



Original Article

Disabled children's functionality and maternal quality of life and psychological status

Aysel Yıldız,¹ Devrim Tarakçı,² Farzin Hajebrahimi¹ and Fatma Mutluay¹*Departments of ¹Physical Therapy and Rehabilitation, and ²Ergotherapy, Faculty of Health Sciences, Istanbul Medipol University, Istanbul, Turkey*

Abstract **Background:** Physiotherapy is being provided for different disabled groups in pediatric rehabilitation centers. The quality of life (QOL) and psychological status of the mothers of these children is affecting their compliance in the rehabilitation period. The aim of this study was therefore to assess the relationship between disability level of individuals receiving rehabilitation and maternal QOL, psychological status and influencing factors.

Methods: One hundred and twenty-six disabled children and their mothers were included in this cross-sectional study. Demographic information was noted. Child motor level was assessed using the Gross Motor Function Classification System and the level of independency in activities of daily living (ADL) was assessed with the Katz ADL scale. Maternal QOL was assessed with the 36-item Short Form (SF-36), and psychological status with the Beck Depression Inventory (BDI). SPSS 18.0 was used to analyze data.

Results: Mean maternal age was 36.46 ± 7.2 years. Of the children, 67.5% had physical problems, 16.7% had mental problems, 7.9% had autism, 4.8% had hyperactivity, and 3.2% had hearing and speaking problems. Mild depression was detected in mothers (mean BDI score, 11.27 ± 8.1). There was no correlation between child disability level and maternal QOL and depression ($P > 0.05$). Maternal BDI score was negatively correlated with all SF-36 subscale scores ($P < 0.001$ for all parameters).

Conclusion: The SF-36 subscale scores of mothers of disabled children were decreased compared with Turkish community norms. Psychological support of mothers of children in the rehabilitation period may positively affect this period.

Key words disabled children, functionality, mother, psychological status, quality of life.

Disability refers to the individual's limitation or failure to fulfill the expected roles related to age, gender, social and cultural factors in the case of an insufficiency or handicap. It consists of a wide range of visual disorders, speech and hearing problems, physical disorders and mental disability.¹

The World Health Organization (WHO) estimated the disability ratio in developing countries as 12%. It has been reported that 6 million disabled people live in Turkey. In Turkey, there are 25 million children in the 0–18 age group, of whom 3 million are disabled children between 0 and 16 years of age.² Rehabilitation centers for disabled children are connected to the Ministry of Education, and they play an important role in Turkey. These rehabilitation centers generally offer seven different programs: Physically Disabled Persons Support Training Program; Mentally Disabled Persons Support Training Program; Special Learning Difficulties Support Training Program; Speech and Language Disabilities Support Training Program; Visually Impaired Individuals Support Training

Program; Pervasive Developmental Disorders Support Program; and the Hearing Impaired Support Training Program.

Individuals who have been identified with a disability level $\geq 20\%$ according to the health committee, can attend 8–12 sessions at the rehabilitation centers without paying fees. Disabled children who attend rehabilitation centers, also attend normal schools in the form of coalescence education or specific subclasses.

The trauma of having a disabled child plays a major role in the integration of the family into society, and leads to physical and psychological limitations, especially in the primary caregiver. Child behavior problems are an important predictor of caregiver psychological wellbeing, both directly and indirectly, through their effect on family function. Child health problems, future concerns, the continuous need for care, education, caregiving demands and economic load are the leading causes of stress for families.^{3–6}

Level of dependency in children's activities of daily living (ADL) may affect maternal quality of life (QOL), psychological status and compliance with treatment. The aim of the present study was therefore to determine whether ADL and functionality in disabled children receiving rehabilitation are associated with maternal QOL and psychological status.

Correspondence: Devrim Tarakçı, PhD, Dilbade Specific Education and Rehabilitation Center, Kavacak M. Ekinciler C. Beykoz 34810, Istanbul, Turkey. Email: dtarakci@medipol.edu.tr

Received 14 August 2015; revised 23 February 2016; accepted 13 April 2016.

Methods

Disabled children and their mothers referred by the Counseling and Research Center (CRC) to two pediatric rehabilitation centers in Istanbul, Turkey were included in this study (December 2014–February 2015). The study protocol was approved by the Non-Invasive Research Ethics Committee of the Istanbul Medipol University.

Participants

Disabled children and their mothers who were approved to receive rehabilitation and who attended this service regularly for at least 6 months were voluntarily included in the study. Written informed consent was obtained from each participant.

Evaluation protocol and instruments

Evaluation of the disabled children and of the mothers' questionnaires was performed by the same physiotherapists at both rehabilitation centers. The evaluation form designed for the study was completed by the physiotherapist after face-to-face interview with the mothers. The evaluation form consisted of demographic data, children's health information, disability level, assistive device utilization, frequency of medical check-ups, school attendance, transport problems and treatment other than rehabilitation.

Child motor level was evaluated with the Gross Motor Function Classification System (GMFCS) and children's ADL with the Katz ADL scale.

Maternal sociodemographic information was noted. Psychological status was assessed with the Beck Depression Inventory (BDI) and QOL was assessed with the 36-item Short Form (SF-36).

Gross Motor Function Classification System

The GMFCS evaluates specific concepts of the WHO International Classification of Functioning, Disability and Health (ICF), which also includes youths aged 12–18.

In order to define motor function level and disability level, a Turkish version of the expanded and revised form of the GMFCS was used (GMFCS E/R).

The GMFCS E/R is easy to use and categorizes children into <2 years, 2–4, 4–6, 6–12 and 12–18 years age groups. GMFCS E/R can be summarized as follows:^{7–9} level I, walks without limitations; level II, walks with limitations; level III, walks using a hand-held mobility device; level IV, self-mobility with limitations; may use powered mobility; and level V, transported in a manual wheelchair.

Activities of daily living

The Katz ADL scale was developed by Katz *et al.* in 1963 and is used to determine whether the individual is independent

or dependent on other people for ADL.¹⁰ The Katz ADL scale assesses the ability to perform basic activities such as bathing, dressing, getting to and from the toilet, urination, mobilization, and eating/drinking, and the answer choices consist of "dependent/partly dependent/independent". For each activity, 3 points are given if the individual carries out ADL independently, 2 points if the individual is partly dependent, and 1 point if the individual is dependent on other people for ADL. The resulting Katz ADL score is classified as follows: 0–6 points, dependent; 7–12 points, partly dependent; 13–18 points, independent.

Beck depression inventory

This BDI is frequently used in adults. Each item is rated from 0 to 3 points. The aim of the inventory is not to diagnose depression, but to objectively classify the degree: 10–16 points, mild depressive symptoms; 17–29 points, moderate depressive symptoms; 30–63 points, severe depressive symptoms. The Turkish version of the BDI, for which validity and reliability have been confirmed, was used in the present study.¹¹

Quality of life

The SF-36 is used to assess maternal QOL. The scale consists of 36 questions under eight subscales including physical function, social function, emotional and physical role limitations, mental health, general health, vitality (energy) and pain. The score for each subscale varies from 0 to 100. SF-36 score and QOL are directly proportional. The Turkish version of the SF-36, with confirmed validity and reliability, was used in the present study.¹²

Statistical analysis

Statistical analysis was carried out with SPSS version 20.0. One-sample Kolmogorov–Smirnov test was used to determine normality of distribution. Normally distributed variables are given as mean \pm SD. Pearson correlation analysis was used to determine correlations. Statistical significance was set at $P < 0.05$.

Results

One hundred and twenty-six mothers aged 18–63 years (mean age, 36.46 ± 7.20 years) participated in the study. A total of 66.8% of mothers were primary school graduates, and 92.9% of mothers were housewives. Sixty-one families (48.4%) had one child other than the disabled child, and 34 (27%) and 14 families (11.1%) had two and three children other than the disabled child, respectively. The proportion of low-income and moderate-income families was 41.3% and 46.8%, respectively (Table 1).

Fifty-six female and 70 male disabled children were assessed in the study (mean age, 8.82 ± 5.69 years). A total

Table 1 Maternal demographic information

	Range	Mean \pm SD or n (%)
Age (years)	18–63	36.46 \pm 7.20
Height (cm)	143–178	160.7 \pm 6.30
BMI (kg/m ²)	18.35–38.97	26.56 \pm 3.78
Education level	Illiterate	2 (1.6)
	Primary	84 (66.8)
	High school	34 (26.9)
	University	6 (4.7)
Occupation	Housewife	117 (92.9)
	Worker	5 (3.9)
	Official	2 (1.6)
	Retired	2 (1.6)
Transport to rehabilitation center	Private car and shuttle	118 (93.6)
	Public transport	5 (4)
	Taxi	3 (2.4)
Income level	Low	52 (41.3)
	Medium	59 (46.8)
	High	15 (11.9)
No. children	1	17 (13.5)
	2	61 (48.4)
	3	34 (27)
	4	14 (11.1)

BMI, body mass index.

of 67.5% of the children were physically disabled. The majority of the children had been attending the rehabilitation center for 5–10 years (49.2%) and nearly half of them were using assistive devices for ambulation (44.4%). According to children's rehabilitation data, 81.7% continued to attend regular pediatrician check up. Orthosis was prescribed for 54% of disabled children, and 72% of these children were regularly utilizing the orthosis (Table 2).

According to the BDI results, mothers were slightly depressed (Table 3).

Also according to maternal SF-36 scores (Table 3), 42.8% had physical role difficulties, and 46.24% had low vitality. Compared with Turkish community norms, maternal SF-36 score was decreased for all subscales (Table 3).

Higher BDI scores were found in the mothers of physically disabled children compared with those of non-physically disabled children (12.33 ± 6.26 vs 9.17 ± 5.63 , respectively, $P = 0.006$).

Correlations

A negative relationship was seen between children's Katz ADL score and both maternal BDI score ($r_p = -0.26$, $P < 0.004$) and child GMFCS level ($r_p = -0.57$, $P < 0.001$; Table 4).

A negative relationship was found between maternal BDI score and education level ($r_p = -0.26$, $P < 0.001$), and a negative relationship was also found between child GMFCS level and regular school attendance ($r_p = -0.29$, $P < 0.001$).

Negative correlations were seen between all maternal SF-36 subscales and BDI score; and between SF-36 Physical Function subscale and duration of disease and ability to use

Table 2 Child demographic information

	Range	Mean \pm SD or n (%)
Age (years)	1–18	8.82 \pm 5.69
Height (cm)	57–190	119.24 \pm 29.38
BMI (kg/m ²)	9.87–28.5	19.44 \pm 3.30
Katz ADL score	5–18	11.34 \pm 3.87
Type of disability	Physical	85 (67.5)
	Mental	21 (16.7)
	Autism	10 (7.9)
	Hearing–speaking problem	4 (3.2)
	ADHD	6 (4.8)
GMFCS	1	55 (43.7)
	2	21 (16.7)
	3	14 (11.1)
	4	16 (12.7)
	5	20 (15.9)
Use of assistive device	Yes	56 (44.4)
	No	70 (55.6)
Duration of treatment (years)	<1	3 (2.4)
	1–5	54 (42.9)
	5–10	62 (49.2)
	>10	7 (5.5)
Orthotic prescription	Yes	68 (54.0)
	No	58 (46.0)
Regular device utilization	Yes	49 (38.9)
	No	19 (15.1)
Regular pediatrician check up	Yes	103 (81.7)
	No	23 (18.3)

ADHD, attention-deficit–hyperactivity disorder; BMI, body mass index; GMFCS, Gross Motor Function Classification System; Katz ADL, Katz Activities of Daily Living Scale.

Table 3 BDI and SF-36 scores

	Range	Mean \pm SD	SF-36 Turkish community norms
BDI	0–42	11.27 \pm 8.13	
SF-36 scale			
Physical Function	20–100	74.40 \pm 21.24	86.6 \pm 25.2
Physical Role	0–100	42.80 \pm 40.51	89.5 \pm 29.6
Pain	0–100	58.10 \pm 28.70	86.1 \pm 20.6
General Health	0–92	51.82 \pm 22.79	73.9 \pm 17.5
Vitality	5–85	46.24 \pm 19.94	67.0 \pm 13.8
Social Function	0–100	60.89 \pm 24.27	94.8 \pm 14.2
Emotional Role	0–100	50.86 \pm 33.68	94.7 \pm 20.9
Mental Health	8–96	60.45 \pm 16.42	73.5 \pm 11.6

BDI, Beck Depression Inventory; SF-36, 36-item Short Form.

assistive devices correctly. A positive and significant correlation was also found between child ADL skills and maternal QOL (Table 5).

Negative correlations were noted between BDI score and SF-36 Mental Health subscale ($r_p = -0.253$, $P = 0.020$), General Health subscale ($r_p = -0.302$, $P = 0.005$) and also Social Function subscale ($r_p = -0.234$, $P = 0.031$) in mothers with physically disabled children. Negative and significant correlations were observed between BDI score and SF-36 subscales of both Mental Health ($r_p = -0.312$, $P = 0.047$) and Pain

Table 4 Correlation between Katz ADL and BDI and GMFCS

	BDI		GMFCS	
	r	P-value	r	P-value
Katz ADL score	-0.26	0.00**	-0.57	0.00***

** $P < 0.01$; *** $P < 0.001$. BDI, Beck Depression Inventory; GMFCS, Gross Motor Function Classification System; Katz ADL, Katz Activities of Daily Living Scale.

($r_p = -0.415$, $P = 0.007$) in mothers of non-physically disabled children. According to child disability status, a negative relationship was observed between child GMFCS level and SF-36 subscales in mothers with physically disabled children, but this was not statistically significant for mothers of non-physically disabled children. In mothers with physically disabled children, child GMFCS level was negatively correlated with SF-36 Physical Role ($r_p = -0.352$, $P = 0.001$), Pain ($r_p = -0.334$, $P = 0.002$), General Health ($r_p = -0.359$, $P = 0.001$), Vitality ($r_p = -0.401$, $P < 0.001$), Social Function ($r_p = -0.372$, $P < 0.001$), Emotional Role ($r_p = -0.377$, $P < 0.001$) and Mental Health ($r_p = -0.456$, $P < 0.001$). At the same time a positive relationship was found between disabled children's GMFCS level and maternal BDI score ($r_p = 0.557$, $P < 0.001$).

Discussion

We investigated the factors affecting the QOL of mothers of disabled children participating in the rehabilitation system in Turkey. Mothers of disabled children, especially those with physically disabled children, had more depression symptoms depending on the functional level of the children.

Feizi *et al.* showed that parents with a disabled child have serious social, physical and mental health problems compared with those with a normal child.¹³ Seltzer *et al.* also have mentioned that parents with physically affected children had more depression and physical problems compared with those parents with children who had problems other than physical disabilities.¹⁴ In the present study on the effects of having a disabled child on maternal emotional status and QOL in Turkey,

mothers were found to be mild depressive. The severity of psychological problems was higher in mothers of physically disabled children compared with those with children from other disability groups. This indicates that in Turkey, rehabilitation services for physically disabled individuals focusing on physiotherapy should also be extended to cover the social needs of caregivers.

Seltzer *et al.* also noted that as a result of the chronic status, parents of children with disabilities have more physical problems and a higher intensity of depression compared with parents of healthy children.¹⁵ Singer and Floyd found that mothers of children with development problems are at higher risk of depression compared with mothers of children with normal development and, despite promising recent steps in helping those children, there is a high rate of depression among mothers of children with developmental deficiency.¹⁶ In the present study, although the level of maternal depression was low, the relationship between duration of children's disease and maternal psychological status did not reach statistical significance. This may be due to the presence of children with different types of disability in the present study.

Family education level is an important factor in child development and in the swift adaptation of the family to the disabled child. Higher-level education facilitates the process of information gathering and improves maternal problem-solving.¹⁷ There is an inverse relationship between maternal stress level in mothers of disabled children, and education status.¹⁸ Ninety-three percent of the present mothers were not working in an income-generating occupation, and dealt only with the child and the house. Similarly to the literature, however, the psychological status of mothers with higher education was found to be better.

Disability can affect the individual and his/her social environment for their whole life. Fulfillment of the disabled child's demands can be much more difficult for parents. Pelchat *et al.* reported that factors such as the education of disabled children, the possibility of obtaining an occupation, severity of mental or physical disability in children, their age, chronic disabilities, extra needs for medical assistance and lack of family social insurance affect the stress levels, and adaptation of parents to the situation.¹⁹ According to the literature, parents

Table 5 Correlation between child ADL skills and maternal quality of life

SF-36 subscales	BDI		Katz ADL		Duration of Disease		Ability to use assistive devices correctly	
	r	P-value	r	P-value	r	P-value	r	P-value
Physical function	-0.401	0.00***	0.126	NS	-0.188	0.04	-0.184	0.04
Physical role	-0.386	0.00***	0.248	0.005	NS	NS	NS	NS
Pain	-0.435	0.00***	0.142	NS	-0.226	0.01	NS	NS
General health	-0.546	0.00***	0.278	0.002	NS	NS	NS	NS
Vitality	-0.461	0.00***	0.198	0.027	-0.217	0.02	NS	NS
Social function	-0.502	0.00***	0.207	0.021	NS	NS	NS	NS
Emotional role	-0.355	0.00***	0.181	0.044	NS	NS	NS	NS
Mental health	-0.522	0.00***	0.188	0.036	NS	NS	NS	NS

*** $P < 0.001$. BDI, Beck Depression Inventory; Katz ADL, Katz Activities of Daily Living Scale; SF-36, 36-item Short Form.

with disabled children experience economic hardship, lack of control and decreased psychosocial energy due to the stress of caregiving; negative impact on caregiver health; sharing the burden; worry about the child's future; and caregiver coping strategies.^{20,21} The dependency of these factors on disability level was investigated but the results were not statistically significant. This can be attributed to the non-homogeneous distribution of children into different disability level categories. The present results support the literature in that the present families were low–middle income and the mothers had mild depression. As in the present study, generally mothers play a larger role than fathers in the care of a disabled child, especially for those with neurodevelopmental disorders.³ Also, in Turkey the mothers are the primary caregiver for disabled children in home care.²² Severity of the child's disease produces complex problems, chronic sorrow and changing emotions in parents. In the literature, the greatest emotional distress occurs at childbirth, on learning the diagnosis of the child's physical disablement. Child cognitive impairment and the need for external devices for walking are the other sources of stress. Also, mothers of physically disabled children are more frequently affected psychologically.²³ Azad *et al.* noted that children's characteristics, especially social skills, behavioral problems and lesser disability status, may affect maternal stress during middle childhood.²⁴ We noted a negative relationship between BDI score and SF-36 Mental Health subscale in mothers of both physically disabled and non-physically disabled children. We also found that psychological status may affect general health and social function in the mothers of physically disabled children.

Quality of life describes the subjective perception of an individual's health in the sociocultural environment he/she lives in. Families with disabled children have more difficulties compared with other families. Parents, especially mothers, struggle the most to overcome economic, social and psychological problems. Mothers experience loneliness and physical and social distress in struggling to afford the needs of the disabled child.^{25,26} The present results are consistent with the available literature.

In the present mothers of disabled children, all SF-36 subscale scores were below the Turkish community norms. This indicates that disability not only affects the child but also maternal QOL in a negative way.²⁷

The individual's satisfaction with his/her own physical, psychological and social function is the main factor influencing QOL. In this context, duration of disease, ability to use assistive devices correctly, daily life skills and the child's motor level all affected maternal QOL in the present study.

The presence of a negative correlation between child Katz ADL score and GMFCS level confirmed the positive impact of motor skills on functional level. Improving the child's motor skills, functionality and social life may positively affect maternal QOL and psychological status. It is expected that even a minimal improvement in children's ADL provides positive support to mothers.

Given the negative effects of chronic pediatric diseases on the psychological status of families, the introduction of psychosocial support of parents, especially of mothers, may increase the efficiency of the pediatric rehabilitation service.

Author contributions

A.Y. contributed to the conception and design of this study; D.T. and F.H. performed the assessments and collected the data; A.Y. and F.M. performed the statistical analysis and drafted the manuscript; F.M. critically reviewed the manuscript and supervised the whole study process. All authors read and approved the final manuscript.

Disclosure

The authors declare no conflict of interest.

References

- 1 Aytac S. [Increasing significance of disabled's rehabilitation.] *J. Soc. Sci. Inst.* 2000;2(2):54–75.
- 2 Turkish Statistical Institute. *Turkey Disability Survey 2002*. [Cited 1 November 2015.] Available from URL http://www.turkstat.gov.tr/Kitap.do?metod=KitapDetay&KT_ID=11&KITAP_ID=14.
- 3 Raina P, O'Donnell M, Rosenbaum P *et al.* The health and well-being of caregivers of children with cerebral palsy. *Pediatrics* 2005; **115** (6): e626–36.
- 4 Wang KY. The care burden of families with members having intellectual and developmental disorder: A review of the recent literature. *Curr. Opin. Psychiatry* 2012; **25**: 348–52.
- 5 Brehaut JC, Kohen DE, Raina P *et al.* The health of primary caregivers of children with cerebral palsy: How does it compare with that of other Canadian caregivers? *Pediatrics* 2004; **114** (2): e182–91.
- 6 Hauser-Cram P, Warfield ME, Shonkoff JP, Krauss MW, Sayer A, Upshur CC. Children with disabilities: A longitudinal study of child development and parent well-being. *Monogr. Soc. Res. Child Dev.* 2001; **66** (3): 1–126.
- 7 Palisano RJ, Rosenbaum P, Bartlett D, Livingston MH. Content validity of the expanded and revised Gross Motor Function Classification System. *Dev. Med. Child Neurol.* 2008; **50**: 744–50.
- 8 Mutlu A, Günel MK. [Do the depression levels of mothers differ in different levels of disability of their children with cerebral palsy?]. *Yeni. Tip. Derg.* 2010;27(2):87 (in Turkish).
- 9 Russell DJ, Avery LM, Rosenbaum PL, Raina PS, Walter SD, Palisano RJ. Improved scaling of the gross motor function measure for children with cerebral palsy: Evidence of reliability and validity. *Phys. Ther.* 2000; **80**: 873–85.
- 10 Katz S, Ford AB, Moskowitz RW, Jackson BA. The index of ADL: A standardized measure of biological and psychosocial function. *JAMA* 1963; **185**: 914–9.
- 11 Akturk Z, Dagdeviren N, Ture M, Tuglu C. [The reliability and validity analysis of the Turkish version of Beck Depression Inventory for primary care.] *Turk. J. Fam. Pract.* 2005; **9**: 117–22. (in Turkish).
- 12 Koçyiğit H, Aydemir Ö, Fişek G, Ölmez N, Memiş A. [Reliability and validity of the Turkish version of Short-Form-36 (SF-36).] *Ilaç. Tedavi. Derg.* 1999;12(2):102–6.
- 13 Feizi A, Najmi B, Salesi A, Chorami M, Hoveidafar R. Parenting stress among mothers of children with different

- physical, mental, and psychological problems. *J. Res. Med. Sci.* 2014; **19**: 145–52.
- 14 Seltzer MM, Greenberg JS, Floyd FJ, Pettee Y, Hong J. Life course impacts of parenting a child with a disability. *Am. J. Ment. Retard.* 2001; **106**: 265–86.
 - 15 Seltzer MM, Greenberg JS, Floyd FJ, Hong J. Accommodative coping and well-being of midlife parents of children with mental health problems or developmental disabilities. *Am. J. Orthopsychiatry* 2004; **74**: 187–95.
 - 16 Singer GH, Floyd F. Meta-analysis of comparative studies of depression in mothers of children with and without developmental disabilities. *Am. J. Ment. Retard.* 2006; **111**: 155–69.
 - 17 Dyson LL. Fathers and mothers of school-age children with developmental disabilities: Parental stress, family functioning, and social support. *Am. J. Ment. Retard.* 1997; **102**: 267–79.
 - 18 Dereli F, Okur S. [Determination of the depression level of the families having a handicapped child.] *Yeni. Tıp. Derg.* 2008; **25**: 164–8 (in Turkish).
 - 19 Pelchat D, Ricard N, Bouchard JM *et al.* Adaptation of parents in relation to their 6-month-old infant's type of disability. *Child Care Health Dev.* 1999; **25**: 377–98.
 - 20 Murphy NA, Christian B, Caplin DA, Young PC. The health of caregivers for children with disabilities: Caregiver perspectives. *Child Care Health Dev.* 2007; **33**: 180–7.
 - 21 Miodrag N, Hodapp RM. Chronic stress and health among parents of children with intellectual and developmental disabilities. *Curr. Opin. Psychiatry* 2010; **23**: 407–11.
 - 22 Karahan AY, İslam S. [A comparative study on caregiver burden of caregivers to physically disabled, pediatric and geriatric patients.]. *J. Marmara Univ. Inst. Health Sci* 2013; **3**: S1–7 (in Turkish).
 - 23 Fernandez-Alcantara M, Garcia-Caro MP, Laynez-Rubio C *et al.* Feelings of loss in parents of children with infantile cerebral palsy. *Disabil. Health J.* 2015; **8** (1): 93–101.
 - 24 Azad G, Blacher J, Marcoulides GA. Mothers of children with developmental disabilities: Stress in early and middle childhood. *Res. Dev. Disabil.* 2013; **34**: 3449–59.
 - 25 Goudie A, Havercamp S, Jamieson B, Sahr T. Assessing functional impairment in siblings living with children with disability. *Pediatrics* 2013; **132**: e476–83.
 - 26 Tarakci D, Yeldan I, Zengin A *et al.* Comparison of the effect of low back pain on their daily life activities in sedentary women and mothers with physically handicapped children. *Nobel Med.* 2010; **6** (3): 62–5.
 - 27 Demiral Y, Ergor G, Unal B *et al.* Normative data and discriminative properties of short form 36 (SF-36) in Turkish urban population. *BMC Public Health* 2006; **6**: 247–54.