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Research Article / Araştırma Makalesi

Physical activity level and musculoskeletal pain in physician mothers after childbirth

Doğum sonrası doktor annelerde fiziksel aktivite düzeyi ve kas-iskelet ağrısının ilişkisi

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ABSTRACT

Objective: Musculoskeletal pain is a common health problem in women, especially during pregnancy and the postpartum period, a possible reason for which is the lack of adequate physical activity. Nonetheless, very few studies have determined the relationship between physical activity level and musculoskeletal pain. Therefore, the aim of this study was to evaluate the relationship between physical activity level and musculoskeletal pain in physician mothers within two years after childbirth.

Material and Methods: This study was an online cross-sectional self-report survey. An online questionnaire was administered to physician mothers via the online "Physician Mothers" social group in Facebook, with 3,787 members. A total of 127 participants responded to the questionnaire, which consisted of three parts, namely, sociodemographic information, the International Physical Activity Questionnaire-Short Form, and the Cornell Musculoskeletal Discomfort Questionnaire.

Results: The average age of the participants was 32.5±3.5 years. The physical activity level turned out to be inactive in 91 participants (71%), moderate in 30 (24%), and vigorous in six (5%). The most frequent musculoskeletal complaint after childbirth was back pain (n=112, 88.2%), followed by lower back pain (n=109, 85.8%), neck pain (n=70, 55.1%), and hip pain (n=52, 40.9%). There was no significant relationship between physical activity level and musculoskeletal pain in physician mothers (p=0.441).

Conclusion: In this study, physician mothers were found to be mostly physically inactive, and their activity level was not observed to be related to their musculoskeletal pain.

Keywords: *Childbirth, exercise, musculoskeletal pain, physicians, surveys and questionnaires*

ÖZ

Amaç: Kas-iskelet sistemi ağrısı, özellikle hamilelikte ve doğum sonrası dönemde kadınlarda yaygın bir sağlık sorunudur ve bunun olası bir nedeni yeterli düzeyde fiziksel aktivitenin olmamasıdır. Bununla birlikte, çok az çalışma fiziksel aktivite düzeyi ile kas-iskelet sistemi ağrısı arasındaki ilişkiyi belirlemiştir. Bu nedenle, bu çalışmanın amacı doktor annelerde doğumdan iki yıl sonraki süre içinde fiziksel aktivite düzeyi ile kas-iskelet ağrısı arasındaki ilişkiyi değerlendirmektir.

Gereç ve Yöntemler: Bu çalışma çevrimiçi, kesitsel bir öz-bildirim anketiydi. Facebook'ta 3.787 üyeli "Doktor Anneler" grubundaki annelere online anket uygulandı. Sosyodemografik bilgiler, Uluslararası Fiziksel Aktivite Anketi-Kısa Formu ve Cornell Kas İskelet Rahatsızlık Anketi olmak üzere üç bölümden oluşan ankete toplam 127 katılımcı yanıt verdi.

Bulgular: Katılımcıların ortalama yaşı 32.5±3.5 yıl idi. Fiziksel aktivite düzeyi olarak; 91 katılımcı (%71) aktif değildi, 30'u (%24) orta düzeyde aktif, altısı (%5) şiddetli düzeyde aktifti. Doğum sonrası en sık kas-iskelet sistemi şikayeti sırt ağrısıydı (n=112, %88.2), bunu bel ağrısı (n=109, %85.8), boyun ağrısı (n=70, %55.1) ve kalça ağrısı (n=52, %40.9) izliyordu. Doktor annelerde fiziksel aktivite düzeyi ile kas-iskelet ağrısı arasında anlamlı ilişki saptanmadı (p=0.441).

Sonuç: Bu çalışmada doktor annelerin çoğunlukla fiziksel olarak aktif olmadığı ve aktivite düzeylerinin kas-iskelet ağrılarıyla ilişkili olmadığı belirlendi.

Anahtar Sözcükler: *Bebek doğumu, egzersiz, kas-iskelet ağrısı, doktorlar, anketler*

INTRODUCTION

Musculoskeletal pain is a common health problem in women, especially during pregnancy and the postpartum period. Factors such as breastfeeding position, hormonal fluctuations, insomnia, and fatigue are responsible for musculoskeletal pain. Another possible reason for musculoskeletal pain is physical inactivity. Brown and Lumley reported that in their study, 94% of women who gave birth stated having at least one health problem 6-7 months after childbirth (1). Scottish women have physical complaints in any body region up to 18 months after childbirth (2). A study conducted in England reported that these complaints can be present up to eight years after childbirth (3).

Physical activity level decreases during pregnancy and returns to the pre-pregnancy level in about six months after birth (4). Mothers are recommended to perform physical activities such as aerobic exercises, pelvic floor exercises, st-

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retching, and walking after childbirth (5). Physical activity in the postpartum period helps with weight loss in the short term, increases cardiorespiratory function, improves emotional well-being and mental health, and reduces postpartum depression and anxiety (6).

Despite these observations, very few studies have determined the relationship between physical activity level and musculoskeletal pain. Therefore, the aim of the present study was to evaluate the relationship between physician mothers' physical activity level and musculoskeletal pain in the two years after childbirth.

MATERIAL and METHODS

Design and Sample

The study was conducted as an online cross-sectional, self-reported survey-based trial. The ethics committee of our hospital approved the study's protocol (Approval no.: 2020-237) conducted in accordance with the guidelines of the Declaration of Helsinki, 2013.

Data were collected through an online questionnaire-based survey that was administered on a very active and reliable online social group in Facebook, 'Doktor Anneler' (English translation: 'Physician Mothers', which had 3787 members at the time of the study. All members had been admitted to the online social group after verifying their physician identity. The participants were fully informed about the study before giving their written informed consent to participate in the study. All participants in the study had at least one birth.

Inclusion criteria were being a member of the 'Physician Mothers' group, voluntary participation in this study, and participation within two years after the previous birth. Exclusion criteria were being pregnant, more than two years having elapsed since previous birth, and having any musculoskeletal system disorders that might restrict their movement.

The sample size was calculated at a 95% confidence interval, and the level of significance was fixed at 0.05 (7). The determined sample size was 102. A total of 127 participants responded and were included in the study.

The Survey and Outcome Measurements

The online questionnaire consisted of three parts: the first part included physical and sociodemographic information; the second part included the International Physical Activity Questionnaire-Short Form (IPAQ-SF), which measures the physical activity level; and the third part included the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ).

Self-reported physical and sociodemographic data collected included age, height, weight, working place, profession, area of expertise, number of children, type of birth, active working status, and self-reported chronic health status. The second and third parts included standardized questionnaires, the details of which are outlined below.

Cornell Musculoskeletal Discomfort Questionnaire (CDMQ)

The CMDQ evaluates frequency of pain or discomfort in 11 different body parts within the previous seven days and determines the level of pain and whether the pain affects the ability to undergo evaluation (8,9). The Turkish version of the CMDQ questionnaire has been shown to be a valid and reliable tool and was, therefore, used in this study (10).

International Physical Activity Questionnaire-Short Form (IPAQ-SF)

The IPAQ-SF examines physical activity level according to the occurrence and time of participation in the last seven days. The measure classifies physical activity levels into low-, moderate-, and vigorous-intensity levels. Responses were converted to metabolic equivalent task (MET) minutes per week (MET min/wk) according to the IPAQ-SF scoring protocol: total minutes over the last seven days spent on vigorous- and moderate-intensity activity and walking multiplied by 8.0, 4.0, and 3.3, respectively, to create the MET scores for each activity level. Physical activity levels are classified into three categories according to the total MET scores; <600 MET-minutes/week (m/w) is physically inactive, between 600 and 3000 MET-m/w is moderately physically active, >3000 MET-m/w is vigorously physically active (11). The Turkish version of the IPAQ-SF questionnaire has been shown to be a valid and reliable tool and was, therefore, used in this study (12).

Statistical Analysis

Statistical analyses were performed using the SPSS software version 22.0. A p-value <0.05 was considered to indicate statistical significance. Descriptive results are expressed as mean ± SD, and nominal variables are presented as percentages. Variables were evaluated using the Kolmogorov-Smirnov and Shapiro-Wilk tests to determine if they were normally distributed. According to the suitability of continuous variables, the Student's t-test or Mann-Whitney U test was performed. Chi-square test was performed for categorical variables. When both variables were normally distributed, correlation coefficients and statistical significance were calculated using the Pearson test; otherwise, the Spearman test was performed.

RESULTS

Of a total of 3787 women who were invited to participate in this study, 127 responded to the online survey in two weeks. The mean age of the participants was 32.5±3.5 years (range:

25-44 years), the mean height was 164±6 cm (range: 152-180 cm), and the mean weight was 65.6±10.6 kg (range: 40-99 kg). The mean body mass index of participants was 24.3±3.8 kg/m^2(range: 14.7-36.0 kg/m^2). Of the 127 participants, 103 (81.1%) had delivered via cesarean section in their previous delivery; 97 (76.3%) had one living child, 25 (19.7%) had two children, and 5 (3.9%) had at least three children. Fifteen participants (11.8%) had chronic diseases such as hypothyroidism (n=7), hyperthyroidism (n=1), asthma (n=3), Behçet's disease (n=1), depression (n=1), hypertension (n=1), and ulcerative colitis (n=1), which were not diseases that would limit their physical activity. Professional characteristics and distribution of participants according to their medical branches are summarized in Table 1.

Table 1. Working medical branch of participants

	Characteristic	n (%)
Working place	University Hospital	34 (26.8)
	Training and Research Hospital	41 (32.3)
	Public Hospital	33 (26.0)
	Community/Family Health Center	10 (7.8)
	Private Clinic/Self-employed	5 (3.9)
	Private Hospital	4 (3.1)
Profession	Specialist Physician	84 (66.1)
	Resident Physician	30 (23.6)
	General Practitioner	13 (10.2)
Area of expertise	Basic Sciences	7 (5.5)
	Internal Sciences	77 (60.6)
	Surgical Sciences	28 (22.0)
	Dentist	8 (6.3)
Active working status	Yes	53 (41.7)
	No	74 (58.3)

Data presented as number and percent: n (%). Total n:127

Physical activity level was mostly inactive in 91 participants (71%), moderate in 30 (24%), and vigorous in six (5%). The most frequent musculoskeletal complaint after childbirth was back pain (n=112, 88.2%), followed by lower back pain (n=109, 85.8%), neck pain (n=70, 55.1%), and hip pain (n=52, 40.9%; Figure 1). No significant relationship was noted between the physical activity levels and total CDMQ scores in participants (p=0.441). Furthermore, there was no difference in the total MET scores and total CDMQ scores between active workers and inactive workers (p=0.505, p=0.166, respectively).

There was no correlation between the number of children that the participants had and the total CDMQ scores (p=0.558). When the participants were classified into three groups as those having one child, those having two children, and those having three or more children, no significant difference was noted in terms of the total MET and total CDMQ scores (p=0.474 and p=0.115, respectively). The CDMQ score was weakly negatively correlated with time since the previous childbirth (p=0.050, r=-0.174), whereas the MET score was weakly positively correlated (p=0.041, r=0.181). When the physician participants were classified according to their medical branches (Basic sciences/Internal sciences/Surgical sciences/Dentistry), no difference was noted in terms of the total CDMQ scores, but a significant difference was noted in terms of the MET scores in the order of (Dentistry > Basic sciences > Internal sciences > Surgical sciences) (p=0.567 and p=0.014, respectively).

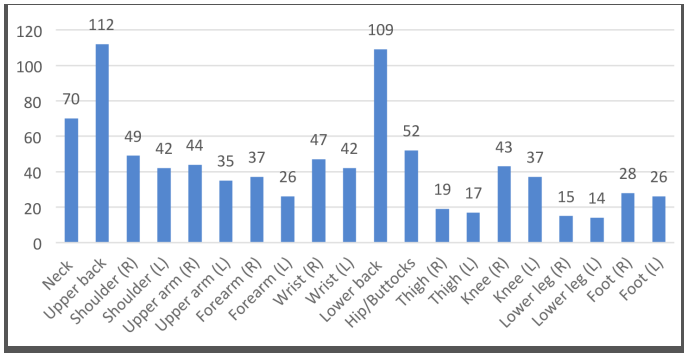

Figure 1. Distribution of pain by anatomic regions using the CMDQ

Data presented as number (n), CDMQ: Cornell Discomfort Musculoskeletal Questionnaire; R: right, L: left.

DISCUSSION

This study disclosed that after childbirth physician women mostly had a sedentary lifestyle and had back and lower back pain. However, their physical activity levels were not found to be related to musculoskeletal pain after childbirth. As time progressed, the physician mothers were noted to have less musculoskeletal pain and become more physically active.

Personal care decreases and changes in routine life due to reasons such as baby care during the postnatal period, changes in sleep patterns, and postpartum depression. After birth, it takes a certain period of time to adapt to living with the baby. One of the activities that decrease during the postpartum period is physical activity. The benefits and importance of physical activity after childbirth are well known, especially by physicians, and physicians and other healthcare providers are role models with respect to participating in physical activity. The compliance of physicians to perform moderate physical activity for at least 150 minutes per week has been reported to be between 45 and 90% (13).

Very few studies have examined physical activities of women after childbirth. In Turkey, two studies have reported on the physical activity levels of women during the postpartum period. In one of these, it was reported that 81.6% of these women were at least moderately active, and in the other study, 57.6% were active (12,13). In both studies, the IPAQ-SF scale was used. Other studies have reported that 49.6% of Nigerian women (14) and 38.0% of Saudi women (15) were at least moderately physically active after childbirth. Studies have reported that the physical activity level

of health professionals in America was 85% (16), and that of Turkish health professionals was 12% (17). In the present study, the majority of women were found to be inactive. We noted that Turkish physician women were less physically active than women in the general population during the postpartum period. Considering the above-mentioned findings, Turkish health professionals can be considered to be less active.

Physicians of internal and surgical sciences generally work with night shifts. The lower physical activity levels of physicians working in these branches may be due to intense working tempo and irregular working hours.

Musculoskeletal pain that onsets during pregnancy or after childbirth can become permanent. Approximately 20-30% of patients have permanent back pain up to 2-3 years after childbirth (18). A study reported that in the postpartum period, women experience approximately three times more hip-, knee-, and foot pain than nulliparous women (19). In a study conducted by Aksu et al., the prevalence of neck and shoulder pain was found to be 18.1% and that of lower back pain 19.2%; furthermore, the pain was more intense in multiparous than primiparous mothers (20). Pelvic girdle, back, and lower back pain are the most common musculoskeletal pain associated with pregnancy, and these persist after birth in up to 30%, 37%, and 75% of women, respectively (7,21,22). In the present study, most women had back, lower back, neck, and hip pain, in that order, after childbirth. The prevalence of pain in each region was higher than that reported in the literature and was consistent in terms of common anatomic regions.

It was reported in a study (23) that only 10% of women were regularly physically active during the lactation period, and physical activity was not associated with neck and back pain. However, in this study, participants' ability to exercise regularly was evaluated and no scale was used, and their ability to exercise was determined with only a single question.

Limitations

The results of a study conducted online might be considered less reliable as researchers cannot reach participants who have no internet access and individuals can give wrong information (24). It is unclear if physician mothers who participated in the online forum were a representative sample of all physician mothers in Turkey, so the results of this study cannot be generalized. It is also possible that the results of the participants in this study may be different than the profile of members of the online group who chose not to participate.

CONCLUSION

In this study, it was observed that physician mothers were mostly physically inactive, and their activity level was not associated with musculoskeletal pain. Furthermore, physician mothers had less musculoskeletal pain, and were more physically active as the time after birth progressed. Studies with the general population, and including larger sample sizes are needed.

Ethics Committee Approval / Etik Komite Onayı

The approval for this study was obtained from Institutional Ethics Committee of Health Sciences University, Bozyaka Education and Research Hospital, İzmir, Turkey (Decision no: 2020-237 Date: 07.06.2020).

Conflict of Interest / Çıkar Çatışması

The authors declared no conflicts of interest with respect to authorship and/or publication of the article.

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Author Contributions / Yazar Katkıları

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REFERENCES

1. Brown S, Lumley J. Maternal health after childbirth: results of an Australian population based survey. *Br J Obstet Gynaecol.*1998;105(2):156-61.
2. Glazener CM, Abdalla M, Stroud P, Naji S, Templeton A, Russell IT. Postnatal maternal morbidity: extent, causes, prevention and treatment. *Br J Obstet Gynaecol.* 1995;102(4):282-7.
3. MacArthur C, Lewis M, Knox EG. Health after childbirth. *Br J Obstet Gynaecol.* 1991;98(12):1193-5.
4. Currie S, Sinclair M, Murphy MH, Madden E, Dunwoody L, Liddle D. Reducing the decline in physical activity during pregnancy: a systematic review of behaviour change interventions. *PloS One.* 2013;8(6):e66385.
5. Evenson KR, Mottola MF, Owe KM, Rousham EK, Brown WJ. Summary of international guidelines for physical activity following pregnancy. *Obstet Gynecol Surv.* 2014;69(7):407 6 -14.
6. Webb DA, Bloch JR, Coyne JC, Chung EK, Bennett IM, Flatow Culhane J. Postpartum physical symptoms in new mothers: their relationship to functional limitations and emotional well-being. *Birth.* 2008;35(3):179-87.
7. Schytt E, Lindmark G, Waldenström U. Physical symptoms after childbirth: prevalence and associations with self-rated health. *Br J Obstet Gynaecol.* 2005;112(2):210-7.
8. CU Ergo. Cornell University Ergonomics Web. *www.ergo.human.cornell.edu.*
9. Hedge A, Morimoto S, McCroibe D. Effects of keyboard tray geometry on upper body posture and comfort, *Ergonomics*. 1999;42(10):1333-49.
10. Erdinc O, Hot K, Ozkaya M. Turkish version of the Cornell Musculoskeletal Discomfort Questionnaire: cross-cultural adaptation and validation. *Work.* 2011;39(3):251-60.
11. Craig CL, Marshall AL, Sjöström M, Bauman AE, Booth ML, Ainsworth BE, et al. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc.* 2003; 35(8):1381-95.
12. Saglam M, Arikan H, Savci S, Inal-Ince D, Bosnak-Guclu M, Karabulut E, et al. International physical activity questionnaire: reliability and validity of the Turkish version. *Percept Mot Skills.* 2010; 111(1):278-84.
13. Lobelo F, de Quevedo IG. The evidence in support of physicians and health care providers as physical activity role models. *Am J Lifestyle Med.* 2016;10(1):36-52.
14. Adeniyi AF, Ogwumike OO, Bamikefa TR. Postpartum exercise among Nigerian women: issues relating to exercise performance and self-efficacy. *ISRN Obstet Gynecol.* 2013;294518
15. Alsobayel H, Buragadda S, Aljuaid S, Basamad L, Alshehri S, Alhenaki M, et al. Sociodemographic factors associated with postpartum physical activity levels in working women. *Women Health.* 2020;60(1):60-71.

16. Stanford FC, Durkin MW, Blair SN, Powell CK, Poston MB, Stallworth JR. Determining levels of physical activity in attending physicians, resident and fellow physicians and medical students in the USA. ***Br J Sports Med.*** 2012;46(5):360-4.
17. Şen K. Sağlık çalışanlarında kas iskelet sistemi hastalıkları: fiziksel aktivite ve uyku kalitesi ile ilişkisi. ***Kırklareli Üniversitesi Sağlık Bilimleri Enstitüsü Halk Sağlığı Anabilim Dalı Yüksek Lisans Tezi.*** Kırıklareli: Kırıklareli Üniversitesi; 2019.
18. To WW, Wong MW. Persistence of back pain symptoms after pregnancy and bone mineral density changes as measured by quantitative ultrasound-a two year longitudinal follow up study. ***BMC Musculoskelet Disord.*** 2011;12:55.
19. Vullo VJ, Richardson JK, Hurvitz EA. Hip, knee, and foot pain during pregnancy and the postpartum period. ***J Fam Pract.*** 1996;43(1):63-8.
20. Aksu S, Varol FG, Hotun Sahin N. Long-term postpartum health problems in Turkish women: prevalence and associations with self-rated health. ***Contemp Nurse.*** 2017;53(2):167-81.
21. Ostgaard HC, Andersson GB. Postpartum low-back pain. ***Spine (Phila Pa 1976).*** 1992;17(1):53-55.
22. Weis CA, Pohlman K, Draper C, daSilva-Oolup S, Stuber K, Hawk C. Chiropractic care for adults with pregnancy-related low back, pelvic girdle pain, or combination pain: a systematic review. ***J Manipulative Physiol Ther.*** 2020;43(7):714-31.
23. Tırınk Kayacı H. Laktasyon dönemindeki bayanlarda görülen boyun ve bel ağrı seviyelerinin incelenmesi. ***Bezmialem Vakıf Üniversitesi Fizyoterapi ve Rehabilitasyon Anabilim Dalı Yüksek Lisans Tezi.*** İstanbul: Bezmialem Üniversitesi; 2017.
24. Pedersen ER, Kurz J. Using Facebook for health-related research study recruitment and program delivery. ***Curr Opin Psychol.***2016;9:38-43.