Journal of Natural Sciences Research www.iiste.org
ISSN 2224-3186 (Paper) ISSN 2225-0921 (Online)
Vol.6, No.4, 2016

Prevalence and Severity of Depression among Mothers of Disabled Children in Palestine. A Descriptive, Aanalytical, Cross Sectional Study

Nemer Hamamreh[1] MSN Dr. Sabrina Russo[2] PhD Dr. Aidah Alkaissi[3*] PhD
1. An-Najah National University, Faculty of Higher Studies- Nablus-Palestine
2. An-Najah National University- Faculty of Medicine and Health Sciences- Nursing & Midwifery Department- Nablus-Palestine
3. An-Najah National University- Faculty of Medicine and Health Sciences- Nursing & Midwifery Department- Nablus-Palestine, PO. Box 7

This paper was presented in the Conference of 3rd Annual Middle Eastern Nurses and Partners in Caring Science, At Al-Aqaba-Jordan

Abstract

Introduction: Mothers of children with disabilities often experience greater stress and emotional demands than other mothers do. Mothers of children with disabilities showed also more psychological distress than other member in their families, as they are the primary caregivers for their children. Childhood disability often imposes a social and emotional burden for children and their families. **Aim:** The aim of the study is to assess the prevalence and severity of depression among mothers of disabled children in the north of the West Bank in order to establish baseline data and suggest recommendations to policy makers and professional workers. **Subjects and Methods: A** descriptive, analytical kind (cross sectional) study. Two hundred mothers were included in the study divided in two groups, including 100 mothers of children with disabilities (age range, 2-16years) as a study group, and 100 mothers of normally developing children (age range, 2-16 years) as a control group. There were 47% girls and 53% boys of the children in the control group and there were 38% girls and 62% boys of the children in the study group. These children have different diagnoses with a 10% down syndrome, 18% hearing disabilities, 7 % physical disability, 11% speech disorders, 18% autism, 14% mental retardation, 12% cerebral palsy and 10 % other disorders. The mothers' average ages in the study group and control group were 32.6 (SD±6.3) and 31(SD± 5.7) years, respectively. A demographic information form and Beck Depression Inventory were administered to mothers of these children who met the inclusion criteria. The assessments were performed during children´s treatment in rehabilitation centers. **Results**: The prevalence of depression was higher among mothers caring for disabled children than mothers of non-disabled children in the control group. Fifty four percent of mothers of disabled children had a mild to severe level of depression and 18% of them suffered from moderate to severe depression as derived from Beck Inventory score. When we compare between the study and control groups, the study reveals that there are many factors that increase the prevalence of depression among mothers in the study group compared to control group which include: child's age <10 years, mother's age <40 years, middle and low income, and un-employment. On the other hand there was no association in the study group between mothers´ depression score and mothers´ age, child age, educational level of the mothers, family style and family income. For the control group (mothers of normally developing children) 15% of them had a mild to severe level of depression and 2% had moderate to severe depression and there was a significant correlation between mothers´ depression score and mother´s age ($p=0.010$). There was a relation between mothers depression score and family income, but it was not statically significant ($p=0.07$).The result of this study indicates that there was a significant difference between mothers' depression score with respect to having or not having disabled children ($u=1911$, $p<0.01$).The mothers of children with physical disabilities (mean rank was 60.36) and cerebral palsy (mean rank was 58.67) have a higher depression score than mothers with children of other kinds of disabilities, and the lowest level of depression score was for mothers whose children have down syndrome, which had a mean rank of 38.45. **Conclusion**: The results of this study indicate that 54% of the mothers of disabled children had various degrees of depression, with 18 % suffering from severe depression. For the mothers with non-disabled children, 18% had various degrees of depression, which is within the normal statistics (12-25%) (WHO, 1990). In study group the study reveals that the disability itself tend to be consider as a strong factor in the same group to increase the prevalence of depression, in contrary in control group the study reveals that there are many factors to increase the prevalence of depression among mothers which include: mothers age>40, child age >10, low family income and low educational level. When we compare between the study and control groups, the study reveals that there are many factors to increase the prevalence of depression among mothers in the study group compared to control group which include: child's age <10 years, mother's age <40 years, middle and low income, and un-employment. **Recommendations:** Early recognition of depression symptoms in mothers of disabled children should be of great concern for health care providers. The effective

rehabilitation programs should provide ample opportunity for repeated follow-up interviews that not only offer information about children's disabilities but also psychological support for mothers. Shifting the rehabilitation services from child-centered to family-centered services through providing supportive services is recommended.
Keywords: disabled children, depression, Beck depression inventory, extended family, nuclear family.

1. Introduction

Depression is one of the most common psychiatric problems. Unfortunately, the prevalence of depression among women is very high around the world (12- 25) percent. Depression was the fourth reason for loss work in 2000 and in 2002 it was the second incapacitating illness among all physical and mental illnesses (Ghoreishizadeh et al., 2005).

In view of the overall statistics of mental disorders which the World Health Organization (WHO) announces, approximately 1% of the world people suffer from severe mental problem and 15 % complain of minor mental disorders(WHO, 1990). The prevalence of disability is very high in the world, it was estimated that 300million from population to have depression at the end of the year 2000 (Mirkhani& Majid, 1999).

According to The World Health Organization reports that the overall prevalence of mental disability is estimated from1-3%(WHO, 2001).WHO's define a disabled person as an individual that has genetically or during the course of living lost all or part of his/her physical or mental capabilities, or both either temporarily or permanently; and is not able to have an independent life without the help of special equipment or care (Mirkhani& Majid, 1999). There are many different terminologies for disability such as impairment, disability, and handicap (Mirkhani& Majid, 1999). Many examples of disability exist, usually experts generally include the these terms: developmental disabilities; learning disability; mental retardation; physical and orthopedic disabilities; chronic conditions; diabetes; visual impairment; speech and language difficulties; deafness ; autism and learning impairment (Sullivan et al.,2000).

Childhood disability usually imposes to emotional and social burden for children and mothers (Farmer et al.,2004).When mother gave birth of disabled child, she reports an experience of complex feelings this include the feeling of losing someone beloved (Quine & Pahl, 1987).

The reaction to a loss started with shock, denial, dealing, depression, and acceptance (Tomkiewicz ,1987).And usually depression, anxiety and guilt feelings, were part of this process and it took more than two months to reach the acceptance-stage in some mothers and those developed more severe symptoms than who accept the new situation(Kazak et al.,1985).

Having disability brings different problem for a child and her/his mother. This condition usually begins with a shock. Sometimes she feels of guilty, sorrow and helplessness. When children are diagnosed with a kind of disability, his/her mother may experience psychological problem similar to that experienced by suicidal individuals (Ellis & Hirsch, 2000).

Obligation in dependent daily living activities demolishes dynamics in the family. Consequently, family members' roles have to be changed. These different responsibilities cause stress, anxiety, and depression. Depression among parents of children having disabilities is an important symptom for therapists and other professionals to consider when providing treatment for a child or family (Smith et al., 1993).

The fundamental role of the mother in raising and stabilizing the family makes it even more important for her to receive support, as it has been found that giving support to parents of disabled children will noticeably reduce their mental problems, such as depression, stress, and anger (Capuzzi, 1989).

The most affected person in the family is usually the mother in such a situation. Mothers of children with disabilities often experience greater stress and emotional demands than do other mothers (Smith et al, 1993).Mothers have to undertake much stress, because they are alone with their children in daily life. Not all mothers of children with disabilities have difficulties of adaptation, even when they have to face highly stressful life situations. However, it has been explained that children and mothers are at risk of stress-related problems when mothers are overburdened by the demands of care giving, earning a living, and other responsibilities (Ganong et al, 2003).

Daily care routine, economic problems, receiving appropriate help and education are the basic hardships of the mothers of a disabled child (Kazak & Marvin, 1984). Diagnostic confusions, behavioral and health problems, and feeling of loneliness in parents also add to these hardships (Kazak & Marvin,1984; Kazak,1987; Molsa & Ikonen-Molsa,1985).

The increase in the severity of the disability results in a more dependent child, more responsibility for the mothers. As a consequences this cause more psychological problem in these mothers (Blacher et al., 1987).

2. Significance of the study

Depressive symptoms are sometimes undetected, and so inadequately treated, which complicates and bring other consequences, such as failure in therapy, poor quality of life, suicidal behavior and social handicaps with higher morbidity and mortality (Kaplan & Sadock, 2003).

In Palestine there are not enough databases about depression among mothers of disabled children, and we as community mental health professionals should take the responsibilities to help mothers who have disabled children.

There is an increase in the number and severity of disability among children. The prevalence of depression is unfortunately very high (Ghoreshizadeh, 2005).Mothers usually are the most affected person in the family and there is an increase in their responsibilities and demands.

In eastern society, it is mostly women who carry the responsibility of the activity daily living of their children (Eicher et al., 1993).

There are few researches about the topic in Palestine and most of the researches highlighted on the disability of the children and neglected the effects of disability on their mothers.

3. Hypothesis.

The following hypotheses were tested:

- Mothers of children with disabilities have higher depression scores than control mothers.
- Elevated depression scores are more common in mothers who live in rural areas compared to urban areas in both groups.
- Mothers have a high depression score if the disable child is female compare to male.
- Elevated depression scores are more common in mothers who live with extended family in the study group.

4. Aim of the study

The aim of this study is to assess the prevalence and severity of depression symptoms among mothers of disabled children in the north of the West Bank in order to establish baseline data and suggest recommendations to policy makers and professional workers.

5. Method and Procedure

5.1 Study design

The study is descriptive, analytic kind (cross-sectional).

5.2 Study population

The target population of this study is all mothers who have a child with disability and met the inclusion criteria, in addition to mothers of normally developed children as a control group.

5.3Sample size and sampling

Participants were 200 mothers of children divided in two groups: 100 study group participants (mothers of children with different types of disabilities), and 100 mothers of normally developed children as a control group. This study draws on the population available to the researchers**.** The study sample was taken on a convenient sampling basis and the control sample was taken in simple random sampling. The sample size was determined based on similar studies.

5.4 Setting of the study

The study was carried out in two rehabilitation centers in the Nablus district. These two rehabilitation centers serve disabled children in the north of the West Bank, and the control group was selected from local schools in the Nablus district.

5.5Period of the study

The study was carried out between the period between the 10th of April, 2012andthe 5th of May, 2013.

5.6 Inclusion criteria

All mothers who have a diagnosed child with disability and met the following criteria: (i) Mothers having a child with disability and living with him or her (ii) Absence of severe and chronic medical conditions (iii) Absence of a history of psychological disorder in the mothers (iv) Age of mothers 18-50 years (v) Mothers whose children age 2-16 years had been diagnosed withdisabilityfor at least 6 months(vi) All subjects should speak and write in Arabic language.

5.7 *Inclusion criteria for the control group* were as follows: (i) Having a healthy child and living with him or her (ii) Absence of severe and chronic medical conditions (iii) Absence of patient or a disabled person living with him or her (iv) Absence of a history of psychological disorder in the mothers (v) Age of mothers 18-50 years (vi) Aged of healthy children 2-16 years (vii) All subjects should speak and write in Arabic language.

5.8 Instruments of the study

5.8.1 Socio-demographic questionnaires

The demographic information included age(mother &child), kind of disability, gender, education level, employment, area of residence, income and marital status.

5.8.2Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI, BDI-1A, BDI-II), created by Dr. Aaron T. Beck, is a 21-question multiple-choice self-report inventory, one of the most widely used instruments for measuring the severity of depression (Beck, 1972). Its development marked a shift among health care professionals, who had until then viewed depression from a psychodynamic perspective.

In its current version the questionnaire is designed for individuals aged 13 and over, and is composed of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex (Beck, 1972).

There are three versions of the BDI—the original BDI, first published in 1961 and later revised in 1978 as the BDI-1A, and the BDI-II, published in 1996. The BDI is widely used as an assessment tool by health care professionals and researchers in a variety of settings. The BDI was used as a model for the development of the Children's Depression Inventory (CDI), first published in 1979 by clinical psychologist Maria Kovacs (Kovacs, 1992).

The original form of (BDI-II) contains 21 items and aims to assess quantitatively the severity of depression, and was used in this study in the Arabic version. It also has a great benefit in clarification of the cognitive aspects of depression. Each of its items describes a specific behavioral manifestation of depression. It is a universal scale.

The severity of depression is classified on the basis of the total score as the following: In subjects without chronic illness, a BDI score <15 suggests no or minimal depression, 16to 24 represents mild to moderate depressive affects, 25 to 33 is moderate to severe, and>33 indicates severe levels of depression (Garib, 2000).

5.9 Validity &Reliability

Reliability means that scores from an instrument are stable and consistent. Scores should be nearly the same when researchers administer the instrument multiple times at different times. When an individual answers certain questions one way, the individual should consistently answer closely related questions in the same way (Creswell, 2008).

Reliability of an instrument is the degree of consistency with which it measures the attribute it is supposed to be measuring. For most purposes, reliability coefficients above 0.7 are considered satisfactory. Cronbach's coefficient alpha is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value is between 0.0 and + 1.0, and the higher values reflect a higher degree of internal consistency.

Reliability was established using a pilot test by collecting data from 15 subjects in each group not included in the sample. Data collected from the pilot test was analyzed using SPSS (Statistical Package for Social Sciences). Cronbach's coefficient alpha was calculated and the general reliability for all items equaled 0.78,whichis considered satisfactory.

BDI II-Arabic version was used in this study. Content validity was examined by sending the questionnaire to 9 experts(3mental health nurse, 2 psychiatrist physician, 2 researchers, one clinical psychiatrist, and one statistician) working in the same field to evaluate and identify whether the questions agreed with the scope of the items and the extent to which these items reflect the concept of the research problem and to evaluate that the instrument used is valid statistically and that the questionnaire was designed well enough to provide relations and tests between variables. The experts report that the questionnaire was valid and suitable enough to measure the concept of interest, so the committee opinion was no changes were needs.

5.10 Ethical consideration

Ethical approval was obtained from the Institutional Review Board (IRB) of An-Najah National University. The procedures and purpose of the study was described in detail to the mothers and informed consent was obtained. The mothers were solicited for participation through special education and rehabilitation centres, participation was voluntary and data were handled confidentially and used only for research purposes. Participants' anonymity was assured by the use of unique identifiers allocated to each participant. Participants were informed of their right to refuse participation and their right to withdraw or discontinue participation at any time without penalty.

Permission to perform the study was obtained from the special education and rehabilitation center where the study was conducted (Care for Children with Special Needs Society and Farah Center in Nablus – north of the West Bank –Palestine).

5.11 Data collection

The data was collected directly from the mothers when they came to the center with their children for rehabilitation sessions. The data was collected by the researcher with assistants of specialists in speech and hearing pathology and social workers by using standardized questionnaires. The data collected in two centers(Care for Children with Special Needs Society and Farah Center).Detailed information about the study was given to each participant using their own Arabic language and consent to participate was obtained; filling out the questionnaires by the mothers took about 10-15 minutes.

For the control group the questionnaire was distributed in two kinder gardens (35 children were chosen),two primary schools (54 child were chosen) and one secondary school (11 child was taken), the school located in the Nablus district, the questionnaire was distributed in these schools by the researchers and sent to the mother by their children. The children were selected by using simple random sampling, from selected classes we chose the children as they are ordered in the class, we take child number 1,4,7,10 etc.

5.12 Data entry

Overview of the questionnaire was the first step, prior to data entry; this followed by designing an entry model using the computer Statistical Package for Social Science "SPSS" version 20 (IBM Corp, 2011)**.** The coded questionnaires were entered into the computer by the researchers. Data cleaning was done through checking out a random number of the questionnaires and through exploring descriptive statistics frequencies and percentage for all variables. All suspected or missed values were checked by revising the available sheets and the variable that missed in many questionnaires were excluded from analysis.

5.13 Data analysis

The researchers used the Statistical Package for Social Science "SPSS" Version (20) to analyze the research questions by using Chi square, Mann Whitney U test and Kruskal-Wallis H analysis. Also, the researcher used descriptive statistics to explore frequencies of all variables. Statistically significant values were considered at P values of equal to or less than 0.05. The Mann-Whitney U test is used to compare differences between two independent groups when the dependent variable is either ordinal or continuous, but not normally distributed (Corderet al, 2009).

5.14 Procedure

Ethical approval was obtained from the Institutional Review Board (IRB)of An-Najah National University, and the permission was obtained from the head of rehabilitation centers and school to conduct the study in rehabilitation centers and school. Detailed information about the study was given to each participant using their own Arabic language and consent to participate was obtained, the mothers who agreed to participate in the study have read the participant`s letter, and give written informed consent.

The BDI II Arabic version and Socio-demographic questionnaires were distributed by the researcher and filled by the mothers who want to participate in the study. For the study group the questionnaires were distributed in the two rehabilitation center (Care for Children with Special Needs Society and Farah Center), the data was collected directly from the mothers when they came to the center with their children for rehabilitation sessions, filling out the questionnaires took about 10-15 minutes.

For the control group the questionnaires were distributed in two kinder garden (35 children were chosen), two primary schools (54 child were chosen) and one secondary school (11 child was taken), the school located in the Nablus district, the questionnaires were distributed in these schools by the researcher and sent to the mother by their children. The children were selected by using simple random sampling.

The coded questionnaires were entered into the computer by the researcher; the researcher used the Statistical Package for Social Science "SPSS" Version (20) to analyze the research questions by using Chi square, Mann Whitney U test and Kruskal-Wallis H analysis. Also, the researcher used descriptive statistics to explore frequencies of all variables, statistical analysis was conducted for two groups and the results were compared with each other, and the conclusion was made.

6. Results

One- hundred subjects in the study group and one-hundred in the control group were studied. The mothers' average ages in the study group and control group were 32.6(SD=6.3) and 31(SD= 5.7) years, respectively. About (99%) of study group and(98%) of the control group were married, 14%of the study group and 15%of the control group were employed,(79%) of the study group and (76%) of the control group had an enough level of income, respectively(table1).

Eighteen percent of mothers in the study group reached primary school, 50% attended secondary school, 8%obtained a high school diploma, and 24% attended university. In the control group, 15%reached primary school, 40% attended secondary school, 11% obtained a high school diploma, and 34% attended university.

Forty five percent of mothers in the study group live in cities, 46%live in villages and 9% live in refugee camps. For the control group, 42% live in cities, 43% live in villages and 15% live in refugee camps (table1).

For the study group, 82% of mothers live with their nuclear family as do 79% of the control group mothers (table1).

Table1: Demographic data of the mothers in both groups (study and control).

	Study group		control group	
Mothers age	**No.**	**%**	**No.**	**%**
<30	44	44%	41	41%
30-40	48	48%	47	47%
>40	8	8%	12	12%
Marital status				
Married	98	98%	99	99%
Divorced	2	2%	1	1%
widowed	0	0	0	0
Education				
Elementary	15	15%	18	18%
Secondary	40	40%	50	50%
Diploma	11	11%	8	8%
University	34	34%	24	24%
Income				
Low	24	24%	21	21%
Middle	72	72%	76	76%
High	4	4%	3	3%
Employments				
Yes	15	15%	14	14%
No	85	85%	86	86%
Retire	0	0	0	0
Residence				
City	42	42%	45	45%
Village	43	43%	46	46%
Camp	15	15%	9	9%
Family style				
Nuclear	82	82%	79	79%
Extended	18	18%	21	21%
Total	100		100	

The average ages of children in the study group and control group were 5.7(SD ±5) and 6(SD±3) years old, respectively. 62% of the study group was boys and 38% of them were girls, and 53%of the children of the control group were boys and 47% were girls (table2). The study group children had 8 different diagnoses with 18% autism, 18% hearing disorder, 14% mental retardation, 12% cerebral palsy, 11% speech disorder, 10% down syndrome, 7% physical disability and 10% others disabilities (table13).

Table 2: Demographic data of the children in both groups (study and control).

	Study group		Control group	
Child age	**No.**	**%**	**No.**	**%**
<5	40	40%	35	35%
5-10	50	50%	54	54%
>10	10	10%	11	11%
Total	100	100%	100	100%
Child sex				
Male	62	62%	53	53%
Female	38	38%	47	47%
Total	100	100%	100	100%

Forty six percent (46/100) of mothers in the study group and 85% (85/100) in the control group did not have depression or they have a minimal depression, there was a statistical significant difference in the two groups, the Chi-square statistic is 33.6542. The P value is 0.00. This result is significant at $p < 0.05$.Thirty six percent (36/100) of the mothers in the study group have a statistical significant difference of mild to moderate level of depression compared to 13% (13/100) of mothers in the control group. The Chi-square statistic is 14.2992. The P value is 0.00. This result is significant at $p < 0.05$. Whereas 17% (17/100) of mothers in the study group have a statistical significant difference of moderate to severe level of depression compared to (2%) in the control group. The Chi-square statistic is 13.0852. The P value is 0.00. This result is significant at $p < 0.05$ (table 3).

Table 3: Depression levels of the mothers in the study and control groups

	Study group		Control group	
Depression level	No.	%	No.	%
Normal or minimal depression	46	46*	85	85*
Mild to moderate	36	36*	13	13*
Moderate to severe	17	17*	2	2*
Sever level of depression	1	1	0	0
Total	100		100	

*$P < 0.05$ when study group is compared to control group.

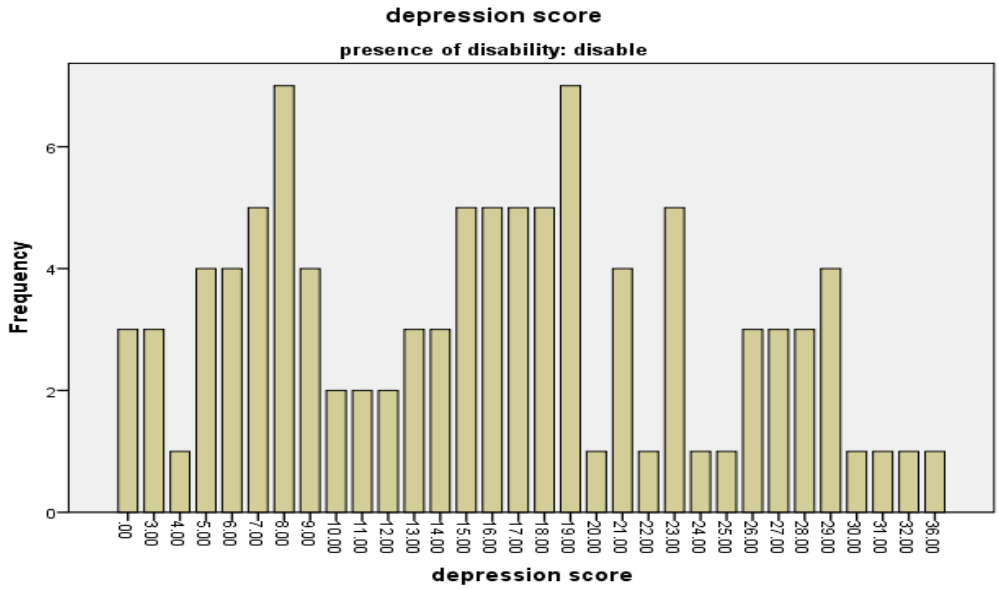

Figure . Shows the relationship between total depression score in relation to the frequency of the participant in the study group

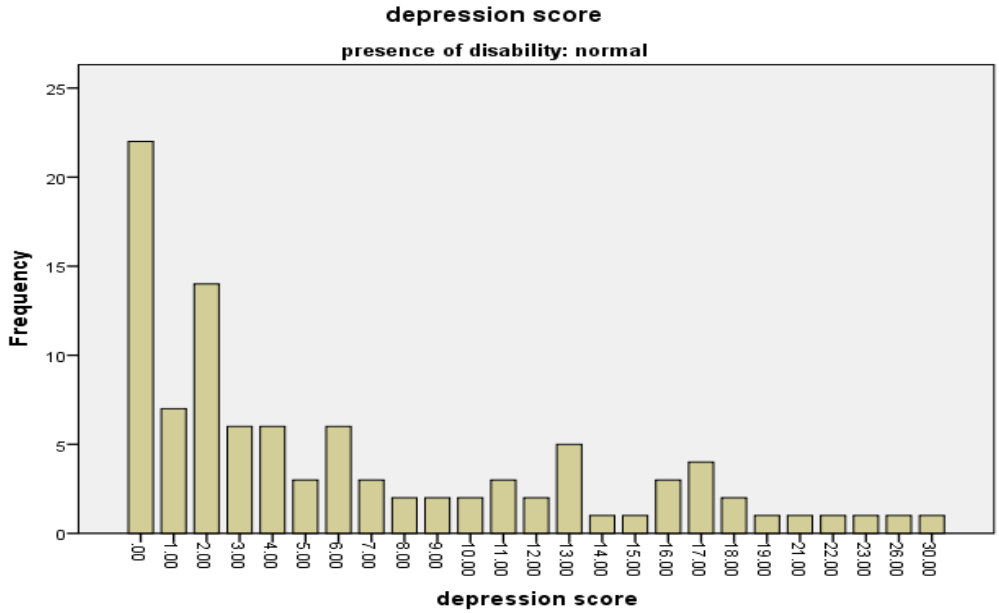

Figure 2.shows the relationship between total depression score in relation to the frequency of the participant in the control group.

Table (4) shows that there is a significant difference between mothers' depression score with respect to having or not having disabled children; the mean rank for the study group was (120.82) and the mean rank for the control group was (80.18). The P-value was (0.00), p<0.05). According to means rank and the p-value, the depression score of mothers of disabled children (120.82) was significantly higher compared to mothers with normal children (80.18) (table 4).

Table 4: Mann Whitney test result on the depression levels of mothers with disabled children compared to mothers with normal children.

Presence of disability	N	Mean Rank	Sum of Ranks	U	P value
normal	100	80.18*	8018.00	2968.000	0.00
disabled	100	120.82*	12082.00		
Total	200				

* The mean difference is significant at the 0.05 level.

6.1 Part I of the statistical analysis

The following results are based on the statistical analysis of the differences in each group by itself (differences in the same group) regarding the demographic data.

As shown in Table (5), in the control group, mothers did not have significant different means rank regarding the relation between mother depression level and their children's sex. The mean rank was 50.68 when the child's sex was male, and 50.30 when the child's sex was female, with (U=1236, P=0.916).Thus, there was no significant differences found.. In the study group, also mothers did not have significant different means rank about the relation between mother depression level and their children's sex. The mean rank was 53.24 when the child's sex was male, and 46.03 when the child's sex was female, with (U=1008, P=0.191).Thus, there were no significant differences found.

Table5: Mann Whitney U test result on the depression level of mothers of both groups with respect to the child's sex.

Presence of disability	Child sex	N	Mean Rank	Sum of Ranks	U	P value
Control group	male	53	50.68	2686.00	1236.000	.916
	female	47	50.30	2364.00		
	Total	100				
Study group	male	62	53.24	3301.00	1008.000	0.191
	female	38	46.03	1749.00		
	Total	100				

* The mean difference is significant at the 0.05 level.

Table (6) shows the relation between the depression score and the children's age. In the control group,

mothers did not have significant different means rank of depression scores when children's age was considered, so the children's age did not statistically influence their depression scores (p>0.05, p= 0.458). In the study group, also mothers did not have significant different means rank of depression scores when children's age was considered, so the children's age did not statistically influence their depression scores (p>0.05, p= 0.217).

Table 6: Kruskal-Wallis H analysis results of the depression scores of mothers of both groups (study and control) with respect to the child's age.

Presence of disability	Child age	N	Mean Rank	P value
Control group	5<	35	48.60	0.458
	10-5	54	50.54	
	10>	11	56.36	
	Total	100		
Study group	5<	40	45.63	0.217
	10-5	50	55.17	
	>10	10	46.65	
	Total	100		

* The mean difference is significant at the 0.05 level.

As shown in Table (7), in the control group, the mean rank suggests that mother's age above 40 years is linked with a higher depression score compared to other ages, their mean rank was 68.44 while it was 47.63 when the mother's age was less than 30 years and 50.15 when the mother's age was between 30-40 years. The differences were statistically significant and the mothers' depression significantly increased with their age (p=0.010). In the study group the highest level of depression was when the mother's age was above 40 years. When the mother's age was less than 30 years, the mean rank was 49.66, when the mother's age was between 30-40 years it was 47.46, and when the mother's age was above 40 years the mean rank was 65.29. However, the differences were statistically not significant (p=0.116).

Table 7: Kruskal-Wallis H analysis results of the depression scores of mothers of both groups (study and control) with respect to the mother's age.

	Mothers age	N	Mean Rank	P value
Control group	30>	44	47.63	0.010
	40-30	48	50.15	
	40<	8	68.44	
	Total	100		
Study group	30>	41	49.66	0.116
	40-30	47	47.46	
	40<	12	65.29	
	Total	100		

* The mean difference is significant at the 0.05 level.

Table (8) shows that in the control group, mothers did not have significant different levels of depression scores when their educational level was considered, which means that the depression score of mothers from different groups did not statistically differ (P=0.158). In the study group, also mothers did not have significant different levels of depression scores when their educational level was considered, which means that the depression score of mothers from different groups did not statistically differ (P=0.636).

Table 8: Kruskal-Wallis H analysis results of the depression scores of mothers of both groups (study and control) with respect to their educational level.

	Educational level	N	Mean Rank	P value
Control group	elementary	15	59.83	0.158
	secondary	40	47.90	
	diploma	11	47.45	
	university	34	50.43	
	Total	100		
Study group	elementary	18	49.08	0.636
	secondary	50	53.82	
	diploma	8	47.31	
	university	24	45.71	
	Total	100		

* The mean difference is significant at the 0.05 level.

As shown in Table (9), in the control group the mean rank suggests that mothers with low-income had higher depression scores compared to high or middle income; however, the differences were not statistically significant (p=0.071).The mean rank for low-income was 57.6, for middle and high income it was 48.55 and

43.00 respectively.

For the study group, economic status for mothers of disabled children also did not affect their depression scores; the mean rank for mothers with low-income was 56.88, for middle and high-income it was 48.72 and 50.83 respectively, and the p-value was not significant (p= 0.466).

Table9: Kruskal-Wallis H analysis results of the depression scores of mothers of both groups (study and control) with respect to their income level.

	Income	N	Mean Rank	P value
Control group	low-income	24	57.60	0.071
	middle-income	72	48.55	
	high-income	4	43.00	
	Total	100		
Study group	low-income	21	56.88	0.466
	middle-income	76	48.72	
	high-income	3	50.83	
	Total	100		

* The mean difference is significant at the 0.05 level.

As shown in Table(10), the mean rank for the control group was 53.8 for employed mothers and 49.92 for unemployed mothers; the mean rank suggests that employed mothers had higher depression score than unemployed mothers but the difference was not statistically significant (p=0.440).

In contrast, employed mothers of the study group had lower depression scores than unemployed mothers, the mean rank for employed was 45.37 and 51.41 for unemployed mothers but the difference was not statistically significant (p=0.420).

Table10: Mann Whitney U test results of the depression scores of mothers of both groups with respect to their employments.

	Employments	N	Mean Rank	P value
Control group	employed	16	53.80	0.440
	unemployed	84	49.92	
Study group	employed	15	45.37	0.420
	unemployed	85	51.41	

* The mean difference is significant at the 0.05 level.

As shown in the Table (11), the mean rank suggests that mothers with disabled children who live in villages had a higher depression score than mothers with disabled children who live in cities or camps, the mean rank was 46.17 for mothers live in city, 54.99 for mothers live in village and 49.22 for mothers live in camps, but differences were not statistically significant (p=0.287). For mothers with normal children, there was no influence of residence on depression score (p=0.665), the mean rank was 51.52 for mothers live in city, 48.70 for mothers live in village and 52.80 for mothers live in camp.

Table11: Kruskal-Wallis H analysis results of the depression scores of mothers of both groups with respect to residence.

	Residence	N	Mean Rank	P value
Control group	city	42	51.52	0.665
	village	43	48.70	
	camp	15	52.80	
	total	100		
Study group	city	45	46.17	0.287
	village	46	54.99	
	camp	9	49.22	
	total	100		

* The mean difference is significant at the 0.05 level.

As shown in the Table (12), in the control group, there were not statistically significant differences (p=0.448) if mothers live within the nuclear or extended family. Also in the control group, there were not statistically significant differences (p=0.689) if mothers live within nuclear or extended family

Table 12: Chi square test for the relation between depression score and family style

Group	Family style	N	P value
Control group	Nuclear family Extended family Total	(82%)82 (18%)18 100 (100%)	0.448
Study group	Nuclear family Extended family Total	79(79%) 21%)21(100(100%)	0.689

* The mean difference is significant at the 0.05 level

As shown in Table (13), the mothers of children with physical disabilities (mean rank was 60.36) and cerebral palsy (mean rank was 58.67) have a higher depression score than mothers with children of other kinds of disabilities, and the lowest level of depression score was for mothers whose children have down syndrome, which had a mean rank of38.45.

Table 13: Depression score for study group with respect to the types of disability

Kind of disability	N	Mean Rank
Down syndrome	10	38.45
Hearing disability	18	50.39
Physical disability	7	60.36
Speech disorder with other disability	11	54.41
Autism	18	44.67
Mental retardation	14	49.68
Cerebral palsy	12	58.67
Other disorder	10	53.40
Total	100	

5.2 Part 1I of the statistical analysis

The following results are based on the statistical analysis differences between the study group and control group (differences between the groups) regarding the demographic data.

Table (14) shows that according to mothers whose children's age (<5), there is a significant difference between mothers' depression score with respect to having or not having disabled children; The difference was in favor of mothers who are having disabled children with mean rank (44.51) which is higher than that for mothers who are not having disabled children with mean rank (30.56). The P-value was (0.001) <0.05).The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (14) shows that according to mothers whose children's age (5-10), there is a significant difference between mothers' depression score with respect to having or not having disabled children; The difference was in favor of mothers who are having disabled children with mean rank (65.16) which is higher than that for mothers who are not having disabled children with mean rank (40.78). The P-value was less than 0.05. The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (14) shows also that according to mothers whose children's age (>10), there is no significant difference between mothers' depression score with respect to having or not having disabled children; The mean rank for mothers who are having disabled children was (12.4) and for mothers who are not having disabled children was (9.73). The P-value was (0.349). The conclusion according to means rank and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (14): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to the child age categories.

Child age	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
<5	depression level	normal	35	30.56	1,069.50	0.001*
		disable	40	44.51	1,780.50	
		Total	75			
5-10	depression level	normal	54	40.78	2,202.00	0.000*
		disable	50	65.16	3,258.00	
		Total	104			
>10	depression level	normal	11	9.73	107.00	.349
		disable	10	12.40	124.00	
		Total	21			

*significant at 0.05 level

Table (15) shows that according to mothers whose children's sex (male), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (70.01) which is higher than that for mothers who are not having disabled children with mean rank (43.95). The P-value was less than 0.05. The conclusion according to rank means and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (15) shows that according to mothers whose children's sex (female), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (50.57) which is higher than that for mothers who are not having disabled children with mean rank (36.88). The P-value (0.001) was less than 0.05. The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (15): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to the child sex categories.

Child sex	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
Male	depression level	normal	53	43.95	2,329.50	0.000*
		disable	62	70.01	4,340.50	
		Total	115			
Female	depression level	normal	47	36.88	1,733.50	0.001*
		disable	38	50.57	1,921.50	
		Total	85			

*significant at 0.05 level

Table (16) shows that according to mothers whose ages (<30), there is a significant difference between mothers' depression score with respect to having or not having disabled children; The difference was in favor of mothers who are having disabled children with mean rank (53.74) which is higher than that for mothers who are not having disabled children with mean rank (32.99). The P-value was less than 0.05. The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (16) shows that according to mothers whose ages (30-40), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (55.97) which is higher than that for mothers who are not having disabled children with mean rank (40.20). The P-value was less than 0.05. The conclusion according to rank means and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (16) shows also that according to mothers whose ages (>40), there is no significant difference between mothers' depression score with respect to having or not having disabled children; The mean rank for mothers who are having disabled children was (11.96) and for mothers who are not having disabled children was (8.31). The P-value was (0.181) (>0.05). The conclusion according to rank means and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (16): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to mother's age categories.

Mother's age	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
<30	depression level	normal	44	32.99	1,451.50	0.000*
		disable	41	53.74	2,203.50	
		Total	85			
30-40	depression level	normal	48	40.20	1,929.50	0.000*
		disable	47	55.97	2,630.50	
		Total	95			
>40	depression level	normal	8	8.31	66.50	.181
		disable	12	11.96	143.50	
		Total	20			

*significant at 0.05 level

Table (17) shows that according to mother's educational level(elementary), there is no significant difference between mothers' depression score with respect to having or not having disabled children; The mean rank for mothers who are having disabled children was (18.31) and for mothers who are not having disabled children was (15.43). The P-value was (0.401) >0.05). The conclusion according to means rank and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (17) shows also that according to mother's educational level(secondary), there is a significant difference between mothers' depression score with respect to having or not having disabled children; The difference was in favor of mothers who are having disabled children with mean rank (55.58) which is higher than that for mothers who are not having disabled children with mean rank (32.9). The P-value (p=0.000) was less than 0.05. The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (17) shows that according to mother's educational level (diploma), there is no significant difference between mothers' depression score with respect to having or not having disabled children. The mean rank for mothers who are having disabled children was (12.31) and for mothers who are not having disabled children was (8.32). The P-value was (0.129) >0.05). The conclusion according to means rank and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Finally, table (17) shows that according to mother's educational level (university), there is a significant difference between mothers' depression score with respect to having or not having disabled children; The difference was in favor of mothers who are having disabled children with mean rank (35.94) which is higher than that for mothers who are not having disabled children with mean rank (24.96). The P-value (0.002) was less than (0.05). The conclusion according to rank means and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (17): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to the educational level categories.

Educational level	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
Elementary	depression level	normal	15	15.43	231.50	.401
		disable	18	18.31	329.50	
		Total	33			
Secondary	depression level	normal	40	32.90	1,316.00	0.000*
		disable	50	55.58	2,779.00	
		Total	90			
Diploma	depression level	normal	11	8.32	91.50	.129
		disable	8	12.31	98.50	
		Total	19			
University	depression level	normal	34	24.96	848.50	0.002*
		disable	24	35.94	862.50	
		Total	58			

*significant at 0.05 level

Table (18) shows that according to mothers whose income(low), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (27.64) which is higher than that for mothers

who are not having disabled children with mean rank (18.94). The P-value(0.013) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (18) shows that according to mothers whose income(middle), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (89.35) which is higher than that for mothers who are not having disabled children with mean rank (58.83). The P-value (0.000) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (18) shows also that according to mothers whose income(high), there is no significant difference between mothers' depression score with respect to having or not having disabled children; The mean rank for mothers who are having disabled children was (5.33) and for mothers who are not having disabled children was (3.00). The P-value was (0.229). The conclusion according to means rank and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (18): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to income categories.

Income	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
Low-income	depression level	normal	24	18.94	454.50	0.013*
		disable	21	27.64	580.50	
		Total	45			
Middle-income	depression level	normal	72	58.83	4,235.50	0.000*
		disable	76	89.35	6,790.50	
		Total	148			
High-income	depression level	normal	4	3.00	12.00	.229
		disable	3	5.33	16.00	
		Total	7			

*significant at 0.05 level

Table (19) shows that according to the employed mothers, there is no significant difference between mothers' depression score with respect to having or not having disabled children; The mean rank for mothers who are having disabled children was (17.47) and for mothers who aren't having disabled children was (13.53). The P-value was (0.223) >0.05). The conclusion according to rank means and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (19) shows that according to the unemployed mothers, there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (103.77) which is higher than that for mothers who are not having disabled children with mean rank (67.23). The P-value (0.000) was less than 0.05. The conclusion according to rank means and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (19): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to the employment categories.

Employments	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
Employed	depression level	normal	15	13.53	203.00	.233
		disable	15	17.47	262.00	
		Total	30			
Unemployed	depression level	normal	85	67.23	5,714.50	0.000*
		disable	85	103.77	8,820.50	
		Total	170			

*significant at 0.05 level

Table (20) shows that according to mothers whose residence(city), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (50.30) which is higher than that for mothers who are not having disabled children with mean rank (37.25). The P-value (0.003) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (20) shows that according to mothers whose residence (village), there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in

favor of mothers who are having disabled children with mean rank (56.18) which is higher than that for mothers who are not having disabled children with mean rank (33.03). The P-value (0.000) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (20) shows also that according to mothers whose residence (camp), there is no significant difference between mothers' depression score with respect to having or not having disabled children. The mean rank for mothers who are having disabled children was (15.33) and for mothers who are not having disabled children was (10.80). The P-value was (0.138). The conclusion according to means rank and the p-value is that the depression scores are not statistically different for mothers of disabled children or for mothers with normal children.

Table (20): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to residence categories.

Residence	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
City	depression level	normal	42	37.25	1,564.50	0.003*
		disable	45	50.30	2,263.50	
		Total	87			
Village	depression level	normal	43	33.03	1,420.50	0.000*
		disable	46	56.18	2,584.50	
		Total	89			
Camp	depression level	normal	15	10.80	162.00	.138
		disable	9	15.33	138.00	
		Total	24			

*significant at 0.05 level

Table (21) shows that according to nuclear families, there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (96.10) which is higher than that for mothers who are not having disabled children with mean rank (66.45). The P-value (0.000) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (21) shows that according to extended families, there is a significant difference between mothers' depression score with respect to having or not having disabled children. The difference was in favor of mothers who are having disabled children with mean rank (25.14) which is higher than that for mothers who are not having disabled children with mean rank (14.00). The P-value(0.002) was less than (0.05). The conclusion according to means rank and the p-value is that the depression score of mothers of disabled children was significantly higher compared to mothers with normal children.

Table (21): Mann Whitney test results on the depression levels of mothers with disabled children compared to mothers with normal children according to the family style categories.

Family style	Dependent	Presence of disability	N	Mean Rank	Sum of Ranks	p-value
Nuclear family	depression level	normal	82	66.45	5,449.00	0.000*
		disable	79	96.10	7,592.00	
		Total	161			
Extended family	depression level	normal	18	14.00	252.00	.002*
		disable	21	25.14	528.00	
		Total	39			

*significant at 0.05 level

7. Discussion

This descriptive, analytical (cross-sectional) study was designed to determine the prevalence and severity of depression among mothers of disabled and non-disabled children in Palestinian society, as well as the depression level with other factors such as socio-economic status, education, family style, and other factors.

The results of this study indicate that 54% of the mothers of disabled children had various degrees of depression, with 18 % suffering from severe depression. For the mothers with non-disabled children, 18% had various degrees of depression, which is within the normal statistics(12-25%) (WHO, 1990).

The result of this study are in agreements with studies that conclude that the mothers of children with disabilities, in comparison to mothers of children with no disabilities suffer from more depression and have a low social function (Salehi, 2004).In addition to that, Sereshki , (1999) showed that the most severe reaction that

appears around the time of the birth of a disabled child is depression.

There was also a study done by Baker (2000) and others that found dense anxiety and higher levels of depression in mothers of children with severe behavioral problems (Baker et al., 2000), which supports our result that mothers who have disabled children have a higher depression score than mothers of normally developed children.

Having disabled children does not cause depression for mothers only. Alaghband, (2003) indicated in his research that most of the close relatives of a child with some sort of disorder suffer from various degrees of depression.

In the current study we found the highest level of depression score was among mothers of physically disable and CP children compared to other kinds of disabilities, this could be related to increase in care-giving burden in terms of appointment and life style modification, in addition to the fact that physical disability maybe acquired by an accident or other life event, which increases the feeling of guilt, this result was supported by a study done in turkey by Altindag, et al (2007) that indicated high level of depression and anxiety symptoms in the mothers of children with CP and there was a significant relation between BDI scores and the level of disability in children.

There is no statistically significant relationship between the child's age and mother's depression score was found in study group, whereas a study done in Qatar shows an increase in depression level in mother of disabled children of 10-14 years(Al-Kuwari,2007*)*.Also, a Korean study found that the highest level of psychiatric morbidity was founded among mothers of pre-school mentally disabled children (Yim et al.,1996).

In this study we found that there is no relationship between mothers' depression score and their child sex in both study group alone and control group alone

There was no significant relationship found between the mothers' depression score and their age in the study group, which is corroborated with the finding of Karimi , et al (2003). However, the study reveals that there is a significant relationship between mothers' depression and their age in the control group(mothers of normally developed children); the depression score was highest among mothers with their age above 40years.

The study reveals that the depression score among mothers did not influenced if mothers live within extended or nuclear family, this finding was not consistent with Motamedi et al.(2005) who discussed stigmatization that patients and their families are subjected to.

No significant relationship was found between the depression and educational levels of mothers in both control and study group, which corroborates with a study of Modabernia (2001),and another study in Iran (2007) conducted by Motamedi and co-worker found no significant relationship between the depression and education of the mothers, however this result in disagreement with a study that states that depression is high among illiterate people (Sepehrmanesh, 2003; Ramazani, 2001).

No significant relationship was found between mothers' employment and depression score in both groups(study and control), which is in agreement with a study done in Iran (Motamedi et al., 2007), and isin disagreement with several previous studies (Bolhari, 2001, Ramazani, 2001) that indicate that there is a relationship between mothers' depression and employment.

Economic status was not consistently related to mothers depression in both groups. This is supported by a study done by Blacher et al, (1997) who found that no relationship between the mothers' depression and residence (city, village or camp).

The following hypotheses were tested:

- Mothers of children with disabilities have higher depression scores than control mothers.
  The study reveals that there is a significant relationship between two groups with respect to have or not have disable child, mother who have disable child has higher depression score.
- Elevated depression scores are more common in mothers who live in rural areas compared to urban areas in both groups. The study reveals that there is no relationship was found in related to place of residence.
- Mothers have a high depression score if the disable child is female compare to male.
  The study reveals that there is no relationship was found in favor to child sex
- Elevated depression scores are more common in mothers who live with extended family in the study group. Study reveals that there was no relationship between mothers depression score and family style.

7.1 The following discussion is based on results of statistical analysis when we compare between the study group and the control group regarding the demographic data.

7.1.1 Child sex

Despite sex, according to mothers whose child gender (male or female), there is a significant difference between maternal depression scores in terms of having or not having children with disabilities. The difference was for mothers who have children with disabilities compared with the control. The present study is in line with the studies of Khamseh (2002) and Motamedi et al (2007) who declared that there is significant correlation between

maternal depression and child gender.

7.1.2 Mothers age

According to mothers whose age (<40), there is a significant difference between maternal depression scores in terms of having or not having disabled children on the other hand, mothers whose ages (> 40), there is no significant difference, the absence of a significant correlation between age of the mothers and their depression is confirmed in other studies (Shariati, 1996, Motamedi et al 2007).

7.1.3 Mothers' education

According to the mother's level of education (elementary and diploma), there is no significant difference between maternal depression scores in terms of having or not having children with disabilities compared with the control group, and maternal education (secondary and university), there is a significant difference between maternal depression scores in terms of to have or not to have children with disabilities compared with the control group; the current study is partially confirmed by a study of Modabbernia (2003), which showed that no significant relationship was found between depression and education of the mothers, and does not confirm with a study that says depression is high among illiterate (Sepehrmanesh, 2003, Ramazani, 2001).

7.1.4 Family income

According to mothers whose income (low & middle), there is a significant difference between maternal depression scores in terms of having or not having children with disabilities, the results of the current study are in agreement with the study of Matihide (2006) who observed that the family income decreases social participation of these individuals, and family stress is as a result of failure to adapt to the environment Contrary to Matihide (2006) of the mothers whose income (high) in the current study, there is no significant difference between mothers' depression scores in terms of having or not having disabled children

7.1.5 Employment/ unemployment of the mothers

According to the unemployed mothers in the current study, there is a significant difference between maternal depression scores in terms of having or not having children with disabilities which is in compliance with the study of Ghoreshizadeh (2005) who showed that depression was the fourth reason for loss of employment. The current study is in consistent with the study of Mbugua, et al who showed that there was a statistically significant relationship between unemployment of mothers of disabled children and the risk of depression. Unemployed mothers have little or no income. Furthermore, the burden associated with financial expenses increased by insufficient public resources in place at the community level (Mbugua et al, 2011). Mothers of disabled children might be deprived of the privileges, rights and respect that go with other careers (Raina et al 2004). Furthermore, there is a lack of career development (Raina et al 2004). The current study also agreed with the other studies which addressed that there is a significant relationship between the mothers' employment situation with depression (Bolhari, 2001, Ramazani, 2001).

7.1.6 Nuclear family

According to nuclear families, there is a significant difference in the current study between maternal depression scores in terms of having or not having disabled children compared with the control group; considering most families nowadays are nuclear, and also pay attention to the fact that the disability of one of the children can cause adverse effects on the whole family and cause higher levels of depression among parents of disabled children (Little, 2003), so supporting parents of children with disabilities, reduces their psychological problems such as depression (Capuzzi, 1989).

7.1.7 Extended family

In the same context, according to extended families, there is a significant difference even in the present study between maternal depression scores in terms of having or not having children with disabilities; when compared with the control group and the difference was for mothers who have children with disabilities. The extended family would be available to provide care to a disabled child ease the burden of care. Stigmatization for disabled children may further predispose their mothers for risk of depression (Mbugua et al 2011).

Alaghband, (2003), explained that most of the close relatives of a child with any kind of disturbance suffering with various levels of depression, so it may be that the mother becomes more depressed when she is surrounded by people with different levels of depression because of her disabled child. Such people normally do not plan to be caregivers but finds the need inevitable (Eicher and Batshaw 1993).

8. Conclusion:

The results of this study indicate that 54% of the mothers of disabled children had various degrees of depression, with 18 % suffering from severe depression. For the mothers with non-disabled children, 18% had various degrees of depression, which is within the normal statistics (12-25%)(WHO, 1990),

In study group the study reveals that the disability itself tend to be consider as a strong factor in the same group to increase the prevalence of depression, in contrary in control group the study reveals that there are many factors to increase the prevalence of depression among mothers which include: mothers age>40, child age >10, low family income and low education level,

When we compare between the study and control groups , the study reveals that there are many factors to increase the prevalence of depression among mothers in the study group compared to control group which include: child's age <10 years, mother's age <40 years, middle and low income and un-employment.

9. Recommendations

- Early recognition of depression symptoms in mothers of disabled children should be of great concern for health care providers and they should be referred to specialists to give them more comprehensive and individualized care.
- Assign the media the responsibility of removing attitudinal barriers and changing behavior and attitudes of the society towards disabled children and their family members.
- Hold seminars that aim at helping the Palestinian care provider to identify the problem of depression symptom, suggest ways of solving it, and be aware of the benefits to the society of solving this problem.
- Work on raising community awareness about the issue of disability to increase acceptance of disabled children and their family in the community.
- Health care providers should instruct mothers with depression to use more adaptive strategies, such as social support, and spiritual help to deal with depression symptoms.
- The use of psychotherapeutic techniques such as group therapy, problem solving therapy and interpersonal therapy is beneficial and effective in treatment and decreases depression symptoms.
- Coordination with officials in the Ministry of Social Affairs and work offices will improve the social and economical status of the family of disabled children.

9.1 psych-Education for mothers

Providing information and training courses in caring and how to deal with a mentally disabled child reduces the risk of developing psychiatric morbidity, like depression in mothers of mentally disabled children. This means that intervention has a preventative effect for psychiatric morbidity in those mothers. Also, as it is known that mothers take the major role for caring for their disabled child, and take responsibilities to meet needs and requirements, other family members, especially the father, should be engaged to help meet the children's needs.

Many studies showed that providing adequate information on child disability and the availability of services along with caring skills training of dealing with a disabled child has a great impact on reducing the psychological distress among mothers of disabled children (Law et al.,2003;Redmond & Richardson, 2003; Kelly & Monteith,2003; Taanila et al.,2002).

Taanila et al.(1998) found that Finish parents who received information and advice in caring for their disabled children reported positive feelings

Toward caring for their children. Such an intervention may clarify the ambiguity of the situation and the future through the given information about the disability. In addition to that, it helps mothers to cope faster through the caring skills taught to them.

9.2 Recommendation for future research

- This study was conducted on mothers, but fathers were not included in the study. As fathers have a significant role in the family, examining the fathers' status may also improve the quality of interventions.
- The impact of depression on quality of life among mothers of disabled children.
- Qualitative studies in this field are highly recommended to profoundly investigate the factors which help in improving the lives of mothers of disabled children.

References

Alaghband, R. et al. (2003) Children with Disorders and Parental Depression, Thought and Behavior Quarterly, 9, 34.

Al-kuwari, M.G. (2007) MBBS, *CABCM.* Neurosciences, 12.

Altindag et al. (2007) Anxiety and Depression in Mothers of Children with Cerebral Palsy.Turkeyphysical and Medical Rehabilitation , 53,22-4.

Altshuler, L., Hendrich, V. & Cohen, S. (1998) Course of mood and anxiety disorders during pregnancy and the postpartum period. Journal of Clinical psychiatry, 59 (2),29.

American Psychiatric Association (1994) Diagnostic and Statistical Manual of Mental Disorders. (4th ed). Washington. DC: American Psychiatric Association.

Andrade, L. et al ., (2003) The epidemiology of major depressive episodes: results from the International Consortium of Psychiatric Epidemiology (ICPE) Surveys. International journal of methods in psychiatric research, 12, .3-21.

Angst, J., 1994.Recurrent brief depression. Research in Mood Disorders , 9, 18–30.

Baker, B.L., Heller, T.,Land and Henker, B. (2000) Expressed Emotion, Parenting Stress ,and Adjustment in mothers of young children with behavior problems. J Child Psychiatric, 41, 907-15.
Banazak, D.A . (2000) Minor depression in primary care. The Journal of the American Osteopathic Association, 100,783-787
Barlow, D. H . (2007) Clinical Handbook of Psychological Disorders, 4th edition. New York :The Guilford press.
Bebko, J.M., Konstantareas, M.M., & Springer, J., (1987) Parent and professional Evaluations of family stress associated with characteristics of autism.JAutism Disorder,17, 565-76.
Beck, A.T. (1972) Depression: Causes and Treatment. Philadelphia: University of Pennsylvania Press. ISBN 0-8122-1032-8.
Berdine, W. H., & Blackhurst, A.E. (1985) An introduction to Special Education, US: little Brown and Company, 618-625.
Bern-Annegers, J.F.,& Hauser,W.A. (2001) Incidence and risk factors in sudden unexpected death in epilepsy: a prospective cohort study. Neurology, 56(4), 519-525.
Blacher, J., Nihira, K., & Meyers, C.E. (1987) Characteristics of home environment of families with mentally retarded children: comparison across levels of retardation. American Journal of Mental Deficiency, 91, 313-20.
Blacher, J., Shapiro, J., Lopez, S., & Diaz, L. (1997) Depression in latina mothers of children with mental retardation: a neglected concern. American Journal on Mental Retardation,101, 483-496.
Bolhari, J.et al. (2001) Study on the Epidemiology of psychiatric disordors, Thought and Behaviour Quarterly, 7, 25-26.
Bolton, P.F., Pickles, A., Murphy, M and Rutter, M. (1998) Autism, affective and other psychiatric disorders: patterns of familial aggregation. Psychological Medcine, 28, .385-95.
Capuzzi, C. (1989) Maternal attachment to handicapped infants and the Relationship to social support, Research in nursing and health, 12, 161-167.
Chengappa, K . (2003) Relationship of birth cohort and early age at onset of illness in a bipolar disorder case registry. American Journal of psychiatry, 160 (9), 1636-1642.
Corder, W., Foreman, I., (2009) Nonparametric Statistics for Non-Statisticians. Hoboken: John Wiley & Sons, 99–105. ISBN 9780470454619
Council for Children with Behavioral Disorders .(2000). Position Paper on Terminology and Definition of Emotional or Behavioral Disorders. w ww.ccbd.net (Retrieved4/25/02).
Creswell, J., (200) .Educational research, planning, conducting, and evaluating quantitative and qualitative research, third edition, by Pearson international edition, 1-670.
Cuskelly, M., Pullan, L., &Hayes, A.. (1998) Parenting & employment decision of parents with a preschool child with disability. Journal of Intellectual & Developmental Disability, 23, 319-332.
Davidson, K., Rieckmann, N., & Lesperance, F. (2004) Psychological theories of depression: Potential application for the prevention of acute coronary syndrome recurrence, Psychosomatic medicine 66, by the American psychosomatic society, 165-173.
Dor-Shav, N,K., Horowitz, Z. (1984) Intelligence and personality variables of parents of autistic children. Journal of Genetic Pscychology, 144, 39-50.
Eicher, P. S. and Batshaw, M. L. (1993) “Cerebral palsy,” Pediatric Clinics of North America, 40(3), 537–551.
Elder, R., Evans, K.,& Nizette, D., (2005) Psychiatric and mental health nursing, mood disorders, by National Library of Australia , Elsevier Australia: Southwood Press.
Ellis, J.B., Hirsch, J.K., (2000) Reasons for living in parents of developmentally delayed children. Research inDevelopmental Disability, 21, 323-7.
Emerson, E. (2003) Mothers of children & adolescents with intellectual disability: social and economic situation, mental health status & the self-assessed social and psychological impact of the child’s difficulties. Journal of Intellectual Disability Research, 47, 385-399.
Farmer, J. E., Marien, W. E., Clark, M. J, Sherman, A., & Selva, T. J. (2004) Primary care supports for children with chronic health conditions: Identifying and predicting unmet family needs.Journal of pediatric psychology, 29, 355-367.
Fishman, S. N., Woff, L. C., & Non, S. (1989) Marital intimacy in parents of exceptional children. Canadian journal of Psychiatry, 37, 519-5257.
Ganong, L., Doty, M.E., & Gayer, D. (2003) Mothers in post divorce families caring for a child with cystic fibrosis. J Pediatric Nurses,18,.332-43.
Ghareeb A. G. Cairo, Egypt: Angle Press. (2000) Manual of the Arabic BDI-II
Ghoreishizadeh,. Seyed, M. (2005) Depression, Tabriz Medical Science University journal, 27(3), 85-89.
Götz, I., Götz, M. (2000) Cystic fibrosis: psychological issues. journal of Paediatric Respiration ,1, 121-7.
Hastings, R., P. (2003) Child behavior problems and partner mental health as correlates of stress in mothers and fathers of children with severe autism. Journal of Intellectual Disability Research, 47 (4-5), 231-237.

Hastings, R.P.(2003) Child Behavior Problems and Parental Mental Health as Correlates of Stress in Mothers and Fathers of Children with Autism. Journal of Intellectual Disability Research, 47, 231.

Hedov, G, Anneren, G & Wikblad, K. (2000) Self perceived health in Swedish parents of children with Down's syndrome. Quality of life research, 9 (4), 415-22

Heller, T., Hsieh, K., & Rowitz, L. (1997) Maternal and Paternal caregiving of persons with mental retardation across the life span. Family relations, 46 (4), 407-115.

Hodapp, R., Dykens, E.,& Masino, L. (1997) Families of children with Prider-Willi syndrome: stress-support and relations to child characteristics. Journal of Autism Developmental Disorder, 27, 11-24.

Hodes, M., Garralda, M., Rose, G., & Schwartz, R. (1999) Maternal expressed emotion and adjustment in children with epilepsy. Journal of ChildrenPsychologically Psychiatric, 40,1083-93.

Holroyd, J., Brown, N., Wikler, L., & Simmons, J. (1975) Stress in families of institutionalized and non-institutionalized autistic children. Journal of Community Psychology. 3, 26-31.

Holroyd. J., McArthur, D. (1976) Mental retardation and stress on the parents: a contrast between Down's syndrome and childhood autism. American Journal of Mental Deficiency, 80,431-6.

IBM Corp. Released (2011) IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp

Johnson, J., Horwarth, E., & Weissman, M. (1991) The validity of major depression with psychotic features based on a community study. Archives of general psychiatry journal,48,1075–1081.

Kaplan, H., Sadock, B.J. & Grebb, J. (1994) Synopsis of psychiatry (7th ed.). Baltimore: Williams & Wilkins.

Kaplan, H.I., & Sadock, B.J. (1998) Synopsis of Psychiatry, Behavioral Sciences /Clinical Psychiatry. (8th ed). Baltimore: Williams & Wilkins,111-118.

Kaplan, H.I. & Sadock, B.J. (2003) Delirium, Dementia, and Amnestic and Other Cognitive Disorders and Mental Disorders Due to General Medical Condition. In: Synopsis of Psychiatry. 9th ed. Baltimore (MD): Lippincott, Williams & Wilkins, 356-360.

Karimi, Z., Akbar,A. et al. (2003) Depression in Various Groups, Gilan Medical Science University Journal, 11, 39-40.

Kazak, A.E., Marvin, R.S. (1984) Differences, difficulties and adaptation: stressand social networks in families with handicapped child. Family Relation journal, 33, 67-77.

Kazak, A.E. (1987) Families with disabled children: stress and social networks in three samples. Journal of Abnormal Child Psychology, 15, 137-46.

Kelly, B., Monteith, M. (2003) Supporting disabled children and their families in Northern Ireland: A research and policy review. London (UK): National Children's Bureau & Joseph Rowntree Foundation.

Khamseh., (2002) The Study of the Socio-psychological Factors in the Occurrence of Depression in Women, Kosar Medical Journal, 7(4).

Kogel. R.L. & et al. (1992) Consistent stress Profile in mothers of children with autism. Journal of autism and developmental disorders, 22, 205-216.

Kovacs, M. (1992) Children's Depression Inventory.North Tonawanda, NY: Multi-Health Systems, 21, 995-998. 21,995-998.

Kuhsali, M., Mirzamani, S., Mohammadkhani, P., &Karimlou, M. (2007) Comparison of social adaptation between mothers of educatable mental retarded children with mothers of normal children in Kashan. Journal of Rehabilitation Psychological Disorder, 40-6.

Lambrenos, K., Weindling, A.M.,Calam R., & Cox, A.D. (1996) The effect of a child's disability on mother's mental health. Archive Disorder Child journal,74 (2), 115-20.

Law, M., Hanna, S., King, G., Hurley, P., King, S.,& Kertoy, M.(2003) Factors affecting family-centered service delivery for children with disabilities. Child Care Health Development,1, 1-10.

Lemlin, J., Hotz, H., & Swenson, R., (1997) Depression in primary care- Why we do miss the diagnosis. Psychiatric in Practice, 4 (1),38-39.

Little, L, (2003) (Submitted for Publication), maternal stress, maternal discipline, and Peer victimization of children with Asperger- Spectrum disorders, building ecological framework. (Adopted by the APA council of Representatives) .

Maj, M., & Sartorious, N. (2002) Depressive disorders, Second Edition. Southern, Gate, Chichester: John Wiley & Sons Ltd. ISBN: 0-470-84965-7

Majid, M. (1999) Rehabilitation Concepts, Tehran, Welfare and Rehabilitation Science University journal, 74-79.

Manuel, J., Naughton, M.J., Balkrishnan, R., Paterson-Smith, B.,& Koman L.A. (2003) Stress and adaptation in mothers of children with cerebral palsy. Journal of Pediatr ic Psychology, 28(3) 197-201.

Matihide, A.,fadr, L. (2006. The Adaptation of Mothers of Children with Intellectual Disability in Lebanon. Journal of Transcultural Nursing,17(4), 375-380.

Mbugua,N., David, M., Ndetei, D.M. (2011)The Prevalence of Depression among Family Caregivers of Children with Intellectual Disability in a Rural Setting in Kenya. Hindawi Publishing Corporation International Journal of Family Medicine, 5.

McDougall, J., & Miller, L. (2003) Measuring chronic health condition and disability as distinct concepts in national surveys of school-aged children in Canada: A comprehensive review with recommendations based on the ICD-10 and ICF. Disability and Rehabilitation journal, 25(16), 922–939.

McKeon, p.j. (2000) depression keeping hope alive A guide for families & friends. Dublin: Phillip House,123-137.

Miller, M.D., Cornes, C., Frank, E., Ehrenpreis, L., Silberman, R, & Schlernitzauer, M.A et al. (2001) Interpersonal psychotherapy for late-life depression. Journal of Psycho-therapy Practice Research, 10, 231–8.

Mirkhani, Majid, (1999), Rehabilitation Concepts, Tehran, Welfare and Rehabilitation Science University, 74-79.

Modabernia et al. (2003) Demographic Study of Depression, Gilan Medical Science University Journal, 11.

Moes, D., Koegel, R., Shreibman, L., Loos,M. (1992) Stress profiles formothers & fathers of children with autism. Psychological Reports journal, 71 (3 pt 2), 1272-1274.

Molsa, P.K., Ikonen-Molsa, S.A. (1985) The mentally handicapped child and family crisis. Journal of Mental Deficiency Research, 29, 309-14.

Morrison, J. (2002) Straight Talk about Your Mental Health. New York, Guilford Press A division of Guilford Publication.

Mo'tamedi, et al. (1997) Establishment of the Prevalence Levels of psychiatric disorders in two villages of Kerman Province, Kerman Medical Science University Journal, 5(1), 33.

Motamedi, S et al. (2007) A study in depression levels among mothers of disabled children, Iranian Rehabilitation Journal, 5, 5-6.

Mu, P.F., Kuo, H.C., Chang, K.P. (2005) Boundary ambiguity, coping patterns and depression in mothers caring for children with epilepsy in Taiwan. International Journal of Nursing Studies, 42, 273-82.

National Institute of Health. (2008) depression, U.S, department of health and human services, NIH publication ,08 (3561), 1-23.

Newacheck, P. W., Inkelas, M., & Kim, S. E. (2004) Health services use and health care expenditures for children with disabilities. Pediatrics journal, 114(1), 79–85.

Norouzinezhad, G.H. (2004)The evaluation of Depression incidence and severity in parents of children with cancer. Khordad Medical Journal,55, 40-60.

Ohta, M., Nagai, Y., Hara, H., Sasaki, M. (1987) Parental perception of behavioral symptoms in Japanese autistic children. Journal of Autism and Developmental Disorders, 17, 549-63.

Olsson. M. B., Hwang, C.P. (2001) Depression in Mothers and Fathers of Children with Intellectual Disability. Journal of Intellectual Disability Research, 45(6), 535-543.

Ong, L.C., Afifah, I., Sofiah, A., Lye, M.S. (1998) Parenting stress among mothers of Malaysian children with cerebral palsy: predictors of child-and parent-related stress. Annals of TropicalPediatrics journal,18, 301-7.

Pelchat, D., Lefebvere, H., Perreault, M. (2003) Differences and similarities between mothers' and fathers' experiences of parenting a child with a disability. Journal of Child Health Care, 7, 231-247.

Peshawaria, R., Menon, D. K., Ganguly, R., Roy, S., Rajan-Pillay, P .R. (1998) A study of Facilitators and Inhibitors that effect coping in parents of children with mental retardation in India. Asia Pacific Disability Rehabilitation Journal, 9.

Piven, J., Chase, G., Landa, R., Wrozek, M., Gayle, J., Cloud, D., Folstein, S. (1991) Psychiatric disorders in the parents of autistic individuals. Journal ofAmarican Academy Child andAdolescent Psychiatry, 30, 471-8.

Quine, L., Pahl, J. (1987) First diagnosis of severe handicap: a study of parental reactions. Developmental and Medical Child Neurological journal, 29, 232-42.

Raad, A., Javad et al . (2003) Children with Disorders and Parental Depression.journal of Thought and Behavior Quarterly, 9, (34).

Ramazani. (2001) Demographic Study of Depression, journal of Thought and Behaviour Quarterly, 6, (24).

Rampund, V., & Moore, C. (2000) Women's stories of depression: A constructivist approach .South African Journal of Psychology, 30(2), 20-30.

Redmond, B., & Richardson, V. (2003) Just getting on with it: Exploring the service needs of mothers who care for young children with severe/profound and life-threatening intellectual disability.Journal of Applied Research in Intellectual Disabilities, 16, 205-218.

Richard, P., Hastings., Beek, A.,& Hill, C. (2005) Positive Contributions Made by Children with an Intellectual Disability in the Family. Journal of Intellectual Ability, 9 (2), 155-156.

Robin, V., & John, R. (2002) Community clinic treatment of depressed youth: Benchmarking usual care against CBT clinical trials, Journal of consulting and clinical psychology, 70(2), .299-310.

Romaans-Clarkson, S.E., Clarkson, J.E., Dittmer, I.D., Flett, R., Linsell, C., & Mullen, P.E., et al. (1986) Impact of a handicapped child on mental health of parents. British Medical Journal, 293, 1395-1397.

Rudolph, M., Rosanowski, F., Eysholdt, U., & Kummer, P. (2003) Anxiety and depression in mothers of speech impaired children. International Journal of Pediatric Otorhinolaryngology, 67, 1337-41.

Ryde- Brandt, B. (1990) .Anxiety and depression in mothers of children with psychotic disorders and mental retardation. British Journal of Psychiatry, 156, 118-21.

Salehi et al. (2004) Review of Depression in Family stress and adjustment as perceived by parents of children with autism or Down syndrome: Implications for intervention. Child & Family Behavior Therapy, 2, 5-6.

Sanders, J.L.,& Morgan, S.B. (1997) Family stress and adjustment as perceived by parents of children with autism and Down's syndrome: implications for intervention. Child and Family Behaviour Therapy, 19, 15-32.

Schotte, C.K., Maes, M., Cluydts, R. & Cosyns,P. (1997) Cluster analytic validation Of the DSM melancholic depression. The threshold model: integration of quantitative and qualitative distinctions between unipolar depressive subtypes. Psychiatry Research journal, 71(3), 181–195.

Schwartz, C., Tsumi, A. (2003) Parental involvement in the residential care of persons with intellectual disability: The impact of parents' and residents' characteristics and the process of relocation. Journal of Applied Intellectual Disabilities, 16, 285-293.

Seligman, M. (1985) Handicapped children and their families. Journal o f Counseling and Developments, 64 , 274-7.

Sereshki, A. (1999) Exceptional Children, Counseling and Family, Tehran, Medical and Rehabilitation Science University.

Seshadri, M.K., Verma, S.K., & Prashad. (2000) Impact of mental retardation of child on the family in India. Journal of Clinical Psychology,473-498.

Sepehrmanesh, Z., et al. (2003) Demographic study of depression, Kashan Medical Science University Journal, 7(27).

Shariati, N., Davarmanesh, A.. (2005) The effects of mental retardation of child on family. Welfare Organization of Iran.

Sereshki, A. (1999) Exceptional Children, Counseling and Family, Tehran, Medical and Rehabilitation Science University.

Smith, T.B., Innocenti, M.S., Boyce, G.C., Smith, C.S. (1993) Depressive symptomatology and interaction behaviors of mothers having a child with disabilities. Psychology Reports journal,73, 1184-6.

Solomon, D.A., Keller, M.B., Leon, A.C. Mueller, T.I., Lavori, P.W., Shea, Coryell, W., Warshaw, M., Turvey, C., Maser, J.D., & Endicott, J. (2000) Multiple recurrences of major depressive disorder. American Journal of Psychiatry, 157(2), 229-233.

Sullivan, P.M. and Knutson, J. F. (2000) Maltreatment and disabilities: A Population- based epidemiological study. Child abuse and neglect, 24, 1257-1274.

Taanila, A. J., rvelin, M.R., Kokkonen, J. (1998) Parental guidance by doctors and nursing staff. parents view of initial information and advice for families with disabled children,7, 505-511.

Taanila, A., Kokkonen, J., Jrvelin, M. (2002) Coping of parents with physically and/or intellectually disabled children .childcare healthy Developments journal,28,.73-86.

Tan., Susan., Rey& Joseph. (2005) Depression in the young, Parental depression and parenting stress, Australasian Psychiatry, 13(1), 76-79.

Tomkiewicz, S., (1987) The Life of parents with handicapped children. Pediatric journal, 42,.375-82.

Veisson, M. (1999) Depression symptoms and emotional states in parents of disabled and non-disabled children. Journal of Social Behavior and Personality, 27, 87-98.

Videbeck, S. (2003) Psychiatric , second edition , Lippincott Williams,1-542, Colorado.

Weiss, J.A., Sullivan, A., Diamond, T. (2003) Parent stress adaptive functioning of individuals with developmental disabilities. Journal on Developmental Disabilities, 10, 129-135.

World health organization, the introduction of a mental health component into primary health care, Geneva, WHO, (1990).

World Health Organization. (2001) Mental health around the world, world health day 2001. Geneva: WHO.

*Dr. Aidah Alkaissi. Dean of the College of Nursing at An-Najah National University, Nablus, Palestine, coordinator of the master's program of nurse anesthesia and the master's program of critical care nursing, former coordinator of the master's program of community mental health nursing, Faculty of Higher Studies-An-Najah National University. International health expert in the United Nations Development Programme (UNDP). Graduate of BSN, MSN, PhD Nursing in anesthesiology from Linköping University - Sweden. Has specialty in nurse anesthesia and intensive care nursing. Higher education specialty from Hadassah University and Linköping University. Has Bachelor of Law, Arabic University of Beirut, Lebanon. Vice-Chairman of the Institutional Review Board of An-Najah National University.