A Comparison of Physical Activity Level, Quality of Life, Sleep Quality and Depression Levels in Mothers of Disabled Children With and Without Musculoskeletal Pain

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Abstract

Aim: This study aims to compare physical activity levels, quality of life, sleep quality, and depression levels in mothers of children with disabilities, distinguishing between those with and without musculoskeletal pain.

Method: A total of 61 mothers aged 20–45 years participated in the study, including 27 mothers with musculoskeletal pain, as determined by the Visual Analog Scale (VAS), and 34 mothers without musculoskeletal pain. The physical activity levels of the mothers were assessed using the International Physical Activity Questionnaire – Short Form (IPAQ), pain status with the VAS, depression levels with the Beck Depression Inventory (BDI), sleep quality with the Pittsburgh Sleep Quality Index (PSQI), and quality of life with the Nottingham Health Profile (NHP).

Results: Body mass index, NHP, PSQI, VAS and number of pregnancies were statistically significantly different between the two groups ($p<0.05$). There was no statistically significant difference between the two groups in the results of IPAQ, BDI, number of children, number of miscarriages, smoking, presence of care assistants, educational status and economic status ($p>0.05$).

Conclusion: Musculoskeletal pain negatively affects the sleep quality and quality of life of mothers of children with disabilities. Depression levels and physical activity levels were high in both groups. In addition, factors such as sociocultural and number of children are also associated with musculoskeletal pain.

Keywords: Caregiver, disabled children, musculoskeletal pain, physical activity, sleep quality.

Musküloskeletal Ağrısı Olan ve Olmayan Engelli Çocuk Annelerinde Fiziksel Aktivite Düzeyi, Yaşam Kalitesi, Uyku Kalitesi ve Depresyon Düzeylerinin Karşılaştırılması

Öz

Amaç: Bu çalışma, engelli çocuğu olan annelerin fiziksel aktivite düzeyleri, yaşam kalitesi, uyku kalitesi ve depresyon düzeylerini; kas-iskelet sistemi ağrısı olanlar ve olmayanlar arasında karşılaştırmayı amaçlamaktadır.

Yöntem: 20-45 yaş aralığında visüel analog skalaya (VAS) göre musküloskeletal ağrılı 27, musküloskeletal ağrısı olmayan 34 anne çalışmaya dahil edildi. Annelerin sosyodemografik özellikleri kaydedildikten sonra fiziksel aktivite düzeyleri Kısa Form Uluslararası Fiziksel Aktivite Anketi (UFAA), ağrı durumları VAS,

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ETHICAL STATEMENT: This study was carried out with the approval of the Ethics Committee of Mudanya University, Human Research Ethics Committee in Health Sciences , dated 30/04/2024 and numbered E-40839667-50.04-101 A signed subject consent form in accordance with the Declaration of Helsinki was obtained from each participant.

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depresyon düzeyleri Beck Depresyon Anketi (BDE), uyku kaliteleri Pittsburgh Uyku Kalitesi İndeksi (PUKİ) ve yaşam kaliteleri Nothingam Sağlık Profili (NSP) anketleri ile değerlendirildi.

Bulgular: Katılımcıların vücut kitle indeksleri, NSP, PUKİ, VAS ve gebelik sayısı değerlendirme sonuçlarında iki grup arasında istatistiksel olarak anlamlı fark vardı (p<0,05). Ancak, musküloskeletal ağrısı olan ve olmayan anneler arasında UFAA, BDE, çocuk sayısı, düşük sayısı, sigara kullanımı, bakıma yardımcı kişi varlığı, eğitim durumu ve ekonomik durum açısından yapılan değerlendirmelerde iki grup arasında istatistiksel olarak anlamlı bir fark bulunmadı (p>0,05).

Sonuç: Kas-iskelet sistemi ağrısı, engelli çocuğu olan annelerin uyku kalitesini ve yaşam kalitesini olumsuz etkilemektedir. Her iki grupta da engelli çocuğa bakım veren annelerde depresyon düzeyleri ve fiziksel aktivite düzeyleri yüksektir. Ailenin sosyo kültürel seviyesi, annenin gebelik ve düşük sayısı gibi faktörler de musküloskeletal ağrı ile ilişkili olabilmektedir.

Anahtar Sözcükler: Bakım veren, engelli çocuk, kas iskelet ağrısı, fiziksel aktivite, uyku kalitesi.

Introduction

Disability is a concept that highlights the negative aspects of the interaction between a person and their health condition, as well as the environmental and personal factors that shape the individual's experience. It encompasses impairments, limitations in daily activities, and restrictions in participation[1]. According to the World Health Organization's (WHO) disability report for 2022, 15.3% of the global population experiences moderate or severe disability, 2.9% have a severe disability, and between 0.7% and 5.1% of children aged 0-14 are estimated to have some form of disability[2]. In Türkiye, data from the Turkish Statistical Institute (TUIK) Population and Housing Survey indicate that approximately 13% of the population is classified as disabled. Furthermore, a TUIK study on the challenges and needs of individuals with disabilities found that among children aged 0-6, 25.1% have speech and language impairments, 9.6% have impaired hearing, 7.4% are intellectually disabled, 3.7% are physically disabled, 3.7% are multiply disabled, 3.6% have chronic illnesses, 2% face mental and emotional challenges, and 1.4% are visually impaired[3].

The United Nations International Children's Emergency Fund (UNICEF) reported that 150 million of the billions of disabled people in the world are children[4]. Inappropriate environmental structures for children with disabilities; unequal access to education, health, transportation, social services and negative attitudes they face limit their participation in society and increase their dependency on caregivers. These challenges faced by children with disabilities affect not only children with disabilities but also their caregivers and parents[5].

Raising a child with a disability often presents significant emotional, financial, and physical challenges for families, particularly mothers who are typically the primary caregivers. These challenges can lead to heightened stress, social isolation, and physical health issues, including weakened immune systems, sleep disturbances, and changes in appetite. While previous research has highlighted these common struggles, the need to better understand and address the specific experiences of mothers caring for children with disabilities remains critical[6,7].

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Pain is a complex experience that encompasses both perceptual and emotional components, often triggered by an injury or condition, but not always with an identifiable organic cause. Musculoskeletal pain, specifically, affects the muscles, bones, joints, ligaments, and tendons and can range from localized discomfort to widespread pain. Commonly arising from repetitive use, overexertion, or work-related activities, this type of pain may develop without a clear cause and can manifest as either acute or chronic, typically worsening over time. While pain severity and affected areas vary, research has shown that musculoskeletal pain often involves multiple regions of the body. For example, a United Kingdom (UK) study found that over 75% of individuals with musculoskeletal pain reported discomfort in several areas, with the most common conditions being low back pain, osteoarthritis, osteoporosis, and rheumatoid arthritis[8].

In a study that explored how the level of mobility of children with disabilities impacts the musculoskeletal pain experienced by their mothers, it was found that mothers most commonly reported pain in the waist, legs, neck, and arms. Factors that alleviated their pain included rest (48%), light exercise (16%), and medication (16%). In contrast, activities such as heavy lifting (40%), prolonged standing (18%), and long work hours (18%) were identified as contributors to increased pain. The study concluded that the age of the child and the duration of the child's disability, rather than whether the child could walk, were the primary factors influencing the development of musculoskeletal pain in mothers. Additionally, an increased number of non-disabled children in the household was found to correlate with higher pain levels in mothers, regardless of whether the disabled child could walk[9].

There is evidence in the literature that mothers with disabled children have more physical and mental problems than mothers with typically developing children. However, studies examining the physical health of mothers are very few. Lee et al. examined 100 individuals with cerebral palsy and 100 caregivers in a study. As a result, it was found that the functional levels of children with cerebral palsy may negatively affect the burden of caregivers, self-recovery power, general mood, quality of life and especially musculoskeletal health[10].

The prevalence of regional body pain is notably higher among caregivers of children with cerebral palsy, particularly in areas such as the shoulder, elbow, upper back, lower back, and ankle. Research has also shown a significant correlation between the caregivers' health and conditions like low back pain, fibromyalgia, and other chronic disorders. Studies assessing the quality of life of these caregivers indicate that physical health-related quality of life (HRQOL) tends to be higher than mental HRQOL. Factors such as fewer chronic health issues in the mothers and a longer duration of disability in their children contribute to better physical HRQOL. On the other hand, better mental HRQOL is linked to reduced parenting stress, more leisure time, health-promoting behaviors, stronger social support, and greater participation in social activities[11,12].

Further research has pointed out that factors such as higher body mass index (BMI) in both mothers and children, as well as lower gross motor function in children, are associated with more severe musculoskeletal pain in the mothers. Talhatu et al.

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compared the health status of caregivers of children with cerebral palsy to those of children without cerebral palsy and found that caregivers of children with cerebral palsy generally had poorer health. However, the severity of the children's motor impairments did not show a direct link to the health status of the caregivers[13,14].

Aim of the Work

This study aimed to compare the physical activity level, quality of life, sleep quality, and depression level in mothers of disabled children with and without musculoskeletal pain, as the literature includes studies on mothers of children with disabilities but lacks a comparison in this specific context. This study aims to explore the unique challenges faced by mothers, specifically focusing on how musculoskeletal pain impacts their daily lives and overall well-being.

Material and Methods

Participants

In study, it was calculated that 26 cases would be needed in each group based on the quality of life parameter with the G*Power version 3.0.10. program to obtain 80% power with an effect width of 0.50 at a statistical significance level of p= 0.05[11].

The study was conducted with mothers who had children with physical disabilities receiving physical therapy at Bursa VM Medicalpark Hospital. The children were between 1 and 18 years of age, and all had physical disabilities. The mothers were allocated into two groups based on their Visual Analog Scale (VAS) scores: those who rated their pain between 0–5 were placed in the group without musculoskeletal pain (MPWG), and those who rated their pain between 6–10 were placed in the group with musculoskeletal pain (MPG). A total of 68 participants, aged 20-45 years, took part in the study. The intervention group consisted of 27 mothers with musculoskeletal pain, while the control group included 34 healthy mothers. Seven participants were excluded due to exclusion criteria, as they were using antidepressants (Figure 1).

Inclusion criteria were as follows:

-The child of the participating mother had a physical disability, confirmed by a report from a relevant health institution.

-The mother was the primary caregiver for the child.

-The mother voluntarily agreed to participate in the study.

Exclusion criteria included:

-Use of antidepressant medication.

-Receiving psychotherapy.

-Pregnancy.

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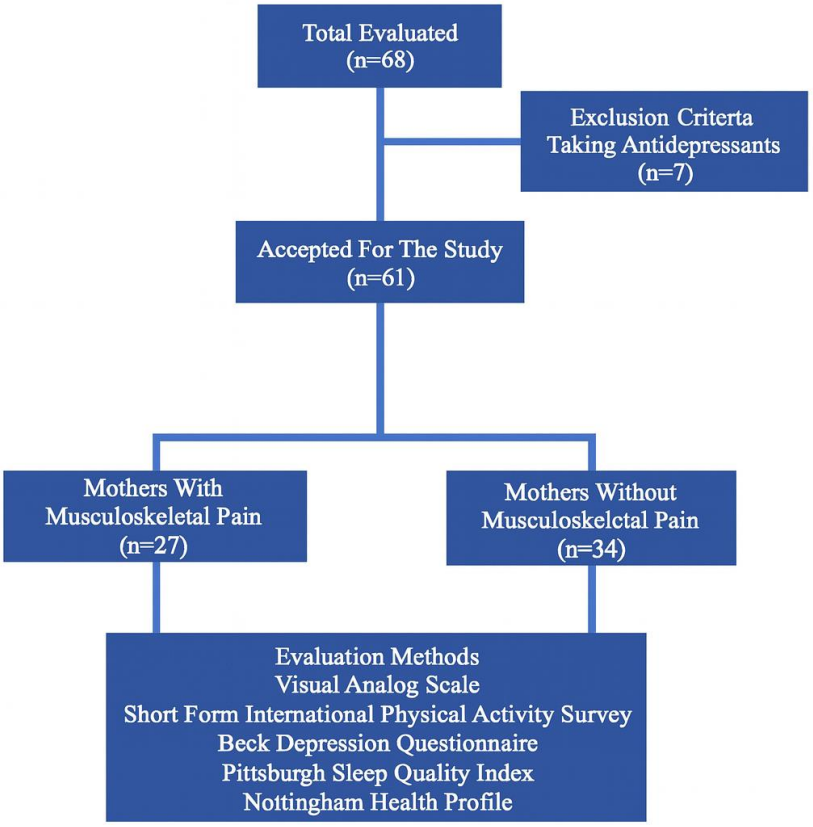
-Lack of coherence.

-Inability to comply with evaluations.

-Refusal to participate voluntarily.

None of the participants took any measures for pain relief other than medication. Additionally, each participant's partner was alive, and they were living together.

Figure 1. Flow diagram of study



Assessments

Socio-demographic information such as gender, age, height, weight, body mass index, occupation, employment status, socioeconomic status, and smoking status were recorded on the form. Visual Analog Scale was used to measure pain severity, Short Form International Physical Activity Questionnaire to measure physical activity level, Beck Depression Inventory to determine depression levels, Pittsburgh Sleep Quality Index to measure sleep quality, and Nottingham Health Profile to assess quality of life.

Sociodemographic Information Form: The mother's name, surname, age, height, weight, BMI, educational status, occupation, socioeconomic status, number of children, and number of abortions were recorded.

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Short Form International Physical Activity Questionnaire: The IPAQ, a self-administered questionnaire, underwent a validity and reliability study in Türkiye. This form collects information on the time spent on various physical activities over the past week, including vigorous activities (e.g., sports like football, basketball, aerobics, heavy cycling, or carrying heavy loads), moderate activities (e.g., light load carrying, casual cycling, folk dancing, or bowling), walking, and daily sitting time. To determine the total physical activity score in Metabolic Equivalent of Task (MET)-minutes per week, the durations of vigorous, moderate, and walking activities are converted into MET values, reflecting the energy expenditure above the basal metabolic rate. Based on these MET values, physical activity levels are categorized as follows: 1. Low activity: less than 600 MET-min/week, 2. Moderate activity: 600-3000 MET-min/week, and 3. High activity: above 3000 MET-min/week[15].

Visual Analog Scale: The VAS scale was used to evaluate pain in this study. Participants were asked to mark their pain on a 10 cm ruler with 0 representing no pain and 10 representing very severe pain[16].

Beck Depression Inventory: In this study, BDI, a self-reported measure, was utilized to evaluate participants' levels of depression. The BDI is a globally recognized tool for assessing depressive symptoms and comprises 21 items. Each item is scored on a scale of 0 to 3, with the total score categorizing depression severity as follows: 0–16 points signify mild depression, 17–29 points indicate moderate depression, and 30–63 points represent severe depression[17].

Pittsburgh Sleep Quality Index: The PSQI is a self-report tool used to evaluate sleep quality, along with the type and severity of sleep disturbances experienced in the past month. It assesses various sleep-related factors, including sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleep medications, and daytime dysfunction. The scale's Turkish version was validated and reliability-tested by Ağargün et al. Each item on the scale is scored from 0 to 3, with higher scores indicating poorer sleep quality. A total score below 5 is categorized as 'Good sleep quality', while a score of 5 or higher is classified as 'Poor sleep quality'[18].

Nottingham Health Profile: NHP was employed to assess the participants' health-related quality of life. The NHP evaluates the emotional, social, and physical health issues as perceived by the individual. It consists of six domains: energy, pain, physical mobility, sleep, emotional reactions, and social isolation, with 38 yes/no questions. These questions focus on current health complaints. Positive responses in certain areas help gauge the severity of the issues, and the overall scores from the six categories can be compiled into a profile. A higher score reflects a lower quality of life[19].

Ethical Statement

Ethical approval for this study was obtained from the Mudanya University Human Research Ethics Committee in Health Sciences, dated April 30, 2024, with approval number E-40839667-50.04-101. All participants were informed about the study in detail and provided written informed consent.

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Statistical Analysis

For parameters that follow a normal distribution, the mean and standard deviation are reported, while for those that do not meet normal distribution criteria, the median (minimum-maximum) values are provided. The normality of continuous variables was assessed using the Shapiro-Wilk test. For comparing two independent groups with continuous variables that do not follow a normal distribution, the Mann-Whitney U test was used. The Student's t-test was applied to assess differences between two independent groups with normally distributed continuous variables. The relationship between categorical variables was examined using the Chi-Square test. For comparing continuous variables within two groups that do not conform to normal distribution, the Wilcoxon Signed Rank test was employed. In cases where the continuous variables in two groups followed a normal distribution, the Paired Samples t-test was used. All statistical analyses were performed using the SPSS software (version 25; IBM, Armonk, NY).

Results

The study included 27 participants with musculoskeletal pain and 34 participants without musculoskeletal pain. Sociodemographic characteristics of the participants are shown in Table 1.

Table 1. Sociodemographic characteristics of participants by groups

Sociodemographic Characteristics	**MPG (n=27)**	**MPWG (n=34)**	**P**
	Mean±SD (Min-Max)	**Mean±SD (Min-Max)**	
Age (year)	39.0370±9.25	37.7941±7.17	0.557
Length (cm)	160±1.2 (155-165)	162±1.12 (157-165)	0.20
Weigth (kg)	75±2.34 (63-82)	70±3.12 (57.5-75.25)	0.225
BMI (kg/m²)	28.82±5.54(21-34)	26.171±4.45(22.5-32)	0.043*
Number of Pregnancy	3±0.54 (2-4)	2±1.04 (1-3)	0.007*
Number of Miscarriages	-	0 (0-1)	0.211
Number of Children	2±1.22 (2-3)	2±0.94 (1-3)	0.246
Cigarette Use			
Yes	6 (22.2%)	4 (11.8%)	0.274
No	21 (77.8%)	30 (88.2%)	
Total	27 (100%)	34 (100%)	
Presence of Care Assistants			
Yes	9 (33.3%)	8 (23.5%)	0.566

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No	18 (66.7%)	26 (76.5%)	
Total	27 (100%)	34 (100%)	
Education Status			
No Education	-	1 (2.9%)	0.868
Primary School	14 (51.9%)	16 (47.1%)	
Middle School	4 (14.8%)	4 (11.8%)	
High School	7 (25.9%)	9 (26.5%)	
University	2 (7.4%)	4 (11.8%)	
Total	27 (100%)	34 (100%)	
Economic Status			
Bad	10 (37%)	8 (23,5%)	0.217
Middle	12 (44.4%)	13 (38.2%)	
Good	5 (18.5%)	13 (38.2%)	
Total	27 (100%)	34 (100%)	
Distribution by Occupation			
Housewife	26 (96.3%)	30 (88.2%)	0.374
Secretary	-	1 (2.9%)	
Doctor	-	2 (5.9%)	
Engineer	1 (3.7%)	1 (2.9%)	

*p<0,05; MPG: Musculoskeletal pain group; MPWG: Without musculoskeletal pain group; BMI: Body Mass Index; SD:Standard deviation; Min: Minimum; Max: Maximum

The mean age of mothers with musculoskeletal pain was 39.03 years, while the mean age of mothers without musculoskeletal pain was 37.79 years, and there was no statistically significant difference between the two groups (p=0.557). The BMI of the mothers with musculoskeletal pain was 28.82, while the BMI of the mothers without pain was 26.171, and there was a statistically significant difference between the two groups (p=0.043). In both groups, the most common occupation participating in the study was housewives.

The results of sleep quality, quality of life, physical activity, depression and pain assessment of mothers with and without musculoskeletal pain are shown in Table 2.

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Table 2. Evaluation Results of the Participants

Evaluation Results	MPG (n=27)	MPWG (n=34)	P
	Mean±SD (Min-Max)	Mean±SD (Min-Max)	
VAS	6±1.13 (5-7)	2±1.12 (1-3)	**0.001***
PSQI	7.37±3.17(4.32-12.24)	5.11±2.61(3.2-7.87)	**0.04***
IPAQ	2088±23.67 (297-3402)	1684.5±36.7 (296.75-3720.75)	0.878
BDI	10±3.21 (5-15)	10 ±4.67 (4.75-13.25)	0.61
NHP	21.686±12.1 (5.165-43.665)	6.24±3.34 (1.29-17.90)	**0.003***

**p<0,05; MPG:Musculoskeletal pain group; MPWG: Without musculoskeletal pain group; SD:Standard deviation; Min: Minimum; Max: Maximum; VAS: Visual Analog Scale; PSQI: Pittsburgh Sleep Quality Index; IPAQ: Short Form International Physical Activity Questionnaire; BDI: Beck Depression Inventory; NHP: Nothingham Health Profile*

When the groups divided into two according to pain status were examined, it was found that the group with musculoskeletal pain reported the pain value as 6 out of 10, while the group without musculoskeletal pain reported the pain value as 2 out of 10.

The PSQI was administered to assess sleep quality, and the resulting PSQI scores were analyzed. The mean PSQI score was 7.37±3.17 in the Musculoskeletal Pain Group (MPG) and 5.11±2.61 in the Without Musculoskeletal Pain Group (MPWG). These results indicate that sleep quality was poorer in participants with musculoskeletal pain. The difference between the two groups was statistically significant (p=0.014).

According to the SF-IPAQ results, the median physical activity score in the MPG was 2088 MET-min/week (297–3402), while in the MPWG it was 1684.5 MET-min/week (296.75–3720.75). Both groups exhibited moderate levels of physical activity. However, the difference between the groups was not statistically significant (p=0.283).

The BDI score was 10 (5–15) in the MPG and 10 (4.75–13.25) in the MPWG. Depression levels in both groups were classified as mild according to the BDI. There was no statistically significant difference between the groups (p=0.61).

Higher NHP scores indicate poorer quality of life. The median NHP score was 21.69 (5.17–43.67) in the MPG and 6.24 (1.29–17.90) in the MPWG. The quality of life was significantly lower in participants with musculoskeletal pain compared to those without musculoskeletal pain (p=0.038).

When the physical activity and depression assessment results of mothers with and without musculoskeletal pain were analyzed, there was no statistically significant difference between the two groups (p>0.05). There was a statistically significant difference between the two groups in sleep quality, quality of life and pain assessment results of mothers with and without musculoskeletal pain (p<0.05).

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Discussion

In this research comparing physical activity levels, quality of life, sleep quality, and depression in mothers of children with disabilities who either did or did not experience musculoskeletal pain, we found that while there was no significant difference in physical activity and depression levels, mothers without musculoskeletal pain reported better quality of life and sleep.

The daily challenges most commonly reported by mothers of children with disabilities include insufficient sleep, the constant need for attention towards the child, being with the child all the time, limited leisure and rest time, frequent interactions with specialists, physical fatigue, and the feeling of constant dependency on the child. In addition to these, these mothers also face emotional and financial burdens, the loss of personal aspirations, and chronic exhaustion. These additional stressors, coupled with their caregiving responsibilities, can lead to significant physiological and psychological responses, disrupting their balance and well-being[20]. Therefore, in this study, we aimed to assess the sleep quality, depression levels, quality of life, and physical activity of mothers and explore the relationship between these factors and pain.

Caring for a child with a disability, combined with household responsibilities, exacerbates marital and financial challenges and often leads to social isolation for these mothers. They tend to neglect their own self-care, dedicating their time to their disabled child, which frequently results in depressive symptoms, anxiety, high stress, and diminished quality of life[21]. In this study, we observed that depression levels in mothers with children with disabilities were similar, regardless of whether they experienced pain.

According to existing literature, mothers of children with disabilities often take on the primary caregiving role across many cultures, frequently adjusting their lives to accommodate the needs of their child. A previous study comparing mothers and fathers of children with mild intellectual disabilities reported that mothers experienced higher levels of depression and lower quality of life than fathers[22]. In line with these findings, the current study focused on mothers as primary caregivers and similarly observed that the quality of life was significantly lower among those with musculoskeletal pain compared to those without. The majority of participants in both groups reported not receiving support in caregiving, which is consistent with previous literature. Furthermore, one study involving 150 mothers of children with disabilities aged 0–18 years found that depression scores were higher among those who were unemployed, lived in extended families, and had lower socioeconomic and educational status. Although the present study did not statistically analyze the relationship between economic status and depression, depression levels were mild in both groups[23]. Socioeconomic characteristics were descriptively examined, and while a substantial portion of mothers with musculoskeletal pain reported average income, a slightly higher proportion of pain-free mothers reported average to good economic status.

In a previous study involving 100 parents of children with disabilities, a relationship was found between the level of disability in children and increased caregiver burden[24]. Interestingly, parents with higher physical activity levels also reported higher caregiving

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burden, as measured by the IPAQ and the Zarit Caregiving Burden Scale. In the current study, physical activity levels were assessed using the IPAQ. While there was no statistically significant difference between the two groups, both demonstrated moderate levels of physical activity, aligning with previous findings. It is considered that the slightly higher physical activity level observed in the musculoskeletal pain group may be attributed to the physical demands of caregiving combined with the impact of chronic pain.

Previous literature has addressed musculoskeletal disorders among parents who provide care for children with disabilities. One study focusing on mothers of children with cerebral palsy reported that these individuals experienced increased discomfort, particularly in the lumbar region, and that this was associated with poorer mental health and reduced health-related quality of life. In the present study, although no significant association was found between pain and depression levels, musculoskeletal pain appeared to be associated with lower quality of life among participants[25]. The lack of data regarding the specific location of the pain is acknowledged as a limitation of this study. Given the cross-sectional nature of the research, caution is warranted in interpreting associations, and no causal relationships can be inferred.

In this study, the number of pregnancies was found to be higher among mothers in the MPG compared to those in the MPWG. Increased intra-abdominal pressure during pregnancy, along with generalized weakness of the abdominal wall structures, has been reported in the literature as contributing factors to the development of diastasis recti[26]. Diastasis recti, in turn, may lead to abdominal instability, poor posture, and lower back pain. Based on these associations, it is possible that a higher number of pregnancies may be related to the presence of musculoskeletal pain in mothers of children with disabilities. However, further research is needed to explore this relationship more thoroughly.

According to the literature, total sleep duration reported by caregivers typically ranges between 7 and 9 hours. Some studies have shown that mothers of children with disabilities sleep, on average, 51 minutes less than mothers of typically developing children, and approximately 40% of them sleep fewer than 7 hours per night[27]. In the present study, sleep quality was found to be poor in both groups. However, when the two groups were compared, mothers in the MPG reported poorer sleep quality than those in the MPWG. While this suggests a possible association between musculoskeletal pain and reduced sleep quality, it is important to interpret this result with caution. Given the cross-sectional design of the study, no causal conclusions can be drawn, and other factors may also contribute to decreased sleep quality.

Conclusion

This study demonstrated that mothers of children with disabilities who experience musculoskeletal pain also have lower sleep quality and a reduced quality of life. Although depression levels were found to be mild in both groups and not associated with pain, the overall burden on these mothers is evident. Interestingly, physical activity levels were

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moderate in both groups, with a slightly higher level in the pain group—potentially reflecting increased caregiving demands rather than leisure activity.

These findings highlight the physical and emotional challenges faced by caregiving mothers. Health professionals should be aware of these burdens and adopt a more compassionate and supportive approach. Interventions aimed at improving sleep, reducing physical strain, and facilitating access to physical therapy or support services could enhance their well-being. Supporting caregivers not only benefits their health but may also positively impact the care of children with disabilities.

Limitations

This study aimed to compare physical activity levels, quality of life, sleep quality, and depression levels among mothers of children with disabilities, based on the presence or absence of musculoskeletal pain. One key limitation of the study is the relatively small sample size, which may affect the generalizability of the findings. Another limitation is the scarcity of prior research focusing specifically on this population, which restricts opportunities for comparison and contextualization.

Moreover, the study did not include detailed data on child-related variables such as age, weight, body mass index, or the severity and type of disability (e.g., physical or intellectual). This is primarily because the mothers were recruited from a physiotherapy outpatient unit where they accompanied their children for treatment, and the focus was solely on the mothers themselves. The children were not evaluated directly within the scope of this study.

This lack of child-related information is a limitation, as such variables may influence the development or severity of musculoskeletal pain in mothers. Future studies should consider incorporating these factors to provide a more comprehensive understanding of the caregiving burden.

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