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PHYSICAL ACTIVITY AND URINARY INCONTINENCE IN THE POSTPARTUM PERIOD

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Abstract

Aim: Urinary incontinence (UI) is defined as involuntary urine loss and is more common in women. Postpartum UI is defined for UI seen in the first year after childbirth. Pregnancy and birth are the most important risk factors for UI in women. The complaints of 65% of these patients begin during pregnancy and some of them continue in the postpartum period. The aim of this study is to evaluate the relationship between level of physical activity and UI in postpartum period of physician women.

Methods: This study was an online cross-sectional self-report survey. An online questionnaire was administered to physician mothers via an online social group, "Physician Mothers". The data of 100 participants were analyzed. The questionnaire of this study consisted of three parts, namely, sociodemographic information, the International Physical Activity Questionnaire-Short Form, and the International Consultation on Incontinence Questionnaire-Urinary Incontinence Short Form (ICIQ-SF).

Results: When classified according to physical activity levels; 41 participants (41%) were not active, 57 participants (57%) were moderately active and 2 participants (2%) were very active. Thirty-eight participants (38%) had UI. There was no significant relationship between the physical activity levels and their UI of physician mothers (p =0.278), but moderate physical activity score and ICIQ-SF total score were negatively correlated (p=0.049. r= 0.198).

Conclusions: In this study, it was found that the physical activity levels of physician women in the postpartum period were mostly moderate, and there was an inverse relationship between moderate physical activity levels and the presence of UI symptoms.

Keywords: *Childbirth, exercise, physicians, urinary incontinence*

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Introduction

Urinary incontinence (UI) is defined as all types of urine leak complaints by the International Continence Foundation. Postpartum UI is involuntary loss of urine observed within the first year after birth[1]. Risk factors for UI include pelvic wall diseases, pregnancy, vaginal birth, aging and obesity[2]. UI is an important health problem affecting women of all ages and the prevalence of urine leaks at least one time per year is 35-45%[3]. Prevalence is higher during pregnancy (30-60%). UI present during pregnancy may continue during the postpartum period and the prevalence in this period is 6-35%[4]. A study in Turkey by Ege et al. in 2006 reported the UI incidence in the postpartum period was 19.5%[5]. The quality of life of an individual is negatively affected by UI and it may cause anxiety and social isolation.

Being physically active throughout life carries great importance for remaining healthy and for well-being. Moderate intensity physical activity reduces the incidence of UI in middle-aged and elderly individuals[6,7]. While there are a few studies assessing the correlation between physical activity and UI in the postpartum period in the literature, there is no study performed with Turkish women. The aim of this study was to assess the correlation between physical activity levels with urinary incontinence during the postpartum period among women doctors.

Materials and Methods

This study used an online, cross-sectional, self-report survey. The study was completed based on volunteerism and was designed in accordance with the criteria in the 2008 Helsinki Declaration. The study received permission from the local ethics committee (Approval no: 09, date: 11/11/2020).

The study was applied in the online social group called 'doctor mothers' containing 3787 members who were women doctors. All members with at least one child and with less than one year since their last birth were invited to the study. This group were sent an online survey form and data were collected in this way. Before collecting data in the study, participants were informed in writing and provided informed consent.

During data collection, women with any chronic disease, regular medication use, who were pregnant or with more than one year since birth were removed from the study. A total of 108 people responded, with eight people excluded due to chronic disease and/or regular medication use. Data were analyzed from a total of 100 people participating in the study.

Survey and Outcome Measures

The survey comprised three sections about demographic data, the International Physical Activity Questionnaire-Short Form and the International Consultation on Incontinence Questionnaire-Short Form. The first section questioned sociodemographic data such as participant age, height, weight, place of employment, area of specialization, number of children, type of most recent birth, active working status and chronic diseases. The second and third sections included the standardized surveys explained in detail below.

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

The IPAQ developed by Craig in 2003 was adapted to Turkish with validity-reliability study performed by Sağlam et al. in 2010[8,9]. The IPAQ-SF questions three basic activities performed for at least 10 minutes within the last seven days (walking, moderate intensity activity and high intensity activity) and mean sedentary duration per day. For the three, separate metabolic equivalence scores (metabolic equivalence threshold; MET) are calculated (high intensity activity MET score: 8.0, moderate intensity activity MET score: 4.0, walking

MET score: 3.3). The MET value for the activity is multiplied by the total duration (minutes) of each activity and the frequency (days) to obtain the MET-min/week score. Accordingly, total physical activity score reflects the physical activity levels of participants classified as follows (8):

• Not active at adequate levels
(<600 MET-min/wk)
•Active at moderate levels
(600-3000 MET-min/wk)
• Very active
(>3000 MET-min/wk).

International Consultation on Incontinence Questionnaire-Short Form (ICIQ-SF)

The ICIQ was developed by Avery et al. in 2004 to assess UI and the impact of UI on quality of life. The ICIQ was adapted to Turkish by Çetinel et al. in the same year and validity-reliability studies were performed[10,11].

This scale questions the frequency and amount of UI, perceived reasons for IU and impact of UI on quality of life. The scale contains four sections. The first section is about the frequency of UI, the second is about the amount of UI, the third section is about the impact of UI on daily life and the fourth section questions situations causing UI. Assessment adds the points for the first three sections. Responses to the fourth section without points are used to identify the type of UI. Total points on the scale vary from 0-21; low points indicate UI affects quality of life less, while high points indicate high impact[10].

Statistical Analysis

Data were analyzed with the SPSS v.20 program. The Kolmogorov-Smirnov test and Shapiro-Wilk test were used to determine whether the responses given by participants had normal distribution or not. Descriptive data are given as mean ± standard deviation, while nominal variables are given as percentages. The Student t test or Mann-Whitney U test were used according to the distribution of continuous variables. The chi-square test was used for categoric variables. If both variables had normal distribution, correlation coefficient and statistical significance were calculated using the Pearson test; if they did not have normal distribution the Spearman test was used. Statistical significance level was taken as $p<0.05$.

Results

The sociodemographic characteristics of participants are given in Table 1, while employment characteristics are given in Table 2.

When classified according to physical activity levels in the postpartum period, 41 women were not active at adequate levels (41%), 57 women were active at moderate levels (57%) and 2 women were very active (2%). During pregnancy, physical activity frequency was 41%. When doctors were classified according to branch (basic/internal/surgical/dentistry), there was no significant difference between IPAQ-SF total scores ($p = 0.468$). There was no significant difference between the active employment status of participants with IPAQ-SF total scores ($p = 0.825$).

Thirty-eight people had UI (38%). When classified according to UI types, 17 people had stress UI (17%), 9 people had urge UI (9%) and 12 people had mixed UI (12%). The age, BMI, number of children and weight of most recent child of participants were not significantly correlated with the ICIQ-SF ($p = 0.297$, $p = 0.264$, $p = 0.889$, $p = 0.957$, respectively). The type of last birth (vaginal/cesarean) was significantly correlated with ICIQ-SF total score ($p = 0.05$).

The IPAQ-SF total score and ICIQ-SF total score were not significantly correlated ($p = 0.278$); however, there was a low level significant negative correlation between the moderate physical activity MET score with the ICIQ-SF total score ($p = 0.049$, $r = -0.198$).

Table 1. Sociodemographic characteristics of participants

		Mean±SD	Min - Max
Age		32±3.1	26- 42
Height (cm)		164.5±5.6	152 - 178
Weight (kg)		66.1±9.9	49 - 100
BMI (kg/m2)		24.4±3.5	18.6 - 35.4
Birth weight of most recent child (g)		3223±450	1510 - 4335
	Feature		n = 100
Type of birth	Vaginal		32
	Cesarean		68
Number of children	1		73
	2		26
	≥3		2

cm: centimeters, kg: kilogram, SD: Standard Deviation, BMI: body mass index, %: percentage.

Table 2. Employment characteristics of participants

		n = 100
Place of employment	University Hospital	26
	Education and Research Hospital	26
	State Hospital	29
	Public/Family Health Center	13
	Private Hospital	3
	Private Clinic	3
Status	Specialist Doctor	60
	Assistant Doctor	27
	Practitioner Doctor	13
Branch	Basic Sciences	4
	Internal Sciences	61
	Surgical Sciences	18
	Dentistry	17
Active employment	Yes	25
	No	75

In the period before pregnancy, nine participants (9%) had UI symptoms, while 29 participants had UI symptoms (29%) during pregnancy.

Of women with UI during pregnancy, 72.4% (n=21) continued to have UI symptoms. There was no significant difference between the ICIQ-SF total scores of participants with at least moderate levels of activity during pregnancy and those who were not active at sufficient levels (p = 0.886). When participants were classified according to branch and active employment status, there was no significant difference between ICIQ-SF total scores (p =0.418, p = 0.596, respectively).

Discussion

This study was performed with women doctors with at least one child who had given birth within the previous year. The majority of doctors in the postpartum period were active at moderate levels and nearly 40% had UI symptoms. There was no relationship between physical activity levels with UI symptoms; however, there was an inverse relationship between moderate levels of activity and presence of UI symptoms.

There are many studies in the literature assessing UI risk factors; however, there are very few studies assessing the correlation between physical activity and UI. While mild and moderate levels of physical activity reduce the UI development risk, intense levels of activity increase UI frequency, especially stress type[6,12]. Townsend et al. considered that mild and moderate levels of physical activity contributed to reducing UI by preventing weight gain[6]. The UI incidence was 80% for trampoline sportspeople and this result is reported to be the highest UI incidence in the literature[13]. Another study reported high rates of UI with dance

(63%) and mild tempo running (58%). There is very little information about the effect mechanism of physical activity on the anatomy and function of the pelvic wall muscles. It is thought that pelvic wall muscles may affect deep abdominal muscle activity, that performing exercises in positions where the body is vertical may work pelvic wall muscles more and may ensure muscle coordination[12]. In this study, there was no correlation between physical activity with UI; however, there was an inverse correlation between moderate physical activity and UI and this result may be due to the low number of participants.

There are different results from studies assessing the correlation between physical activity during pregnancy with UI in the postpartum period. Some studies found inactivity during pregnancy was correlated with UI, while some studies showed that activity may increase postpartum UI risk[14,15]. A cohort study reported that women performing low intensity physical activity during pregnancy had lower rates of UI[16]. High intensity activities (like running, jumping) during pregnancy appear to be correlated with stress-type UI; however, it was emphasized that this situation may not be the cause of UI[12]. One study observed that UI in the postpartum period was higher in primiparous women with intense levels of activity in the period before pregnancy but did not observe a significant correlation in those with low levels of activity and found 70% of women with UI during pregnancy continued to have UI in the postpartum period[17]. In this study, women with UI during pregnancy were observed to continue symptoms in the postpartum period at similar rates.

There are very few studies assessing the correlation of UI with occupation. A large population-based cohort study performed with Chinese women did not find a correlation between the difficulty level of their work with UI[16]. Two studies with Chinese and Thai women observed more UI in women employed as laborers[18,19]. In India, women who continued with heavy work in the early postpartum period had more UI[20]. In this study, when classified according to those actively employed or not and according to branch, there were no significant differences in terms of UI. This may be due to the low number of participants and/or employed doctors not performing activities that increase intraabdominal pressure like lifting weights.

Studies in the literature found the incidence of UI was 6-33% in the postpartum period and stress UI was observed most frequently[4,17,21]. In our study, the incidence of UI in the postpartum period was 38% for women doctors and the most frequent type was stress UI. A study in Turkey observed that the incidence of UI was 19.5% in the postpartum period, while it was 14.9% for working women and 19.8% for women who were not working and mixed type UI was most frequent[5]. The high incidence of UI in this study may be due to participants answering the questions openly and voluntarily due to surveys not being applied face-to-face and/or doctors accepting UI as a medical status and not avoiding talking about their situation.

Lifelong regular physical activity has important health benefits including reducing chronic disease and mortality risk, in addition to improving physical fitness and psychology. Regular activity in the postpartum period increases quality of life[22,23]. Elliason et al. reported 71% of Norwegian women exercised in the first year postpartum; however, physical activity levels were not measured in the study and exercise was assessed in terms of days on which exercise was performed weekly[17]. In a study in Turkey, Okyay et al. investigated the physical activity levels of women in the postpartum period and assessed physical activity levels with the IPAQ-SF. They reported that nearly 59.7% of participants were active at moderate levels[22]. In our study, the physical activity levels of participants were found to have similar rates to Turkish women.

Limitations

This study cannot be generalized to the whole population or all women as it was performed with women doctors who were in the postpartum period. As women doctors who were not in this group could not be reached, it is not clear whether the doctors participating in the online survey represent all doctors who are mothers in Turkey. As data were collected with the survey method, results are based on self-report and the study results may be assessed as less reliable due to recall or responder bias about information. The participants were asked about physical activity in the week the survey was completed and were not asked about lifelong physical activity.

Conclusion

In this study, the majority of women doctors in the postpartum period had moderate intensity physical activity and an inverse correlation was found between moderate intensity activities and the presence of urinary incontinence symptoms.

Author contributions
Author read and approved the final manuscript.

Conflict of interest
Author declares that they have no conflict of interest.

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Ethical approval
The study was completed based on volunteerism and was designed in accordance with the criteria in the 2008 Helsinki Declaration. The study received permission from the local ethics committee (İzmir Bozyaka EAH. Approval no: 09, date: 11/11/2020).

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