as physically inactive (inactivity <600 MET-min/week), moderate physical activity level (moderately active: 600-3000 MET-min/week), and vigorous-intensity activity (high activity >3000 MET-min/week).<sup>17</sup> The IPAQ has Turkish validity and reliability.<sup>18</sup>

The Perceived Stress Scale was developed to measure the degree which situations in one's life are appraised as stressful. Higher total score from Likert scale questions identify the higher perceived stress level.<sup>19</sup> Yerlikaya et al studied Turkish reliability and validity of the questionnaire.<sup>20</sup>

The informed consent was obtained from all participants. The study was approved by the ethics committee of the Dokuz Eylül University (1144-GOA).

### Statistical analysis

Statistical analyses were performed using the SPSS 20.0 (SPSS Inc., Chicago, IL, USA). The normality of data was evaluated using Shapiro-Wilk test. The most of the variables were not normally distributed. Therefore, non-parametric tests were used for the statistical

analysis. Medians and interquartile ranges (25th-75th percentile) were used for descriptive analyses. The relationship between perceived stress and physical activity was analyzed using Spearman's rank correlation coefficient  $\rho$ . The level of statistical significance was set at  $p < 0.05$ .

## RESULTS

Sixty-six (68.8%) of 96 physiotherapists were females, 30 (31.2%) were males. The median age of the participants was 28.0 years. More than half of the participants (53.1%,  $n=51$ ) were working less than 5 years, 26 (27.1%) of the physiotherapists were working at treatment centers for children with special needs whereas 70 physiotherapists (72.9%) working in general physical therapy departments (Table 1).

The median of last four weeks activity level was 734.5 MET-min/weeks and the median perceived stress level was measured as 22.0 (Table 2). The results showed that 38.5% ( $n=37$ ) of the physiotherapists were physically inactive, 56.3% ( $n=54$ ) were moderately active and only 5.2% ( $n=5$ ) were active (Table 2).

A weak negative correlation was found between perceived stress scores and physical activity level ( $p < 0.01$ , Table 3).

## DISCUSSION

The aim of this study was to investigate the relationship between physical activity and perceived stress in physiotherapists. Most of the physiotherapists were young and more than half of them were working less than 5 years. Physical activity level of physiotherapists was mostly moderate, and many of them have stress. There was a significant negative relationship between physical activity and perceived stress.

There is no study determining the relationship between physical activity and perceived stress in physiotherapists. In the literature, only physical activity of physical therapy assistants, physiotherapists and physical therapy students was examined in one study. The results of the study indicated that physical activity level of physiotherapists was

higher than common public and other health care professionals, similarly physical therapy students had the highest physical activity level.<sup>21</sup> In another study investigating physical activity level of Rwandan physiotherapists, it was found that 28% of them were sedentary, 33% were moderately active, and 39% were vigorously active. They reported that the culture and traditional dances could play a big role in influencing physical activity.<sup>7</sup> Likewise, we found that 38.5% ( $n=37$ ) of physiotherapists were physically inactive, 56.3% ( $n=54$ ) were moderately active, and only 5.2% ( $n=5$ ) were active and although the mean age of physiotherapists was considered young, their physical activity level was low according to the findings of our study.

There is no study investigate perceived stress level of physiotherapists, but in a study that evaluate job stress, working with children tends to be distressing three times more. It was reported that feeling of emotional exhaustion in pediatric physicians was higher when comparison with other physicians.<sup>22</sup> According to one national survey, burnout levels in physiotherapists ranged from low to moderate. Physiotherapists who work in the private sector reported higher feelings of burnout then their colleagues in the public healthcare settings. The authors' opinion about the reason for the finding was physiotherapists who work in the private sector were better paid than those employed in the public sector.<sup>23</sup>

There is limited study investigating the relationship between physical activity and perceived stress level in physiotherapists. Studies measured physical activity and work related stress in various ways and only reported that stress was related to health behaviors and physical activity.<sup>24,25</sup> There is only one study that investigated whether the level of physical activity was associated with perceived mental stress in elderly people. Results of the study showed that better perceived mental stress was related with lower physical activity.<sup>26</sup>

Our study detected not only the physical activity and perceived stress levels of physical therapists but also the relationship between physical activity level and perceived stress. Highlighting those physically active physiotherapists reported better perceived stress, might be a useful adjunct to encourage

Table 1. Demographic characteristics of participants.

	Median (IQR)	n (%)
Age (year)	28 (26-33)	
Gender (Female / Male)		66 / 30 (69 / 31)
Marital status		
Single		49 (51)
Married		47 (49)
Duration of working		
0-5 years		51 (53)
6-10 years		19 (20)
11-15 years		15 (16)
16-20 years		6 (6)
≥ 20 years		5 (5)
Work setting		
Children with special needs		26 (27)
Public Hospital		21 (22)
Private Hospital		18 (19)
Public University (Academic)		11 (12)
Rehabilitation Centre		8 (8)
Private University (Academic)		2 (2)
Others		10 (10)
Smoking		
Smoker		22 (23)
Non-smoker		70 (73)
Ex-smoker		4 (4)

IQR: Interquartile range (25th-75th percentile).

Table 2. Physical activity and perceived stress scores and physical activity levels of participants.

	Median (IQR)	n (%)
Activity (MET-min/week)	734.5 (462-1386)	
Perceived stress	22 (20-24)	
Physical activity level (MET-min/week)		
Physically inactive	372 (264.5-487.5)	37 (38.5)
Moderately active	1160 (805.5-1670)	54 (56.3)
Vigorously active	3390 (3183-4321.5)	5 (5.2)

IQR: Interquartile range (25th-75th percentile). MET, metabolic equivalent; min, minutes.

Table 3. The relationship between physical activity and perceived stress levels of physiotherapists.

	Physical activity (MET-min/week) r (p)	Physical activity (Sitting minutes) r (p)	Physical activity (Walking minutes) r (p)
Perceived stress	-0.275 (0.007)*	0.653 (0.004)*	-0.648 (0.006)*

\*p<0.01. MET: Metabolic equivalent. Min: Minutes. r: Spearman's rho.

them to increase their physical activity and reduce stress with physical activity.

Strengths of our study include valid and reliable measurement tools with the use of documented psychometric properties.

#### Limitations

Limitations of our study were small sample size and limited consideration of environmental factors associated with participation in physical activity levels. Further study should select increased number of physiotherapists and compare their physical activity with different perceived stress levels, work settings, and duration of working.

#### Conclusion

In this study, we had general view of physiotherapists' physical activity and perceived stress level. There was a negative relationship between perceived stress and physical activity level in our study. This results showed that less physical activity level is associated with higher level of perceived stress in physiotherapists. The approaches aiming to increase physical activity in physiotherapists may reduce perceived stress.

---

**Acknowledgement:** *None.*

**Conflict of interest:** *None.*

**Funding:** *None.*

---

## REFERENCES

- World Health Organization. Global Recommendations on Physical Activity for Health. World Health Organization, Geneva, 2010.
- Bauman AE. Updating the evidence that physical activity is good for health: an epidemiological review 2000-2003. *J Sci Med Sport.* 2004;7:6-19.
- Lee IM. Dose-response relation between physical activity and fitness even a little is good; more is better. *JAMA.* 2007;297:2137-2139.
- Shirley D, van der Ploeg HP, Bauman AE. Physical activity promotion in the physical therapy setting: perspectives from practitioners and students. *Phys Ther.* 2010;9:1311-1318.
- World Health Organization. The World Health Report Reducing Risks, Promoting Healthy Life. Geneva, 2002.
- Haskell WL, Lee I, Pate RR. Physical activity and public health: updated recommendations for adults from the American College of Sport Medicine and the American Heart Association. *Med Sci Sports Exerc.* 2007;39:1423-1434.
- Frantz JM, Ngambare R. Physical activity and health promotion strategies among physiotherapists in Rwanda. *Afr Health Sci.* 2013;13:17-23.
- Verhagen E, Engbers L. The physical therapist's role in physical activity promotion. *Br J Sports Med.* 2009;43:99-101.
- Rea BL, Hopp Marshak H, Neish C, et al. The role of health promotion in physical therapy in California, New York, and Tennessee. *Phys Ther.* 2004;84:510-523.
- Abramson S, Stein J, Schauffele M, et al. Personal exercise habits and counseling practices of primary care physicians: a national survey. *Clin J Sport Med.* 2000;10:40-48.
- Frank E, Carrera JS, Elon L, et al. Predictors of US medical students' prevention counseling practices. *Prev Med.* 2007;44:76-81.
- Vankim NA, Nelson TF. Vigorous physical activity, mental health, perceived stress, and socializing among college students. *Am J Health Promot.* 2013;28:7-15.
- Aldana SG, Sutton LD, Jacobson BH, et al. Relationships between leisure time physical activity and perceived stress. *Percept Mot Skills.* 1996;82:315-321.
- O'Dougherty M, Hearst MO, Syed M, et al. Life events, perceived stress and depressive symptoms in a physical activity intervention with young adult women. *Ment Health Phys Act.* 2012;5:148-154.
- Li Calzi S, Farinelli M, Ercolani M, et al. Physical rehabilitation and burnout: different aspects of the syndrome and comparison between healthcare professionals involved. *Eura Medicophys.* 2006;42:27-36.
- Arnetz BB. Physicians view of their work environment and organization. *Psychother Psychosom.* 1997;66:155-162.
- Craig C, Marshall A, Sjostrom M, et al. International Physical Activity Questionnaire: 12 country reliability and validity. *Med Sci Sports Exerc.* 2003;35:1381-1395.
- Sağlam M, Arkan H, Savcı S, et al. International Physical Activity Questionnaire: reliability and validity of the Turkish version. *Percept Mot Skills.* 2010;111:278-284.
- Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983;24:385-396.
- Yerlikaya EE, Yazgan İnanç B. Algılanan Stres Ölçeği'nin Türkçe çevirisinin psikometrik özellikleri. İzmir: IX. Ulusal PDR Kongresi Özet Kitabı; 2007. p:276.

21. Chevan J, Haskvitz EM. Do as I do: exercise habits of physical therapists, physical therapist assistants, and student physical therapists. *Phys Ther.* 2010;90:726-734.
22. Graham J, Ramirez AJ, Cull A, et al. Job stress and satisfaction among palliative physicians. *Palliat Med.* 1996;10:185-194.
23. Pavlakis A, Raftopoulos V, Theodorou M. Burnout syndrome in Cypriot physiotherapists: a national survey. *BMC Health Serv Res.* 2010;10:63
24. Martins LCX, Lopes CS. Rank, job stress, psychological distress and physical activity among military personnel. *BMC Public Health.* 2013;13:716.
25. Kim K, Shin YJ, Nam JH, et al. A dose-response relationship between types of physical activity and distress. *J Korean Med Sci.* 2008;23:218-225.
26. Cho KO. Association between perceived mental stress and physical activity in elderly Korean people. *Salud Publica Mex.* 2014;56:576-577.