



Suicidal Ideation and Behaviors In Mothers Of Children with Cerebral Palsy

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ABSTRACT

Objective: Long-lasting care process can result in the withdrawal of the mother with children diagnosed with cerebral palsy (CP) from the social environment and cultural activities while leading also to physical exhaustion. The present study evaluates the levels of depression and anxiety, suicidal ideation, and behaviors in mothers with children diagnosed with CP.

Methods: The study included 57 healthy mothers with children aged 2–16 years who have been diagnosed with CP and 41 healthy mothers with healthy children as a control group. The Hospital Anxiety and Depression Scale (HADS), the Scale for Suicidal Ideation (SSI), and the Suicidal Behavior Scale (SBS) were administered to all participants.

Results: The sociodemographic status of the mothers of children with CP was similar to that of the mothers with healthy children ($p>0.05$). The HADS, SSI, and SBS scores were found to be higher in the mothers with children with a CP diagnosis than in mothers with healthy children ($p<0.05$).

Conclusion: The risk of attempted suicide was higher in mothers of children with CP than in those of healthy children. Accordingly, the observation of the psychological status of mothers with children with CP should be considered important.

Keywords: Cerebral palsy, suicide, mother

Serebral Palsi Tanılı Çocuğu Olan Annelerde İntihar Düşünceleri ve Davranışları

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ÖZ

Amaç: Serebral palsi (SP) tanılı çocukların uzun süreli bakım ihtiyacı, annelerinin sosyal çevreden ve kültürel faaliyetlerden uzaklaşmasına neden olur. Ayrıca fiziksel olarak da tükenmeye yol açabilir. Bu çalışmada SP tanılı çocuğu olan annelerin depresyon ve anksiyete düzeyleri, intihar düşüncesi ve davranışları değerlendirilmiştir.

Yöntem: Çalışmaya 2–16 yaş arası SP tanısı almış çocuğu olan 57 sağlıklı anne ve sağlıklı çocuğu olan 41 sağlıklı anne dahil edildi. Tüm katılımcılara Hastane Anksiyete ve Depresyon Ölçeği (HADÖ), İntihar Düşüncesi Ölçeği (İDÖ) ve İntihar Davranışı Ölçeği (İDÖ) uygulandı.

Bulgular: SP'li çocuğu olan annelerin sosyodemografik verileri sağlıklı çocuğu olan annelerinkine benzerdi ($p>0.05$). SP tanılı çocuğu olan annelerin HADÖ, İDÖ ve İDÖ puanları sağlıklı çocuğu olan annelere göre daha yüksek bulundu ($p<0.05$).

Sonuç: SP'li çocukların annelerinde intihar girişimi riski sağlıklı çocuğu olan annelere göre daha yüksektir. Bu nedenle SP'li çocuğu olan annelerin psikolojik durumları yakın takip edilmelidir.

Anahtar sözcükler: Serebral palsi, intihar, anne.

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Introduction

Cerebral palsy (CP) is classified as a neuromuscular disease with distinctive characteristics that include motor developmental delay and cognitive, sensorial and communication deficits, resulting from various defects in the immature brain^{1,2}. The prevalence of CP among children aged 2–16 years has been reported to be 0.44% in Turkey³. Children with CP suffer from severe impairments in motor skills, as well as cognitive, sensorial, emotional and social deficits, and thus require continuous lifelong therapy that leads to significant healthcare costs. The functional disability and burden of care associated with children with CP have a detrimental effect on families, both materially and morally.

Mothers with children diagnosed with CP are closely involved in such processes as personal care, transfers, daily life activities and treatment⁴, and this intensive and long-lasting care process can result in the withdrawal of the mother from the social environment and cultural activities, while leading also to physical exhaustion⁵. In addition, the increasing dependency of children with CP on their mothers has been shown to affect the expectations of mothers for the future, along with their emotional status and quality of life^{6,7}. The detrimental effect of the combination of all these problems on mothers of children with CP can affect their mental health. Previous studies have shown that depression and anxiety are more common in mothers with children with CP than in mothers of healthy children^{8,9}. Furthermore, studies involving the mothers of children with various diseases have shown that increased rates of depression and anxiety are linked to an elevated risk of suicide in mothers^{10,11}. The authors of the present study hypothesize that the risk of attempted suicide is higher in mothers with children diagnosed with CP, and is likely to result in an increase in depression rates and anxiety disorders.

There have been studies in literature evaluating the burden of such mental disorders as anxiety and depression on mothers with children with CP^{8,12}. To the best of our knowledge, however, there has been no study to date evaluating suicidal ideation and behaviors specifically in mothers with children with CP. Consequently, the present study evaluates the suicidal ideation and behaviors of mothers with children with CP.

Materials and Methods

The study was conducted on 57 healthy mothers with children diagnosed with CP aged 2–16 who underwent rehabilitation in the Physical Therapy and Rehabilitation clinic of tertiary care referral university hospital between March 2018 and March 2019 (Group 1), and 41 healthy mothers of completely healthy children as the control group (Group 2). Both groups included unemployed mothers who act as the primary caregiver, and who spend all of their time with their

children at home. Control group mothers formed from hospital staff wives who have healthy children.

This study excluded individuals with such systemic diseases as diabetes, hypertension, metabolic or hormonal disorders, hematological or neurological diseases, those with a known psychiatric condition or those taking psychosocial support and medications, those who are divorced, and those living apart from their spouse and children, alcohol abusers and those living with other family members (combined family) other than the core family members, uncooperative individuals, and those with an inability to comprehend and express their opinions were not included in either group. Mothers with more than one child with CP or another disability were excluded.

The study was approved by the Sivas Cumhuriyet University non-interventional clinical research ethics committee (date: 26 February 2018, no: 2018-01/33), and was conducted in accordance with the principles of the Declaration of Helsinki. Written informed consent was obtained from each study participant. Before the study, the research protocol was approved by the, Sociodemographic variables such as age, number of children, and monthly income were recorded for both groups. All participants were blindly evaluated by the same psychiatrist, and the Hospital Anxiety and Depression Scale (HADS), Scale of Suicidal Ideation (SSI), and Suicidal Behavior Scale (SBS) were administered. The questionnaires were completed under the supervision of a psychiatrist, which allowed instant control.

The questions in SSI are responded to with either yes or no, and the total score that can be obtained from this 17-item questionnaire fall within the 0–17 range, with high scores indicating the presence of suicidal ideation. The validity and reliability of the Turkish version of this scale was established¹³.

The suicidal Behavior Scale assesses lifetime suicidal behaviors, suicidal ideation, and the possibility of suicidal behavior in the future. The scale contains four items, with total scores ranging between 0 and 14 points. High scores indicate severe suicidal behavior. The validity and reliability of the Turkish version of this scale was established by Bayam et al¹³.

Hospital Anxiety and Depression Scale is a self-assessment scale that is used to determine the risk of anxiety and depression in a particular patient, and to measure the level of and change in anxiety and depression intensity by the HADS depression subscale and the HADS anxiety subscale¹⁴. The cut-off value for the HADS depression scale was determined as 7, and the cut-off value for the HADS anxiety scale was 10. The validity and reliability of the Turkish version of HADS was established by Aydemir¹⁵.

Those scoring above the cut-off value in the HADS scales and mothers with suicidal ideation or suicidal behavior were re-evaluated by the same psychiatrist and offered psychosocial support.

The analyses of the results of the scales were carried using IBM SPSS Statistics 22 (IBM Corp., Armonk, NY, USA). A Kolmogorov-Smirnov test was applied to all the data, a Mann-Whitney U-test was used for paired

comparisons, and a Kruskal Wallis test was utilized to obtain a comparison of more than three groups. Spearman's correlation coefficient was used for comparisons of numerical variables. A Chi-square test was used for the comparison of categorical data. Data were expressed in table form as number, percentage, and mean \pm standard deviation, and a *p*-value of <0.05 was considered statistically significant. Considering the 0.44% prevalence rate of CP among children aged 2–16 years in Turkey³, 57 mothers of children with CP were included in the study within a 95% confidence interval, considering the total population of the province. The power of the study was calculated at 90.21%. The size of the control group was determined to be 2/3 of the size of the CP group.

Results

A total of 57 mothers of children with CP and 41 mothers of healthy children were included in the study. The two groups were similar in terms of maternal age, educational level, economic status, and number of children ($p>0.05$) (Table 1). The HADS scores of Group 1

were considerably higher than those of Group 2 ($p<0.05$), although 45 of the respondents (79%) in Group 1 and 16 respondents (39%) in Group 2 scored above the cut-off value for depression on the HADS scale; and 33 respondents (57.8%) in Group 1 and six respondents (14.6%) in Group 2 scored above the cut-off value for anxiety on the HADS scale. When the SSI scores of the two groups were compared, the scores were found to be significantly higher in Group 1 than in Group 2 ($p<0.05$). Similarly, when the SBS scores of the two groups were compared, the SBS scores were significantly higher in Group 1 than in Group 2 ($p<0.05$). A comparison of the HADS, SSI, and SBS scores of the groups are presented in Table 2. In an intragroup analysis of mothers with children with CP in terms of the HADS, SSI, and SBS scores and levels of education and income, and the type of CP, no significant link was noted between the HADS, SSI, and SBS scores and the level of education, income and type of CP ($p>0.05$) (Table 3). Finally, a significant positive correlation was identified between the HADS scores and SSI and SBS scores of mothers with children with CP ($r=0.620$ and $r=0.504$, respectively) ($p<0.001$).

Table 1. Socio-demographic data of the mothers

	Cerebral palsy group (n=57)	Control group (n=41)	<i>p</i> Value
	<i>Mean\pmSD</i>	<i>Mean\pmSD</i>	
Age (years)	35.35 \pm 6.61	36.36 \pm 6.42	0.448
Number of children	2.64 \pm 1.06	2.26 \pm 0.97	0.069
	<i>n (%)</i>	<i>n (%)</i>	
Education			0.762
Primary or Secondary School	26 (45.6)	17 (41.5)	
High School	23 (40.4)	16 (39)	
University	8 (14)	8 (19.5)	
Income			0.222
<500 USD	31 (54.4)	17 (41.5)	
500-1500 USD	22 (38.6)	17 (41.5)	
>1500 USD	4 (7)	7 (17)	

USD: United States dollars; n: number of patients; SD: standard deviation

Table 2. Between-group comparison of HADS, SSI, and SBS scores

	Cerebral palsy group (n=57)	Control group (n=41)	<i>p</i> Value
	<i>Mean\pmSD</i>	<i>Mean\pmSD</i>	
HADS	13 \pm 8.04	6.5 \pm 4.46	<0.001
SSI	2.758 \pm 3.65	0.82 \pm 1.07	0.004
SBS	0.78 \pm 1.49	0.09 \pm 0.3	0.015

HADS: Hospital Anxiety and Depression Scale; SSI: Scale of Suicidal Ideation; SBS: Suicidal Behavior Scale; n: Number of patients; SD: Standard deviation

Table 3. Comparison of the HADS, SSI, and SBS scores according to the education and income level of the mothers of children with cerebral palsy and the type of cerebral palsy

	HADS	SSI	SBS
	Mean±SD	Mean±SD	Mean±SD
Education			
Primary or Secondary School (n=26)	10.98±9.04	2.7±3.93	0.67±1.41
High School (n=23)	10.08±6.3	1.23±1.48	0.28±0.86
University (n=8)	9.06±5.3	1.69±2.68	0.56±1.31
<i>p</i> Value	0.291	0.273	0.785
Income			
<500 USD (n=31) (n=22)	11.54±8.47	2.71±3.72	0.77±1.53
500-1500 USD	9.33±6.56	1.31±2.08	0.26±0.75
>1500 USD (n=4)	8.35±5.05	0.91±1.04	0.18±0.4
<i>p</i> -Value	0.064	0.241	0.125
Type of cerebral palsy			
Spastic Hemiplegic (n=8)	15.38±8.53	4.5±5.58	1±1.77
Spastic Diplegic (n=18)	12.78±8.28	2.44±3.07	0.83±1.25
Spastic Quadriplegic (n=19)	12.58±8.95	2±3.18	0.47±1.43
Athetoid (n=4)	12.25±4.35	1.25±1.5	-
Others (n=8)	12.5±7.54	4.25±4.10	1.63±2.07
<i>p</i> -Value	0.884	0.377	0.151

USD: United States dollars; HADS: Hospital Anxiety and Depression Scale; SSI: Scale of Suicidal Ideation; SBS: Suicidal Behavior Scale; n: number of patients; SD: Standard deviation

Discussion

The present study found higher levels of depression and anxiety in mothers with children with CP than in mothers with healthy children. Similar findings have been reported in previous studies^{9, 12, 16}, although the present study also found that suicidal ideation and behaviors were more common in mothers with children with CP than in mothers with healthy children. Furthermore, the present study also found that the rates of suicidal ideation and behaviors in mothers with children with CP are unaffected by education and income level, or by the type of CP. In addition, for

mothers with children with CP, the levels of anxiety and depression and suicidal behaviors and ideation were positively correlated. To the best of our knowledge, this is the first study in the literature to report such results.

Mothers play a key role in the care and treatment of children with CP¹⁶, and face the challenges and complexities associated not only with their children's condition but also with meeting their own social needs. It is thus known that mental health problems are more common in mothers parenting a disabled child than in those with healthy children^{17, 18}. Previous clinical studies have shown that depression and anxiety rates are higher in mothers with children with CP than in

mothers with healthy children. In their study, Garip et al. found the rate of depression to be higher in mothers with children with CP than in mothers with healthy children¹⁹. In a study involving caregivers of children with CP, the majority of whom were the children's mothers, Basaran et al. elevated rates of depression and anxiety were reported on the side of the those acting as caregivers to children with CP²⁰. Another study revealed elevated levels of depression and anxiety in mothers with children with CP when compared with mothers with healthy children, and identified a relationship between the education level and economic status of the mother with children with CP and the level of anxiety and depression⁸. Sajedi et al. reported higher rates of depression in mothers with children with CP but identified no relationship with the type of CP⁹. In line with previous clinical studies, the present study also revealed elevated levels of depression and anxiety in the mothers of children with CP who act as the primary caregiver when compared to the mothers of healthy children, and the rate of anxiety and depression did not change significantly based on the educational level or economic status of the mothers with children with CP, nor with the type of CP.

Suicide is a significant mental health problem that requires emergency intervention, being a major cause of death in developed countries. Suicide risk is affected by many factors, such as psychological status, sociocultural status, educational level, income level, gender, age, marital status, and life events²¹. Previous clinical studies have shown that the risk of attempted suicide is associated with increased rates of anxiety and depression^{21,22}. Akram et al. found that the high rate of depression reported among mothers of children with autism increases the risk of suicide¹⁰. In a clinical study involving the mothers of children with disabilities of varying degrees, an increase in the risk of attempted suicide was found to be associated with the increasing rate of anxiety and depression identified in the mothers of disabled children¹¹. Similar to these studies, the present study identified a higher rate of suicidal ideation and behavior in mothers with children with CP than in mothers of healthy children, and a relationship was shown between an elevation in the rate of suicidal ideation and behaviors and the levels of anxiety and depression. That said, the present study has also shown that suicidal ideation and behaviors are not affected by the education or income level of the mother, nor the type of CP, to the same degree as they are affected by anxiety and depression.

The limitations of the present study include its single-center study design; the relatively small number of participants in both groups, particularly in the control group; and the lack of opportunity to evaluate the psychological status of family members other than the mother. Another limitation of the study is that we did not record the functional levels of the children with CP of the participants. Although having a different functional level of CP requires different levels of care, having a child with CP may lead to different psychological conditions, as the results of this research

shows. Future research will reveal its relationship with the functional level of the child with cerebral palsy.

Conclusion

In conclusion, anxiety and depression are more common in mothers of children with CP than in mothers of healthy children. In addition, the risk of attempted suicide is found to be elevated in mothers with children with CP when compared to mothers of healthy children. The authors of the present study consider that the psychological status of mothers who act as the primary caregiver to children with CP must be evaluated, and that psychosocial support is provided when required if a more successful rehabilitation process is to be achieved. The results of the present study may guide future clinical studies evaluating the risk of attempted suicide and/or other psychological conditions in the mothers of children with CP.

Conflict of interest:

The authors declare that they have no competing interests.

Financial Disclosure:

There are no financial support.

Ethical approval: All procedures performed in this study were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Human Research Ethics Committee of the Sivas Cumhuriyet University approval was received for this study [registry no: 2018-01/33]. Informed consent was obtained from the all participants included in this study

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