SUPPORTING PARENTS AND FAMILIES

Effects of a nursing intervention program on the depression and perception of family functioning of mothers with intellectually disabled children

Arzu Yıldırım, Rabia Hacıhasanoğlu Aşılar and Papatya Karakurt

Aims and objectives. This study was conducted to examine the effect of psychosocial education provided to mothers with intellectually disabled children on the risk of depression and perception of family functioning in those mothers.

Background. Families with intellectually disabled children need encouragement, support and training to more actively participate in their children’s education and to positively affect their children’s growth and development.

Design. Randomised controlled study.

Methods. The study included the mothers of 75 intellectually disabled children (40 intervention, 35 control). The mothers in the intervention group who participated in a routine program at private education and rehabilitation centres attended four different psychosocial educational sessions. Sessions were conducted once a week for four weeks and lasted 120 minutes. The control group attended only the routine program of the private education and rehabilitation centre.

Results. Our study results showed that after completion of the educational program, there was a greater decrease in the risk for depression in the intervention group when compared to the control group, and the former perceived their family functions better. These differences were statistically significant ($p < 0.001$).

Conclusions. The education given by nurses to mothers who have children with intellectual disabilities may be effective in reducing the risk for depression and in increasing the perception of healthy family functioning.

Relevance to clinical practice. Psychosocial nursing education program can contribute to the use of evidence-based education strategies in nursing practice to improve the mental health for mothers with intellectually disabled children.

Key words: depression, family functioning, intellectually disabled children, mothers, nursing, psychosocial educational program

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Introduction

According to the American Association on Intellectual Disability (AAID), intellectual disability is defined as sub-average general intellectual functioning that originates during the developmental period and includes the lack of adaptive behaviour. According to the classification of the intellectual disability level (IQ: 50–55 to approximately 70), more than half of the children with mild intellectual disability do not need special care and support. Twenty per cent of those with an IQ level between 40 and 49 are self-sufficient, whereas those with an IQ level below 40 are not self-sufficient and need special support (Şenol et al. 2006). It is estimated that 10% of the population in developed countries of the world and 13% in developing countries are disabled. According to the Turkish Disabled Research Report (2002), the prevalence of disability was 12.29%, and the prevalence of intellectual disability in the disabled population was...
0.48% (0.58% male, 0.38% female). In Turkey, 47.9% of intellectual disability cases are congenital. The majority of intellectually disabled population, which is more intense between 20 and 29 years of age, live in rural areas. The same report revealed that the especially intellectually disabled population had a lower income level than without disabilities (Özcebe 2008).

The frequency of intellectual disability is estimated to be 1–3% in general population. The incidence is 1.5 times higher in males compared to females. Mild intellectual disability without any specific reason is more frequent among people with a low socioeconomic level (Şenol et al. 2006). In a meta-analysis of 52 studies, the prevalence of intellectual disability was shown to be 10.37/1000. The highest rates were seen in low- and middle-income countries. The prevalence was higher in studies involving children/adolescents, compared to those involving adults (Maulik et al. 2011). In Australia, the frequency of intellectual disability is estimated to be 1.1% (1998) and the incidence was higher in children between 5 and 14 years of age. The rate of intellectual disability has decreased to a great extent in adult population and to a smaller extent in adolescents. The prevalence is higher in males, particularly among children and adolescents (Australian Institute of Health and Welfare 2004). The prevalence of intellectual disability in Norway is estimated to be 0.44 per 100 inhabitants. In the USA, the overall national rate for ID is estimated at 1.07 per 100 inhabitants (2006), significantly varying from California (0.44) to Iowa (3.33) (Søndenaa et al. 2010). In Finland, the prevalence is 0.3% in 0–15 years age group and 0.6% in 16–64 years age group. There is a tendency towards an increase in mild intellectual disability, while severe and profound intellectual disability remains unchanged (Westerinen et al. 2010).

In recent years, the availability of care services in Turkey for individuals with disabilities has increased. Care insurance premiums of poor families who provide care for disabled individuals are covered by the government. Education services for the disabled are provided in official and private institutions by the Ministry of National Education (Regulation of Private Education Services of Ministry of National Education 2000). However, although some services exist, there are still many problems to be addressed. These include a lack of family participation in the programs offered, inadequate support services for families, and a lack of available counselling and guidance services in these caregiving institutions (Özbesler 2008).

Women and men in traditional Turkish families have distinct roles. Women bear the responsibility of caring for the home and children more than their spouses do. Men, on the other hand, take on the responsibilities relating to the external environment and the family’s living and economic situation. Therefore, the mother is most often the primary care-giver for an intellectually disabled child. One study found that Turkish mothers were more involved in the care of children than fathers (Özgün & Honig 2005). Many studies have reported that mothers with intellectually disabled children have lower levels of marital satisfaction and well-being, self-esteem, self-control and life goals (Helitzer et al. 2002, Emerson et al. 2006), more symptoms of stress, depression, anxiety, hopelessness and somatic complaints (Üğüz et al. 2004, Ceylan & Aral 2007, Fen Gau et al. 2008) and more need for social support than fathers (Helitzer et al. 2002). In some studies, it has been found that mothers of children with intellectually disabled show a higher level of psychological symptoms compared to mothers of children with other types of disability (Al-Kuwari 2007, Dereli & Okur 2008, Yıldırım et al. 2010). In addition, other studies on this topic have reported impairments in the family structure and functioning of families with disabled children resulting in stress in several areas of their lives (Taanila et al. 2002, Khamis 2007, İçmeli et al. 2008). The interaction between family members affects the health of each person, and an unhealthy family member may cause problems in the whole family and damage functionality. Families who function at an expected level are defined as functional (healthy) families, and families who fail to function well because of disturbed family dynamics are defined as dysfunctional (unhealthy) families (Bulut 1990).

Tsai and Wang (2009) found that mothers with intellectually disabled children had a rather high level of strain and received inadequate social support. The mothers reported that physicians, social workers and nurses had not provided adequate information and assistance to them. A Turkish study by Sen and Yurtsever (2007) revealed that 90% of the family members of intellectually disabled children wanted to receive support from nurses. In spite of many descriptive studies revealing the problems encountered by the families of intellectually disabled children wanted to receive support from nurses. In spite of many descriptive studies revealing the problems encountered by the families of intellectually disabled children in Turkey (Ceylan & Aral 2007, Bumin et al. 2008, Dereli & Okur 2008, Coşkun & Akkaş 2009, Karadag 2009, Keskin et al. 2010), there have been few interventional studies focusing on the problems experienced by these families (Cetinkaya & Öz 2000, Yıldırım & Conk 2005, Bilgin & Gözüm 2009, Uyaroglu & Bodur 2009). These descriptive studies have found that not only do mothers experience difficulties with the child’s behaviour, they also lack a basic knowledge of the skills required in caring for a child with special needs. Increasing their levels of stress are communication problems among family members, a lack of social support, the negative attitudes of others and financial problems.
Healthcare professionals are able to identify the coping strategies of families and then can offer more effective coping and communication skills to help promote healthy family functioning. Taanila et al. (2002) noted that cooperation among the physicians, nurses and other healthcare staff is very important in this process. The nurse plays a significant role in getting to know the child, the family and the difficulties encountered by them. Nurses can also determine the types of support families need. Studies have shown that mothers’ knowledge significantly increased as a result of the support provided by nurses to the families of disabled children (Cetinkaya & Öz 2000). They also interacted more easily with their children, and they began to use problem-oriented coping skills (Scharer et al. 2009). Before this research was planned, Yıldırım et al. (2010) conducted a descriptive study by using Symptom Checklist (SCL-90-R) to evaluate the mental states of mothers at the rehabilitation centres where the research took place. The study showed that mothers had psychological symptoms of depression.

Our hypotheses were: (1) when compared with the control group, the intervention group will have a reduction in the risk for depression after having participated in a psychosocial educational program, (2) the intervention group will have a healthier perception of family functionality.

Aims
This study was conducted to examine the effect of psychosocial education provided to mothers with intellectually disabled children on the risk of depression and perception of family functioning in those mothers.

Methods
Design
The study was performed as a pretest–post-test randomised controlled model.

Participants
The study was conducted in two separate private education and rehabilitation centres in eastern Turkey between January and June 2009. Trial participants were the mothers of 144 intellectually disabled children with IQs ranging from 25 to 50 who were registered at two separate private education and rehabilitation centres. The sample group consisted of 75 mothers (40 intervention, 35 control) who had volunteered to take part in the trial. Most, but not all, mothers attended these centres with their children and were also able to communicate (with an ability to understand questions and without speech problems). At the beginning, 90 mothers (62.5% participation) participated in the trial, with each randomly assigned either to the intervention (n = 45) or to control (n = 45) group. However, the study was completed with 75 mothers because five mothers from the intervention group did not complete the education program, six mothers from the control group discontinued, and four mothers from the control group did not want to complete their post-tests.

Data collection
Pretest data of the study were collected by the first and third authors through face-to-face interviews that took approximately 25–30 minutes. Ninety participants were administered a descriptive form, Family Assessment Scale (FAS), and Beck Depression Scale (BDS). Pretests were collected in January–February 2009. The 90 mothers were then randomly assigned to intervention and control groups by an independent researcher outside the study team, using a random numerical table based on the numbers given to questionnaire forms (1–90). The second author who analysed the data was not informed about how the groups were formed. An education program was prepared according to the five days of the week (Monday–Friday) on which mothers in the intervention group came to the centres. The program was scheduled to bring the groups together at the same hours on these days (some groups in the morning and some groups in the afternoon). Post-test data, on the other hand, were collected by re-administration of the previously administered FAS and BDS scales to 75 mothers one month after the completion of the four-week education given to the mothers in the intervention group (Fig. 1).

Instruments
Descriptive form
Twelve questions were included to identify the descriptive characteristics of children and their mothers. These were age, gender, marital status, education level, mother’s work status, economic status, presence of any other helper to care for the child, presence of any other disabled children, whether the child attended primary education, the duration of private education provided to the child and the number of children in the family. Also, two open-ended questions were asked in which the mothers were asked to state the difficulties they experience in the care of their disabled child as well as the situations in which they need to receive support. The answers given to these questions were later classified.
Beck Depression Scale
This instrument measures the physical, emotional, cognitive and motivational symptoms seen in depression. The purpose of the scale is not to diagnose depression. Its aim is to determine the risk of depression. It was developed by Beck et al. (1961) and its applicability and reliability were tested by Tegin (1980, Cognitive Disorders in Depression. A Review According to the Beck Model. Unpublished doctoral dissertation, H.U. Department of Psychology, Ankara). It includes 21 self-assessment statements and provides a Likert-type measurement. Each item is given incremental scores between 0 and 3 and the total score ranges from 0 to 63. The higher the total score, the higher the level or severity of depression risk. The scale is valid and reliable in the Turkish language and applied also to the conditions of Turkey (Savas¸ır & S¸ahin 1997, Aydemir & Ko¨ rog˘lu 2007). According to the total scores of the scale, depression is classified as ‘no risk of depression’ between 0 and 13 points, ‘risk of moderate depression’ between 14 and 24 and ‘risk of serious depression’ for 25 and over (Beck et al. 1961).

Family Assessment Scale
This scale was developed in 1983 within the framework of a family research program, and it was formed during clinical administration of the McMaster Model of Family Functioning on families. It is a self-assessment scale allowing evaluation of all areas in which a family fulfils or fails to fulfil its functions as perceived by the family itself. This scale was designed to distinguish the structural and organisational characteristic of families, as well as the healthy and unhealthy interaction between family members. The Turkish validity and reliability data of the scale support the findings obtained from the study conducted in the original language of the scale. Therefore, the scale is also valid and reliable in the Turkish language and applied also to the conditions of Turkey. The applicability and reliability of the scale in Turkey was tested by Bulut (1990). The scale consists of 60 items and seven subscales. The subscales are Problem Solving (PS), Communication (COM), Roles (Rs), Reacting Emotionally (RE), Effective Responsiveness (ER), Behaviour Control (BC) and General Functioning (GF). Responses ranged from 1 (‘I fully agree’) to 4 (‘I don’t agree at all’). Each subscale is scored from 1 to 4. Theoretically, the cut-off point is two and the mean scores above two are an indication of impairment in family functioning (Bulut 1990).

Intervention
Intervention group
In the open-ended questions of the descriptive form applied in the pretest, mothers stated the problems they
encountered in child care and the situations for which they needed support. While considering the needs of the mothers and supporting the results of studies conducted in Turkey and other countries (Blacher et al. 2005, Al-Kuwari 2007, Ceylan & Aral 2007, Bumin et al. 2008, Azar & Kurdahi Badr 2010), the education content was prepared (Table 1).

Interventions for the families coping with psychiatric illnesses are addressed under different headings such as behavioural family method, family group therapy, psychological education of the family, and family support. Methods derived from the social learning theory such as goal setting, behaviour rehearsal, reinforcement and homework are used in these interventions, and emphasis is put also on communication skills and ways of coping with stress. Group therapies applied to families with children with a similar diagnosis have significant effects on providing the child with support and enabling cooperation within the family (Şenol et al. 2006, Liberman 2011).

After the pretest was given, a pre-interview was conducted with the mothers in the intervention group about the education content, education method. The problems experienced by mothers relating to child care and the type of support they needed to receive were similar in the pretest. Later the education program was designed in accordance with the days on which mothers come to the centres, and the program was then given to the mothers in printed form. The education program was conducted by the researchers in four sessions for four weeks between March and April 2009. There were five groups with eight to nine mothers in each group, and each session lasted 120 minutes. After completing the education program, the mothers stated that they felt more confident when they were able to discuss and share their feelings and problems with other people experiencing the same issues. The sessions were held in the education hall of the rehabilitation centre which was more suitable for education purposes and where the researchers could use a portable blackboard and a computer. The mothers were given reminders by phone before the sessions, and they were provided with a phone number where they could reach the researchers at any time.

Children are educated in the education and rehabilitation centres for two hours, twice a week. Teachers work with them mostly on an individual basis. The mothers who come to the centres with their children wait in the education hall until the end of the session, and no education program is available for these mothers except for the information occasionally given about the condition of their children.

**Control group**

After completion of the post-tests, mothers who were willing were given the same educational program by the researchers depending on their visiting days at the centres. In June 2009, the same four-week education program was given once a week.

**Ethical considerations**

Written consent was obtained for the study from the Erzincan Provincial Directorate of National Education. The purpose and procedures of the study were explained to the mothers by the researchers and managers of the rehabilitation centres, their verbal consent was obtained, and confidentiality for the mothers was guaranteed. After completion of the post-tests, the control group was given the same educational program by the researchers.

**Statistical analysis**

The data were analysed using the SPSS version 15.0. The chi-squared test, independent t-test or Fisher’s exact test were used in the evaluation of inter-group differences according to descriptive characteristics. The Independent t-test was used to compare the mean change scores of the groups for pre-education and posteducation. The level of significance was assumed to be $p < 0.05$ in the study.

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**Table 1** Psychosocial education program

<table>
<thead>
<tr>
<th>No.</th>
<th>Topics</th>
<th>Learning techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Characteristics, education, care of intellectually disabled children,</td>
<td>Role playing, question-</td>
</tr>
<tr>
<td></td>
<td>importance of bringing to the fore, encouraging positive features of</td>
<td>answer format, homework</td>
</tr>
<tr>
<td></td>
<td>the child</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Communication techniques, communication in the family, coping with</td>
<td></td>
</tr>
<tr>
<td></td>
<td>stress</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Effective problem-solving methods, responding to depressive situations,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>homework on these issues</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Discussion was on homework, associations and other institutions that</td>
<td></td>
</tr>
<tr>
<td></td>
<td>provide support (e.g. financial support) to disabled children and their</td>
<td></td>
</tr>
<tr>
<td></td>
<td>families and legal matters relating to disabled children</td>
<td></td>
</tr>
</tbody>
</table>
Results

At pretest, there were no statistically significant differences between both intervention and control groups in terms of descriptive characteristics (p > 0.05) (see Table 2).

Problems faced by mothers

According to the statements of the mothers, most of them had financial problems (80.0% (n = 72); experienced difficulties in coping with their children’s care and behavioural problems (75.6% (n = 68); experienced psychological problems (58.9% (n = 53); experienced problems in interfamily relationships (51.1% (n = 46); and encountered negative attitudes in society (33.3% (n = 30). In addition, it was determined that mothers needed support in child care and financial matters, as well as in coping with stress.

Effects of the psychosocial educational program

Examination of the pre-education BDS scores of the mothers in the intervention group showed that 47.5% of them (n = 19) had risk of moderate and 25% (n = 10) had risk of serious depression, whereas 35% of them (n = 14) had risk of moderate and 5% (n = 2) risk of serious depression after the education. The control group mothers, on the other hand, 40% (n = 14) had risk of moderate and 28.6% (n = 10) risk of serious depression in the pretest and again 40% (n = 14) had risk of moderate and 25.7% (n = 9) risk of serious depression in the post-test. It was found that the difference in the mean pretest BDS scores of the intervention and control group patients were not statistically significant (p > 0.05). After the educational program given to the mothers of the intervention group, a decrease was seen in their level of risk for depression (from 18.33 ± 8.85 to 12.13 ± 6.41) and when the intervention group was compared with the control group, it was found that the difference in the mean posteducational BDS scores was significant (p < 0.001) (see Table 3).

The mean pretest FAS scores of the mothers in both the intervention and control groups, except for problem solving, were found to be above two points. When the mean pretest FAS scores of the intervention and control groups mothers were compared, it was found that there was not a

256

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Journal of Clinical Nursing, 22, 251–261
statistically significant difference between them ($p > 0.05$). After the educational program was administered to the mothers of the intervention group, improvement was seen in the perceptions of family functioning of the intervention group, and when the intervention and control groups were compared, it was found that the difference in the mean posteducational FAS scores was statistically significant ($p < 0.001$) (see Table 4).

**Discussion**

Mothers of children with disabilities bear the greatest burden of care, and have been found to experience higher levels of depression and anxiety compared with mothers of children with typical development (Barlow *et al.* 2006). Education is a professional role of the nurse. Novel and effective nursing education and support programs for families of children with disabilities have an important function in coping with disabilities. Through psychosocial education and support programs, nurses play an important role in shifting the rehabilitation services from child-centred to family centred services. Our findings suggest that psychosocial nursing education program is effective in reducing the risk for depression and in increasing the perception of healthy family functioning for mothers who have children with intellectual disabilities (Tables 3 and 4).

This study found that a significant number of mothers had a moderate and serious depression risk (47.5 and 25%, respectively). Other studies made in Turkey and abroad have also revealed that mothers with disabled children had high levels of stress and depression (Uğuz *et al.* 2004, Barlow *et al.* 2006, Al-Kuwari 2007, Dereli & Okur 2008, Fen Gau *et al.* 2008, Tsai & Wang 2009). Additionally, it was found in the studies made in Lebanon that mothers of

**Table 3** Depression scores before education, after education, and differences in mean change between intervention and control groups

<table>
<thead>
<tr>
<th>Depression scores (BDS)</th>
<th>Intervention group Mean (SD)</th>
<th>Control group Mean (SD)</th>
<th>Mean difference (95% CI)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before education</td>
<td>18.33 (8.85)</td>
<td>19.26 (8.89)</td>
<td>1.33 (−2.23 to 4.89)</td>
<td>0.458**</td>
</tr>
<tr>
<td>After education</td>
<td>12.13 (6.41)</td>
<td>18.80 (9.32)</td>
<td>−4.63 (−6.61 to −2.06)</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

*One-tailed test.
**$p > 0.05$.
***$p < 0.001$.

<table>
<thead>
<tr>
<th>Family functioning scores (FAS)</th>
<th>Intervention group Mean (SD)</th>
<th>Control group Mean (SD)</th>
<th>Mean difference (95% CI)</th>
<th>p-value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>1.97 (0.58)</td>
<td>1.73 (0.69)</td>
<td>−0.24 (−0.05 to 0.53)</td>
<td>0.108**</td>
</tr>
<tr>
<td>Communication</td>
<td>2.58 (0.29)</td>
<td>2.61 (0.31)</td>
<td>−0.03 (−0.17 to 0.11)</td>
<td>0.657**</td>
</tr>
<tr>
<td>Roles</td>
<td>2.14 (0.39)</td>
<td>2.06 (0.42)</td>
<td>0.08 (−0.11 to 0.27)</td>
<td>0.392**</td>
</tr>
<tr>
<td>Reacting emotionally</td>
<td>2.14 (0.54)</td>
<td>2.12 (0.68)</td>
<td>0.02 (−0.26 to 0.31)</td>
<td>0.900**</td>
</tr>
<tr>
<td>Effective responsiveness</td>
<td>2.87 (0.19)</td>
<td>2.86 (0.16)</td>
<td>0.09 (−0.03 to 0.20)</td>
<td>0.132**</td>
</tr>
<tr>
<td>Behavior control</td>
<td>2.80 (0.29)</td>
<td>2.72 (0.17)</td>
<td>−0.05 (−0.21 to 0.11)</td>
<td>0.519**</td>
</tr>
<tr>
<td>General functioning</td>
<td>2.07 (0.31)</td>
<td>2.12 (0.38)</td>
<td>0.01 (−0.08 to 0.09)</td>
<td>0.874**</td>
</tr>
<tr>
<td>After education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>1.42 (0.27)</td>
<td>1.70 (0.68)</td>
<td>−0.29 (−0.52 to −0.06)</td>
<td>0.015***</td>
</tr>
<tr>
<td>Communication</td>
<td>1.76 (0.41)</td>
<td>2.57 (0.32)</td>
<td>−0.80 (−0.97 to −0.63)</td>
<td>0.000†</td>
</tr>
<tr>
<td>Roles</td>
<td>1.72 (0.22)</td>
<td>2.05 (0.42)</td>
<td>−0.32 (−0.47 to −0.17)</td>
<td>0.000†</td>
</tr>
<tr>
<td>Reacting emotionally</td>
<td>1.69 (0.40)</td>
<td>2.11 (0.67)</td>
<td>−0.42 (−0.67 to −0.17)</td>
<td>0.001‖</td>
</tr>
<tr>
<td>Effective responsiveness</td>
<td>2.09 (0.32)</td>
<td>2.68 (0.18)</td>
<td>−0.61 (−0.72 to −0.47)</td>
<td>0.000‖</td>
</tr>
<tr>
<td>Behavior control</td>
<td>1.88 (0.25)</td>
<td>2.11 (0.39)</td>
<td>−0.23 (−0.38 to −0.08)</td>
<td>0.003***</td>
</tr>
<tr>
<td>General functioning</td>
<td>1.71 (0.37)</td>
<td>2.74 (0.15)</td>
<td>−1.03 (−1.17 to −0.91)</td>
<td>0.000‖</td>
</tr>
</tbody>
</table>

*One-tailed test.
**$p > 0.05$.
***$p < 0.05$.
†$p < 0.001$.
‖$p < 0.005$. 

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*Journal of Clinical Nursing, 22, 251–261* 257
disabled children experienced high levels of stress, depression and strain in relation to the care of their children (Azar & Kurdahi Badr 2006, 2010). The findings of these studies seem to support the results of our study. The results show that it is imperative that mothers with intellectually disabled children are systematically monitored and supported by professionals.

Nurses in healthcare teams play a key role in providing consultancy and education to mothers who have a disabled child. After the psychosocial education given to mothers in accordance with their needs, depression risk scores of mothers in the experimental group decreased significantly compared to the control group (from 18.33 ± 8.85 to 12.13 ± 6.41). This means that the group as a whole went from risk of moderate depression to no risk for depression. This result supports the first hypothesis of our study. Social support systems offer an important framework for collaborative practice to foster optimal coping and adaptation for mothers of intellectually disabled children (Chui & Chan 2007) and also facilitate acceptance of the disabled by society. Healthcare providers can reduce the level of burden and depression in mothers with intellectually disabled children with effective interventions. Researches have shown that professional support services rendered to families can reduce stress and enhance well-being in parents, and they can also increase positive behaviour in children (Silvers et al. 1995, Hastings & Beck 2004, Blacher et al. 2005). Studies have found that the parents of intellectually disabled children who have taken part in the training given by nurses experienced a significantly decreased level of depression in their families. The training also positively influenced their ability to cope with stress (Yıldırım & Conk 2005). Additional benefits of the training included reductions in mothers’ feelings of anxiety (Uyaroglu & Bodur 2009) and emotional exhaustion (Bilgin & Gozum 2009). The Raina et al. (2005) study found that the caregivers who use effective techniques for coping with stress experienced improved family functioning and physical and psychological health. In a study by Al-Kuwari (2007), the mothers of mentally disabled children had poorer psychological health than mothers of non-disabled children, and educating mothers (by nurses or formal assistants) in caring for a disabled child had a protective effect in the prevention of psychiatric illness. A study carried out on mothers with autistic children showed that improving their coping skills through education programs significantly decreased their sense of hopelessness and increased their use of social supports as a coping strategy (Ergüner-Tekinalp & Akkök 2004). Another study with positive results explored an education and support program involving simple massage techniques which mothers could use while caring for their children. The program ran eight weeks for one hour sessions, and participants reported a decrease in anxiety levels and an increase in self-sufficiency and confidence (Barlow et al. 2006).

Changes in family dynamics can create problems in the lives of whole family, and these problems may also extend to family relations and cause actual functional changes in the family dynamics (Bulut 1993). Families who fail to function as a healthy whole and in solidarity are defined as unhealthy families. The most important features observed in these families are the disrupted or altered family structure and communication problems. In this study, except for the area of problem solving, the mean pretest FAS scores of the mothers in both the intervention and control groups were found to be above two points. Theoretically, the cutoff point is two and the mean scores above two are an indication of impairment in family functioning (Bulut 1990). In a study where family functioning of families with disabled and healthy children was evaluated by doctors, the functioning of the families with disabled children was found to be significantly more impaired in terms of problem solving, reacting emotionally, behaviour control and general functions (İçmeli et al. 2008). Other studies reported that 20% of the parents with disabled children had a sense of guilt and 10% felt a sense of shame (Keskin et al. 2010). Family functioning was adversely affected with these variables in mothers who blame themselves for the disability of their children, who think that their close associates will move away from them, as well as in those fathers who blame themselves and their spouses for the disability of their children (Özşenol et al. 2003).

When designing and planning services for families with disabled children, it is very important to evaluate family dynamics to determine in which areas the family demonstrates unhealthy functioning (Özşenol et al. 2003). After the intervention of psychosocial education, the mothers in the experimental group had a healthier perception of family functions. This result supports the second hypothesis of our study. The education program included topics such as ways to cope with the possible problems mothers may experience in child care and daily life, and factors that may affect family functioning such as communication among family members. Learning more about these issues helped the mothers to develop a healthier perception of family functions because inter-family communication, mutual respect and cooperation are key factors in healthy family functioning. The current literature has only a limited number of descriptive studies which evaluate family functioning in families with disabled children, and no experimental studies have been conducted on the subject. Therefore, additional studies
need to be performed to evaluate family functioning in families with disabled children.

### Conclusion

Initial observations during our study showed that the mothers in both groups (those who were given education and those who were not) revealed perceptions of family functioning which were considered unhealthy and their risk for depression was high. Because the education program contained topics that could influence the perceptions of family functioning and mothers’ risk of depression, a positive progress in the perceptions of family functioning of mothers occurred, and their risk for depression was also reduced.

Our study is one of a limited number of studies conducted in Turkey on the mothers of intellectually disabled children, and this is the first time that such a study has been carried out in Erzincan. We hope that the results of the study may increase awareness in health professionals of the need to provide adequate, comprehensive, holistic and family oriented support in accordance with the needs of families. In reality, the burden of caring for their intellectually disabled children belongs to the mothers. Yet this heavy responsibility could be eased by other family members if they could also receive encouragement and support in learning to understand and care for their disabled loved ones. To accomplish these goals, we highly recommend the planning and development of new educational programs aimed at serving the needs of families with intellectually disabled children.

### Study limitation

Non-inclusion of the whole population in the study has most likely limited making general inferences of the results.

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Supporting parents and families

Disabled children, depression, family functioning

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