Marital Satisfaction and Depression in Mothers of 3-4 Year Old Children with Developmental Delay in Comparison with Mothers of Normal Children

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Abstract

Objectives

The present study evaluated the depression and marital satisfaction in mothers of 36-48 months old children with developmental delay in comparison with mothers of normal children.

Materials & Methods

This cross-sectional study was performed on 616 mothers and their children, aged 36 - 48 months, from Apr 2015 to Feb 2016, in some kindergartens in Tehran, Iran. Participants were selected through multi-stage random sampling. The children were divided according to the developmental status into two groups of normal development and developmental delay. The following instruments were used: A demographic and children specification questionnaire, marital satisfaction scale, the Beck Depression Inventory, and the Ages and Stages Questionnaire. The data were analyzed using SPSS16 software. Independent t-test and Pearson correlation were employed at significance level of 0.05.

Results

The mean age of children with developmental delay and normal development was 41.94±4.48 and 42.17±5.02 months, respectively. The prevalence of developmental delay in children aged 36-48 months was 17.4% and in normal development children was 82.6%. Developmental delay in boys was 23%. The highest incidence of developmental delays was in fine motor skills. Independent t-test revealed a significant difference between mothers’ depression and marital satisfaction with and without developmental delays in their children (P=0.0001). In addition, the correlation was observed between the mother’s depression and marital satisfaction (P=0.0001).
Conclusion
Mothers of children with developmental delay suffer more from depression and have less marital satisfaction compared to mothers of healthy children. Interventional studies to reduce depression and increase marital satisfaction and its impact on development status should be conducted.

Keywords: Depression; Developmental delay; Marital status; Satisfaction

Introduction
Developmental disorders are one of the most common problems in children (1). From birth through age of 5 yr is the critical time in developing cognitive, social, emotional, lingual, physical and behavioral skills and it forms the basis of new skills as well as experiences in adulthood (2).

Examining the evolution of the development is done in five domains: communication, gross motor, fine motor, problem-solving, and personal-social skills (3).

A child might suffer from developmental delay in one or several domains, which may decrease their total developmental score (4). Once children fail to gain their developmental capabilities, they are diagnosed with developmental disorder (5).

The risk of developmental delay depends on the relationship between biological and psychological factors (6), thus it is difficult to diagnose its etiology (7). This issue has huge impacts on their health and society at wider scale (8).

The prevalence of developmental disorders in North America and Australia is estimated between 12% and 17% and in Iran from 7%-22% (9-17), with 18% incidence among children aged 4-60 months in Tehran and in other places as 14.6% (18,19). About 8% of preschool-aged children, indicating the importance of time in diagnosis and treatment of developmental disorders (20).

A wide range of demographic causes and factors, pregnancy-related issues, or psychological, social, hereditary and environmental factors lead to developmental delay (21). It is important to recognize the risk factors (22-24).

The impact of developmental disabilities not only affects the children and their family, but it also influences society (4). Outbreak of a disease in a family member affects the whole family system and causes depression and isolation (25,26). Unfavorable life events can affect psychological well-being of an individual and lead to psychological problems such as depression and anxiety (27).

Birth and presence of a child with mental retardation can be considered an unfavorable challenging situation for any family which consequently results in stress, frustration, sorrow, and depression (28). Parents of disabled children experience parenting stress, reduced mental health, failure in job, reduced leisure time, and higher possibility of divorce compared to parents with normal children (29-32).

The presence of a disabled child can also cause irreparable damage to mental health of the family.
Parents might severely suffer from having an affected child and might experience depression, anxiety, aggression, fear and shame, or they might even wish to die (33). Parents of such children have less mental health, higher levels of anxiety, depression, and physical problems, and social performance disorder in comparison with parents of normal children (34,35).

In view of the important role of mothers in caring, communicating with, and educating the child (36-38) and the traditional role of mothers as “caregiver”, she carries more responsibility with regard to taking care of the retarded child. Consequently, she would be exposed to more mental problems and higher risk of mental-health related problems (30, 39).

The level of general health and psychological wellbeing of mothers of children with mental retardation is also reported lower and the anxiety higher compared to mothers with normal children (40,41). The prevalence of depression is higher among mothers of mentally retarded children (40,42). About 30%-35% of mothers with disabled children had clinical symptoms of depression and gained high scores in depression tests (43). Mothers not only have to cope with problems associated with taking care of the disabled child, but other factors cause depression which is debilitating itself, such as high costs, reduced social relationships with relatives, feeling of shame for giving birth to a disabled child, and negative attitude of others (44).

Children’s mental retardation, disability and growth delay require special facilities for caring. All these issues pressure parents and might disturb the peace of the family. Moreover, the relationship between a disabled child and their parents might be tarnished because of child’s being separated from peers and parents’ long-term care (45).

Furthermore, birth of a mentally retarded child disturbs psychological performances of a family. It affects mental health and targetedness of the family at macro level, and performances such as expression, conflict resolution, independence, progress, recreation, problem solving and control at micro level (46). Depression in parents with disabled children, especially mothers’, is correlated with different variables such as the type of mental retardation (47), financial resources and moderate or high socioeconomic status (48), and social support. These variables can moderate the impact of retardation (49).

Marriage is described as the most important and fundamental human relationship as it forms the primary structure of family relationships and development of future generation (50). Marital satisfaction is a complex multidimensional phenomenon (51) widely studied by various scientific disciplines (52-59).

An individual feels satisfied with life once their current family relationship status meets the expectations, and on the contrary, feels dissatisfied with life when their current situation in family relationships does not meet their needs (60). Several factors affect marital satisfaction including children’s health status (61, 62).

The consequences of giving birth can reduce marital relationship. Furthermore, a child can cause irritation, impatience, incompatibility, and discontent in parents (33).

Birth and presence of a retarded child can disturb parents’ marital relationship by affecting the quality of marital relationships and changing the normal condition and interaction of family members (63). Different studies have considered presence of a child with developmental delay effective on parents’ satisfaction with life. The research results
have shown significant differences between marital satisfaction of parents of retarded children and of parents of normal children (64-66). Different studies have reported the following symptoms in parents of retarded children: confusion and shock, feeling of guilt and unfulfilled wishes (64), poor psychological atmosphere, and impaired mental health of family members especially mother’s (67), higher tension (68) in parents, self-blame, having problem in adapting to and coping with child’s problems (69).

The rate of divorce is the most reliable indicator of marital disturbance (70) and it shows the difficulty in having marital satisfaction (71). In fact, divorce has a direct correlation with marital satisfaction although the rate of divorce is not a true indicator of marital satisfaction (72). Overall, 80% of divorce were reported in families with retarded children while the national statistics were indicative of less than 50% of divorce rate (73).

Parents with disabled children experience extensive relentless stress in taking care of their children. These stressors increase the odds of marriage failure and is a risk factor for physical and psychological health of parents and children (74). A systematic review (16 articles) was conducted to evaluate marital adjustment among parents of children with developmental delay. The results were indicative of 10 articles reporting significant differences between marital adjustment in parents with and without retarded child and six articles supporting poor marital adjustment (75).

The consequences of having a disabled child in the family such as the creation of a mentally unhealthy atmosphere (76), lower degrees of compatibility and acceptance and higher stress levels (77), psychological stress (69) and chronic depression (78) directly or indirectly decrease marital satisfaction (79).

Health of mothers, and women in general is considered the pillar of a healthy society. Mother’s health, a key underlying factor for health of the family and society, is also the fundamental concept in socioeconomic development and wellbeing. Therefore, improving mothers’ health consequently improves community health (80).

Considering the importance of mothers’ role in taking care, nurturing and building relationships with the child and the consequences of having developmental delay, we evaluated depression and marital satisfaction in mothers of children with and without developmental delay.

**Materials & Methods**

**Study Design and Population**

This cross-sectional descriptive study was conducted from Apr 21, 2015, to Feb 20, 2016, in some kindergartens across Tehran, Iran. PASS software was employed to measure sample volume of 593 considering CI of 95% and CI length of 0.066. Since the frequency of childhood developmental delay in Iranian population has been estimated at about 20% [through literature review \(P=0.20\)] (15). Overall, 616 people were enrolled in the study, taking into account about 20% of the sample loss.

**Inclusion and exclusion criteria**

The eligible subjects were:

- Children aged 36-48 months that living with their both parents
- Without congenital malformation, developmental disorder and history of hospitalization and children.
- Mothers who had not experienced any serious stressful and unpleasant events (such as loss) for
six months before the study.
• Mothers with history of children with developmental disorder” were excluded from the study. Incomplete questionnaires were completed due to excluded from the study.

Materials & Methods
The present cross-sectional study recruited 616 mothers and their 36-48 months old children. The children were divided according to the developmental status into two groups as normal development and developmental delay.

The first stage of sampling employed stratified sampling technique and then every stratum was randomly selected considering the number of kindergartens in every municipal district such that 8, 17, and 10 kindergartens were selected from north, center, and south part of the city. The samples were selected purposefully from each kindergarten considering the inclusion criteria.

Measuring tools
The data collection instruments included parents-child demographic inventory, socioeconomic questionnaire. The demographic and obstetric inventory included parents’ general information (age, educational attainment, job, gravidity and parity, and history of abortion), and Ages and Stages Questionnaire (ASQ) to determine the status of child development, Beck Depression Inventory for measuring the mothers’ depression levels, and Marital satisfaction scale (ENRICH).

The socioeconomic status was assessed by studying household monthly income; Price square feet residential ground, infrastructure, housing, number of families, parental education, number of cars, and personal computer.

The principal component analysis (PCA) was used to create SES variable. PCA is a multivariate statistical method widely used during recent years to build SES variable in studies related to health and SES. PFA (principal factor analysis) variable was an overall score and considering the qualitative nature of some variables in PCA, polychoric correlation matrix was used and an SES variable was created based on factor loadings. Then this score was categorized into five levels as follows: very low, low, moderate, high and very high (81).

The reliability of the demographic and obstetric questionnaire was evaluated through content validity using scientific resources and experts’ opinion.

Marital satisfaction was evaluated using The Evaluation and Nurturing Relationship Issues, Communication, and Happiness scale (ENRICH). The ENRICH marital satisfaction scale, as a general measurement of marital relationships, includes idealistic distortion, marital satisfaction, personality issues, communication, conflict resolution, financial management, leisure time activities, sexual relationship, children and parenting, family and friends, equalitarian roles men, religious roles, solidarity of the couple, and marital changes. This scale has 35 items with four subscales of marital satisfaction, communication, conflict resolution, and idealistic distortion.

The scale is scored as a five-point Likert scale. The items have the following five options with scores ranging from 1 to 5 respectively: “Strongly disagree”, “Disagree”, “Neither agree nor disagree”, “Agree”, “Strongly agree”.

For the following questions in ENRICH couple Scales: 3, 5, 6, 7, 10, 13, 14, 18, 19, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, The scoring was reversing (1 for “Strongly Agree” and 5 for “Strongly disagree”).
This scale has four distinct scores while a total score was given to sum of the items of each scale. The raw scores were converted into percentage.

Marital satisfaction: Questions 1-5-9-13-17-21-24-30-35
Relationships: Questions 2-6-10-14-18-22-25-28-31-34
Conflict resolution: Questions 3-7-11-15-19-23-26-29-32-33
Ideal distortion: Questions 4-8-12-16-20

The scores of each scale were calculated based on cut-off points, and the scale was interpreted based on tables of norms and interpretation guidelines (82). The scale alpha coefficients reported for subscales of marital satisfaction, communication, conflict resolution and idealistic distortion as 0.86, 0.80, 0.84, and 0.83, respectively. The reliability for each subscale was 0.86, 0.81, 0.90, and 0.92 in retest. Alpha coefficients of 0.86, 0.78, 0.62, and 0.77 achieved for 365 couples (82). The scale for assessing marital satisfaction used and reported its accuracy 85-95% for discriminating satisfied and dissatisfied couples (83).

For screening of depression, The Beck Depression Inventory-II (BDI-II) was used, also 21 items scoring from 0 to 63 most commonly utilized for measurement of depression.

**Beck Depression Inventory-II (BDI-II)**
In order to determine depression levels the scores 0-9, 10-18, 19-30, 31-40, and 41-63 respectively indicated normal, mild, moderate, severe, and extremely severe depression. Different studies have been proved reliability of the test (84-86). In Iranian population, the internal consistency was confirmed with Cronbach’s alpha of 0.87 and reliability coefficient was found at 0.74 (87). The reliability of the questionnaire was measured as 0.85, using Cronbach’s alpha.

**ASQ Questionnaire**
ASQ is currently the most widely used to determine the developmental status. Sensitivity of the ASQ test is 75% in high risk group and 100% in the community group, with specificity of 95% and 90%, respectively (88).

Validity of this test varies from 76% to 88% and includes 19 different questionnaires that can screen developmental status of children from 4 to 60 months in five different domains: communication, gross motor, fine motor, problem solving and personal-social skills. Each domain is evaluated by six questions on what the child can or cannot do. They are selected to be representatives of a developmental quotient of 75%-100%. The answer of parents to each question is “yes” to indicate that the child does the special behavior of this item, “sometimes” to indicate an occasional or emerging response and “not yet” to indicate that their child does not yet do the behavior, with a respective score of 10, 5 or 0 points. Then scores of each item summed and final score in each domain is compared to cut-off points of the ASQ guidelines. The score on any domain below the cut-off point or higher than two standard deviations below the mean of the reference group is considered abnormal and referral for further evaluation.(89-93) ASQ is a reliable tool with Cronbach’s alpha of 0.86 and reliability of 0.93 for Iranian children. (94).

The reliability of this scale in present study was obtained as 0.83, using the test-retest method.

**Ethical Considerations**
Written consent forms were obtained from mothers and they were asked to fill out the following questionnaires at home in four days. This study was
approved by the Ethics Committee of, University of Social Welfare & Rehabilitation Sciences (No. IR.USWR.REC.1397.100).

**Data Analyses**

After obtaining the required permission for conducting the research, objectives were explained to authorities and instructors. The consent and cooperation of kindergarten instructors were also obtained. Demographic questionnaire of mother and child, Beck’s Depression Inventory, Enrich Marital Satisfaction Scale, and Ages and Stages Questionnaire (ASQ) according to age of the child. The scores of ASQ were calculated with regard to cut-off points set for the age of the child. The results were reported to mothers and they were referred to special centers if the scores were lower than cut-off points. Mothers with high depression scores, according to BDI, were referred to as consultancy services.

The data were analyzed using SPSS version 16 (Chicago, IL, USA) by t-test, Chi-square and Pearson’s correlation at significance level of 0.05.

**Results**

The mean age of mothers of children with developmental delay was 30.385.42± yr while it was 31.635.50± yr in mothers with normal children. The mean age of fathers of children with developmental delay and normal children was 34.375.14± and 36.125.97± yr, respectively. Most mothers with developmental delay children had 12.254.22± yr of education while it was 11.884.71± yr for mothers of normal children. No significant difference was observed between the group of children with delayed development and normal development of their parents mean age and education (by in depended t-test).

The majority of mothers in both groups were housewives (63.3%) and fathers were employees (44.3%).

Of the 616 children 36-48 months, 51.9% being female and 48.1% being male. Overall, 107 children (17.4%) were in developmental delay group and 82.6% were in normal developmental group. The median number of pregnancy was two and the number of childbirth was one in both groups so there was no significant difference between the two in these regards.

The prevalence of developmental delay was 17.4% with 12.2% and 23% in females and males, respectively. The highest prevalence of developmental delay was in fine motor (6.5%) and the lowest in personal social domains (4.2%) (Table 1) presents the rate of developmental delay in each aspect of development.

The mean rate and SD of depression in mothers of children with developmental delay were 14.3210.36± and it was 10.128.29± in mothers of normal children (P=0.0001). The marital satisfaction was significantly different between mothers of children with and without developmental delay with 141.4116.25± and 147.7212.58±, respectively (P=0.0001).

The results of the present study were indicative of significant differences between child gender and his/her development (P=0.0001), by Chi-square test and socioeconomic status (P=0.044) by Mann-Whitney test. The independent t-test showed significant differences between mother’s depression and marital satisfaction in mothers of children with and without developmental delay (Table 2). The correlation between depression and marital satisfaction was also significant (P=0.0001).
Table 1. Frequency of developmental delay (5 domains) in children aged 36-48 months (measuring tools =ASQ)

| Domains of development       | Groups | Delay development Frequency(%) | Normal development Frequency(%) |
|-----------------------------|--------|--------------------------------|--------------------------------|
|                             |        |                                |                                |
| Communication               |        | 37 (6.0)                       | 579 (94.0)                     |
| Gross motor                 |        | 30 (4.9)                       | 586 (95.1)                     |
| Fine motor                  |        | 40 (6.5)                       | 576 (93.5)                     |
| Problem-solving             |        | 35 (5.7)                       | 581 (94.3)                     |
| Personal-social             |        | 26 (4.2)                       | 590 (95.8)                     |
| TOTAL                       |        | 107 (17.4)                     | 509 (82.6)                     |

Table 2. Relation of mother’s depression and Marital Satisfaction developmental delay with five domains of development (measuring tools =ASQ)

| Domains                  | Communication | Fine Motor | Gross Motor | Problem-Solving | Personal social |
|--------------------------|---------------|------------|-------------|-----------------|-----------------|
|                          | Delay (+)     | Delay (-)  | Delay (+)   | Delay (-)       | Delay (+)       | Delay (-)       | Delay (+)       | Delay (-)       | Delay (+)       | Delay (-)       |
| Depression               | 16.05 (10.44) | 10.52 (8.67) | 13.30 (9.2) | 10.68 (8.85)    | 13.70 (8.42)    | 10.70 (8.83)    | 15.60 (11.8)    | 10.57 (8.59)    | 16.66 (14.2)    | 10.61 (8.50)    |
| Result of In depended T test | P=0.003       | P=0.072    | P=0.072     | P=0.019         | P=0.056         |
| Marital Satisfaction     | 140.35 (16.40) | 146.08 (12.42) | 142.80 (16.68) | 147.94 (12.23) | 141.23 (16.49) | 147.00 (13.46) | 141.94 (15.85) | 148.98 (12.49) | 140.73 (15.84) | 148.63 (12/30) |
| Result of In depended T test | P=0.001       | P=0.326    | P=0.023     | P=0.053         | P=0.022         |

Discussion
The rate of developmental delay in study children was 17.4% and fine motor and personal-social domains gained the highest and lowest rates, respectively. Overall, 18% of developmental delay was in children living in Tehran (18) while the prevalence was reported 16.2% in another study (95). The results of another study (96) are aligned with the present study with regard to domains of developmental delay (97). However, language delay was reported as the most common developmental delay (14). The reason for such differences could be the number and age of research samples (91).
The results of the present study showed that depression in mothers of a child with developmental delay was higher than in mothers with normal children, in accordance with some studies (28, 39, 40, 44). About 56% of women had moderate and severe depression, which was indicative of high
prevalence of depression among mothers with the same condition. Considering the traditional role of mothers and problems associated with taking care of disabled children, parents and especially mothers are prone to higher risk of mental health problems (30, 39).

Sometimes the vulnerability of family to a child’s disability extremely exacerbates the mental health of the whole family. Children with depressed mothers face more cognitive, verbal and social problems compared to other children. Continuous threatening events can cause depression, and having a retarded child as such an event can decrease self-esteem and sense of self-efficiency, result in hopelessness and helplessness, and lead to different levels of depression (41).

Furthermore, people with depression are diagnosed with lethargy and loss of interest, sense of guilt, difficulty in concentration, lack of appetite, etc. (98). Neurotransmitters such as serotonin and norepinephrine are effective in development and recurrence of depression (99). These neurotransmitters are biogenic amines, which play the most important role in pathophysiology of mood disorders. Serotonin is nowadays considered the most related biogenic amine-based neurotransmitter because of the evident impact of serotonin reuptake inhibitors in treating depression (100). Moreover, a decrease in serotonin could facilitate depression and reduce norepinephrine in postsynaptic receptors. Dopamine is also involved in pathophysiology of depression since its activity decreases as a consequence (101).

Depression is a psychological problem that causes mood disorder and decreases libido. A correlation between outbreaks of depression symptoms and poor marital relationship is reported (102).

The results of the present study showed that marital satisfaction in mothers of children with developmental delay was lower than that in mothers of normal children, aligned with other studies (64, 103, 104). Parents of mentally retarded children reported poor marital satisfaction (105). The odds of divorce in parents of disabled children were higher than the national statistics (73).

On the contrary, a disabled child did not consider as a reason for marital distress (106) and another research confirmed the same (107). The reason for explaining such a difference might be the participation and cooperation of fathers in the studies.

Considering the higher responsibility of mothers in taking caring for the disabled child, the longitudinal study showed that the marital satisfaction of these mothers could increase if fathers also cooperated in caregiving (108).

These results are confirmed by the study in which showed that sharing the responsibilities of taking care of a disabled child would be a major predictive factor in marital satisfaction. Therefore, the more the parents cooperate in taking care of their child, the more their marital satisfaction (107).

On the other hand, 44% of parents of retarded children believed that the presence of a disabled child had strengthened their marriage and about 40% claimed that a retarded child had no effect on their marriage. It was only 21% of parents who blamed the disabled child as the cause of poor marital satisfaction (109). In Moscow, the rate of divorce in families with a disabled child was not higher than the total divorce rate (110).

Decline in marital satisfaction is created because of the distance between status of marriage relationships and the expected favorable situation. Therefore, giving birth to a retarded child would facilitate that and lead to marital dissatisfaction of
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parents. On one hand, the child requires constant care and help to carry out their activities, and on the other hand, high workload of parents and modern lifestyle that created more nuclear families, might be other reasons that explain low marital satisfaction in parents of retarded children compared to parents of normal children (111).

Marital adjustment in families could be affected by presence of a disabled child. Developing efficient communication with the spouse, absence of anger, independence of husband and wife while cooperating with each other, valuing spouse’s desires and interests, empathizing with the spouse, having similar goals and ideals, accepting difficulties and preparedness for facing life problems, staying together through happy and rough days, emphasizing on positive aspects of spouse’s personality, expressing friendship and caring for each other are important factors that guarantee continuity of marriage and marital satisfaction (33).

Importantly, problem-solving is a skill needed by everyone since an individual would always face problems such as having a retarded child (112). The scores inefficient problem solving were significantly higher in mothers of normal children than mothers of retarded ones (63).

In this study, only the opinions of mothers have been considered. The study was conducted at Tehran’s children’s daycare centers; therefore, the study can be generalized to children in daycare centers in Tehran.

In conclusion, mothers of children with developmental delay suffer more depression and have less marital satisfaction in comparison with mothers of normal children. Therefore, interventional studies to reduce depression and increase marital satisfaction and its impact on development status should be designed. Additionally, educating parents on communication skills can improve mother’s depression and marital satisfaction.

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Author’s Contribution
Author’s Contribution Ahmadi Doulabi M: Study concept and design, Development of original idea, data collection, Statistical analysis and writing the manuscript.
Sajedi F: Study concept and design, Development of original idea, revision of the content, edition of manuscript and finalization.
Vameghi R: Study concept and design, Development of original idea, Study supervision Mazaheri MA: Study concept and design, Development of original idea, Study supervision Akbarzadeh Baghban AR: Study concept and design, Development of original idea, Statistical analysis and interpretation of the results.
Afraz F: data collection.
All authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of interest
The authors declare that there is no conflict of interests.
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References

1. Vohr BR, O’Shea M, Wright LL. Longitudinal multicenter follow-up of high-risk infants: why, who, when, and what to assess. Semin Perinatol 2003;27(4):333-42.

2. Guralnick MJ. Early Intervention for Children with Intellectual Disabilities: Current Knowledge and Future Prospects. J Appl Res Intellect Disabilities 2005;18(4):313-24.

3. Kliegman RM, Stanton BM, Geme JS, Schor NF. Nelson Textbook of Pediatrics E-Book. 20th ed. Elsevier Health Sciences; 2016 .P.90.

4. Poon JK, LaRosa AC, Pai GS. Developmental delay timely identification and assessment. Indian Pediatr 2010;47(5):415-22.

5. Edmonds L. Current Diagnosis and Treatment: Pediatrics. J Paediatr Child Health 2010; 46(5):283.

6. Persha AJ, Rao VR. Early intervention-A service model: early intervention to IUGR children at risk for developmental delays. Secunderabad: National Institute for the Mentally Handicapped. 2003:27-8.

7. Mathew A. Prenatal psychological stress: a significant factor in mental retardation. Disabil Impair 2002;16:42-6.

8. Nahar B, Hossain MI, Hamadani JD, Ahmed T, Huda SN, Grantham-McGregor SM, Persson LA. Effects of a community-based approach of food and psychosocial stimulation on growth and development of severely malnourished children in Bangladesh: a randomized trial. Eur J Clin Nutr 2012; 66(6):701-9.

9. E MCoE. Training and Youth Affairs: National Report on Schooling in Australia. 2000.

10. Rydz D, Shevell MI, Majnemer A, Oskoui M. Topical review: developmental screening. J Child Neurol 2005;20(1):4-21.

11. Boyle CA, Decoufle P, Yeargin-Allsopp M. Prevalence and health impact of developmental disabilities in US children. Pediatrics 1994; 93(3):399-403.

12. Earls MF, Hay SS. Setting the stage for success: implementation of developmental and behavioral screening and surveillance in primary care practice- the North Carolina Assuring Better Child Health and Development (ABCD) Project. Pediatrics 2006;118(1):e183-8.

13. Afraz .S.Ahmadi doulabi .M, Sajedi. F. Akbarzadeh Baghban. A. Development status of 4-24 months children born to teenage mothers referred to health care centers in Yasuj, 2013. YUMSJ 2015;20 (3): 253-63. [In Persian].

14. Karami K, Abbasi L, Moridi F, Falah F, Bayat Z, Pourvakhshoori N. Evaluation criteria and factors associated with the development of one year old children in Khorramabad. J PEN 2015;1(3):57-64. [In Persian]

15. Shahshahani S, Vameghi R, Azari N, Sajedi F, Kazemnejad A. Shahshahani S, Vameghi R, Azari N, Sajedi F, Kazemnejad A. Comparing the Results of Developmental Screening of 4-60 Months Old Children in Tehran Using ASQ & PDQ. Iran Rehabil J 2011;9 :3-7.

16. Shaahmadi F, Khushemehri G, Arefi Z, Karimyan A, Heidari F. Developmental Delay and Its Effective Factors in Children Aged 4 to12 Months. Int J Pediatr 2015;3(1.1):396-402.
17. Dorre F, Fattahi Bayat G. Evaluation of children’s development (4-60mo) with history of NICU admission based on ASQ in Amir Kabir Hospital, Arak. JAUMS 2011;11(2):143-50. [In Persian]

18. Shahshahani S, Vameghi R, Azari N, Sajedi F. Developmental screening for children 60-4 months in Tehran using the Denver Developmental Screening Test 2 and Ages and Stages Questionnaires. Quarterly J Rehab 2011;12(3):65-71 [In Persian].

19. Sajedi F, Doulabi MA, Vameghi R, Baghban AA, Mazaheri MA, Mahmodi Z, Ghasemi E. Development of Children in Iran: A Systematic Review and Meta-Analysis. Glob J Health Sci 2015;8(8): 145-161.

20. Tervo RC. Identifying patterns of developmental delays can help diagnose neurodevelopmental disorders. Clin Pediatr 2006;45(6):509-17.

21. Letts C, Edwards S, Sinka I, Schaefer B, Gibbons W. Socio-economic status and language acquisition: children’s performance on the new Reynell Developmental Language Scales. Int J Lang Commun Disord 2013;48(2):131-43.

22. Persha A, Arya S, Nagar R, Behera P, Verma R, Kishore M. Biological and psychosocial predictors of developmental delay in persons with intellectual disability: retrospective case-file study. Asia Pacific Disabil Rehabil J 2007;18(1):93-100.

23. de Moura DR, Costa JC, Santos IS, Barros AJ, Matijasevich A, Halpern R, et al. Risk factors for suspected developmental delay at age 2 years in a Brazilian birth cohort. Paediatr Perinat Epidemiol 2010;24(3):211-21.

24. Alwan SH, Ibraheem MF, Al-Naddawi M. Causes of Global Developmental Delay in Children Welfare Teaching Hospital-Baghdad. Postgrad Med J 2013;12(3):383-9.

25. Arjmand Nia AA, Afroz G, Nami M S. The Comparison between Marital Satisfaction, Emotional Stress, Cognitive Social Support in Parents Having Mentally-Impaired Children and Parents Having Normal Children. Exceptional Education 2013; 3 (116): 5-15. [In Persian]

26. Herring S, Gray K, Taffe J, Tonge B, Sweeney D, Einfeld S. Behaviour and emotional problems in toddlers with pervasive developmental disorders and developmental delay: Associations with parental mental health and family functioning. J Intell Disabil Res 2006;50(12):874-82.

27. Segerstrom SC, Miller GE. Psychological stress and the human immune system: a meta-analytic study of 30 years of inquiry. Psychol Bulletin 2004;130(4): 601-630.

28. Khamis V. Psychological distress among parents of children with mental retardation in the United Arab Emirates. Soc Sci Med 2007;64(4):850-7.

29. Brobst JB, Clopton JR, Hendrick SS. Parenting children with autism spectrum disorders the couple’s relationship. Focus on Autism and Other Developmental Disabilities 2009;24(1):38-49.

30. McConkey R, Truesdale-Kennedy M, Chang M-Y, Jarrah S, Shukri R. The impact on mothers of bringing up a child with intellectual disabilities: A cross-cultural study. Int J Nurs Stud 2008;45(1):65-74.

31. Risdal D, Singer GH. Marital adjustment in parents of children with disabilities: A historical review and meta-analysis. RPSD 2004;29(2):95-
32. Rogers ML, Hogan DP. Family life with children with disabilities: The key role of rehabilitation. J Marriage Fam 2003;65(4):818-33.

33. Meikaeilei N, Ganji M, Talebi JM. A comparison of resiliency, marital satisfaction and mental health in parents of children with learning disabilities and normal children. J Learning Disabil 2012;2(1):120-137 [In Persian]

34. Mehrabi H. Compare mental health normal and exceptional parents in the Gonabad city, [dissertation]. Birjand Univ.; 2007. [In Persian]

35. Kirkham MA. Two-year follow-up of skills training with mothers of children with disabilities. Am J Ment Retard 1993. 97(5), 509-520

36. Liu CC, Chen YC, Yeh YP, Hsieh YS. Effects of maternal confidence and competence on maternal parenting stress in newborn care. J Adv Nurs 2012;68(4):908-18.

37. Page M, Wilhelm MS, Gamble WC, Card NA. A comparison of maternal sensitivity and verbal stimulation as unique predictors of infant social-emotional and cognitive development. Infant Behav Dev 2010;33(1):101-10.

38. Ali NS, Mahmud S, Khan A, Ali BS. Impact of postpartum anxiety and depression on child’s mental development from two peri-urban communities of Karachi, Pakistan: a quasi-experimental study. BMC Psychiatry 2013;13(1):274-285.

39. Olsson MB, Hwang C. Depression in mothers and fathers of children with intellectual disability. J Intellect Disabil Res 2001;45(6):535-43.

40. Dumas JE, Wolf LC, Fisman SN, Culligan A. Parenting stress, child behavior problems, and dysphoria in parents of children with autism, Down syndrome, behavior disorders, and normal development. Exceptionality: J Spec Educ 1991;2(2):97-110.

41. Eisenhower AS, Baker BL, Blacher J. Preschool children with intellectual disability: syndrome specificity, behaviour problems, and maternal well-being. J Intellect Disabil Res 2005;49(9):657-71.

42. Blacher J, Shapiro J, Lopez S, Diaz L. Depression in Latina mothers of children with mental retardation: A neglected concern. Am J Ment Retard 1997; 101(5), 483-496.

43. Veisson M. Parents of disabled children: Personality traits. Soc Behav Personal 2001;29(6):581-92.

44. Singer GH, Floyd F. Meta-analysis of comparative studies of depression in mothers of children with and without developmental disabilities. Am J Ment Retard 2006;111(3):155-69.

45. Lillywhite HS, Bradley DP. Communication Problems in Mental Retardation: Diagnosis and Management Published by Joanna Cotler Books, New York (1969).

46. Kimeyayi SA, Shafiabadi A, Sahebi A. Dellavar A. Comparison of efficacy Beck and Tyzdyl cognitive and combining it with yoga in the treatment of major depression. Educational Studies and Psychology 2007;7(2):87-114. [In Persian].

47. Abbeduto L, Seltzer MM, Shattuck P, Krauss MW, Orsmond G, Murphy MM, et
al. Psychological well-being and coping in mothers of youths with autism, down syndrome, or fragile X syndrome. Am J Ment Retard 2004;109(3):237-54.

48. Keller D, Honig AS. Maternal and paternal stress in families with school-aged children with disabilities. Am J Orthopsychiatry 2004;74(3):337-48.

49. Ben-Zur H, Duvdevany I, Lury L. Associations of social support and hardness with mental health among mothers of adult children with intellectual disability. J Intellect Disabil Res 2005;49(1):54-62.

50. Larson JH, Holman TB. Premarital predictors of marital quality and stability. Family Relations. 1994;43(2):228-37.

51. Mosmann C, Wagner A, Féres-Carneiro T. Qualidade conjugal: mapeando conceitos. Paidéia 2006;16(35):315-25.

52. Gottman JM. The roles of conflict engagement, escalation, and avoidance in marital interaction: a longitudinal view of five types of couples. J Consult Clin Psychol 1993;61(1):6-15.

53. Feeney JA, Noller P. Attachment style as a predictor of adult romantic relationships. J Pers Soc Psychol 1990;58(2):281-91.

54. Feeney JA, Noller P. Attachment style and romantic love: Relationship dissolution. Aust J Psychol 1992;44(2):69-74.

55. Karney BR, Bradbury TN. The longitudinal course of marital quality and stability: a review of theory, method, and research. Psychol Bull 1995;118(1):3-34.

56. Perlin, Giovana Dal Bianco. Contemporary marriages: a study on the impacts of family-work interaction on marital satisfaction [dissertation]. Brasilia Univ; 2006: 166-176.

57. Jablonski B. A divisão de tarefas domésticas entre homens e mulheres no cotidiano do casamento. Psicologia Ciência e Profissão 2010;30(2):262-75.

58. Mosmann C, Falcé D. Marital conflicts: causes and frequency. Revista da SPAGESP 2011;12(2).5-16.

59. Acevedo BP, Aron A, Fisher HE, Brown LL. Neural correlates of marital satisfaction and well-being: reward, empathy, and affect. Clin Neuropsychiatr 2012;9(1):20-31.

60. Winch RF, Goodman LW. Selected studies in marriage and the family. 3rd ed. Holt, Rinehart and Winston; 1968.P.630.

61. Gahrameani F, Doulabi MA, Eslami M, Shekarriz-Foumani R. Correlation between number and gender composition of children and marital satisfaction in women presenting to health centers in Tehran-Iran, 2015. Iran J Psychiatry Behav Sci 2017;11(2):71-75.

62. Finkenauer C, Hazam H. Disclosure and secrecy in marriage: Do both contribute to marital satisfaction? J Soc Pers Relatsh 2000;17(2):245-63.

63. Kargar M, Asgari Ebrahimabad M J. Comparing problem solving style and marital adjustment in exceptional and normal children mothers. J Except Educ 2015;15(130):37-44. [In Persian]

64. Alriksson-Schmidt AI, Wallander J, Biasini F. Quality of life and resilience in adolescents with a mobility disability. J Pediatr Psychol
2007;32(3):370-9.

65. Motamedin M SF, Eskandar Fathi Azar, Sadegh Malek. Comparison of mental health, marital satisfaction and assertiveness between parents of students with mental retardation and normal in West Azerbaijan province. Knowledge and Research in Applied Psychology 2008:37-44. [In Persian]

66. Taanila A, Kokkonen J, Jäirvelin MR. The long-term effects of children’s earlyonset disability on marital relationship. Dev Med Child Neurol 1996 Jul;38(7):567-77.

67. Begab, MJ and Richardson SA. The mentally retarded and society: A social science perspective. Oxford, England: University Park;1975.P.247-66.

68. Donovan AM. Maternal perception of family stress and ways of coping with adolescents: A comparison study of mothers with autistic. Mentally retarded and non-handicapped adolescents. J Psychol 1990;3(4):12-23.

69. Damrosch SP, Perry LA. Self-reported adjustment, chronic sorrow, and coping of parents of children with Down syndrome. J Nurs Res 1989;38(1):25-30.

70. Lin YC, Raghubir P. Gender differences in unrealistic optimism about marriage and divorce: Are men more optimistic and women more realistic?. Pers Soc Psychol Bull 2005;31(2):198-207.

71. Rosen-Grandon JR, Myers JE, Hattie JA. The relationship between marital characteristics, marital interaction processes, and marital satisfaction. J Couns Dev 2004;82(1):58-68.

72. Zare, B., Safyari Jafarabad., H. The Study of Marital Satisfaction and its Determinants on Married Women and Men in Tehran City. Women’s Studies Sociological and Psychological 2015; 13(1): 111-140. [In Persian]

73. Griffin K. Parental break time. The Milwaukee Journal Sentinel. 2000; p 1G.

74. Morrod D. Make or break—who cares for couples when their children are sick? Sex Relation Ther 2004;19(3):247-63.

75. Stoneman Z, Gavidia-Payne S, Floyd F. Marital adjustment in families of young children with disabilities: Associations with daily hassles and problem-focused coping. Am J Ment Retard 2006;111(1):1-14.

76. Hornby, G. Effects of children with disabilities on fathers: a review and analysis of the literature. 1994. IJDDE 41(3):171–84.

77. Pelchat D, Bisson J, Ricard N, Perreault M, Bouchard J-M. Longitudinal effects of an early family intervention programme on the adaptation of parents of children with a disability. Int J Nurs Stud 1999;36(6):465-77.

78. Flaherty EM, Masters Glidden L. Positive adjustment in parents rearing children with Down syndrome. Early Child. Educ J 2000;11(4):407-22.

79. Kim H-W, Greenberg J, Seltzer M, Krauss M. The role of coping in maintaining the psychological well-being of mothers of adults with intellectual disability and mental illness. J Intellect Disabil Res 2003;47(4-5):313-27.

80. Barooti E, Sadeghi N, Karimi-Zarchi M, Soltani H. New results regarding trends in Iranian
women’s health and a comparison with WHO data. Clin Exp Obstet Gynecol 2011;38(4):390.

81. Doulabi MA, Sajedi F, Vameghi R, Mazaheri MA, Baghban AR. Socioeconomic status index to interpret inequalities in child development. Iran J Child Neuro 2017;11(2):13-25.

82. Asoodeh MH, Daneshpour M, Khalili S, Lavasani MG, Shabani MA, Dadras I. Iranian successful family functioning: Communication. Procedia Soc Behav Sci 2011;30:367-71.

83. Fowers BJ, Olson DH. ENRICH Marital Inventory: A discriminant validity and cross-validation assessment. J Marital Fam Ther 1989;15(1):65-79.

84. Jakšić N, Ivezić E, Jokić-Begić N, Surányi Z, Stojanović-Špehar S. Factorial and diagnostic validity of the Beck Depression Inventory-II (BDI-II) in Croatian primary health care. J Clin Psychol Med Settings 2013;20(3):311-22.

85. Hall BJ, Hood MM, Nackers LM, Azarbad L, Ivan I, Corsica J. Confirmatory factor analysis of the Beck Depression Inventory-II in bariatric surgery candidates. Psychological Assessment 2013;25(1):294.

86. Razavi SH, Razavi-Ratki SK, Nojomi MM, Namiranian N. Depression and general anxiety in the prisoner of war’s children: a cross sectional study. Med J Islam Repub Iran 2012;26(4):179.184.

87. Ghassemzadeh H, Mojtabai R, Karamghadiri N, Ebrahimkhani N. Psychometric properties of a Persian-language version of the Beck Depression Inventory-Second edition: BDI-II-PERSIAN. Depress Anxiety 2005;21(4):185-92.

88. Elbers J, Macnab A. The Ages and Stages Questionnaires: feasibility of use as a screening tool for children in Canada. Can J Rural Med 2008;13(1):9-14.

89. Yu LM, Hey E, Doyle LW, Farrell B, Spark P, Altman DG, et al. Evaluation of the Ages and Stages Questionnaires in identifying children with neurosensory disability in the Magpie Trial follow-up study. Acta Paediatr 2007;96(12):1803-8.

90. Lindsay NM, Healy GN, Colditz PB, Lingwood BE. Use of the Ages and Stages Questionnaire to predict outcome after hypoxic-ischaemic encephalopathy in the neonate. J Paediatr Child Health 2008;44(10):590-5.

91. Squires J, Bricker D, Potter L. Revision of a parent-completed developmental screening tool: Ages and Stages Questionnaires. J Pediatr Psychol 1997;22(3):313-28.

92. Glascoe FP. Screening for developmental and behavioral problems. Ment Retard Dev Disabil Res Rev 2005;11(3):173-9.

93. Richter J, Janson H. A validation study of the Norwegian version of the Ages and Stages Questionnaires Acta Paediatr 2007;96(5):748-52.

94. Vameghi R, Sajedi F, Mojembari AK, Habiollahi A, Lornezhad HR, Delavar B. Cross-cultural adaptation, validation and standardization of Ages and Stages Questionnaire (ASQ) in Iranian children. Iran J Public Health 2013;42(5):522.

95. Sajedi F, Doulabi MA, Vameghi R, Mazaheri MA, Akbarzadeh baghban A. Relationship of mothers’ psychological status with development
of kindergarten children. Iran J Child Neurol 2016;10(3):61-72.

96. Yaghini O, Daneshf F, Mahmoudian T, Beigi B, Ebrahimian S. Evaluation of developmental delay in infants who came in for 6th month vaccination in Isfahan city health centers. Iran J Child Neurol 2012 Jun 30;6(2):29-32.

97. Sajedi F, Vameghi R, Mohseni Bandpei MA et al. Motor developmental delay in 7500 Iranian infants: Prevalence and risk factors. Iran J Child Neurol 2009;3(3):43-50.

98. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ. The prevalence of comorbid depression in adults with diabetes a meta-analysis. Diabetes care 2001;24(6):1069-78.

99. Doulalas AD, Rallidis LS, Gialernios T, Moschonas DN, Kougioulis MN, Rizos I, et al. Association of depressive symptoms with coagulation factors in young healthy individuals. Atherosclerosis 2006;186(1):121-5.

100. Kaplan HI, Sadocks BJ. Synopsis of psychiatry behavioral sciences: clinical psychiatry. Translated to Persian by: Rafiee H, Rezaee F. 10th ed. Tehran: Arjmand Pub; 2008. p: 80-87.

101. Sholehvar F, Takhshid MA, Rafiei M. Review of Metabolism, Transport and Role of Serotonin in the Body and the Relation between Serotonin and Diseases. Journal of Fasa University of Medical Sciences 2013;3(1):9-17. [In Persian]

102. Cano A, Weisberg JN, Gallagher RM. Marital satisfaction and pain severity mediate the association between negative spouse responses to pain and depressive symptoms in a chronic pain patient sample. Pain Med 2000;1(1):35-43.

103. Taanila A, Kokkonen J, Jäirvelin MR. The Long-term effects of children’s early onest disability on marital -relationships. Dev Med Child Neurol 1996;38(7):567-77.

104. Ricci L, Hodapp R. Fathers of children with Down’s syndrome versus other types of intellectual disability: perceptions, stress and involvement. J Intellect Disabil Res 2003;47(4-5):273-84.

105. Jenaabadi H, Nastiezaie N. The Study of Marital Satisfaction of the Mothers with Mental Retarded Children. Toloo-E-Behdasht 2010;9(2-3): 33-43. [In Persian]

106. Eddy LL, Walker AJ. The impact of children with chronic health problems on marriage. J Fam Nurs 1999;5(1):10-32.

107. Ki YW, Joanne CCY. Stress and marital satisfaction of parents with children with disabilities in Hong Kong. Psychology 2014; 5(05):349-357.

108. Simmerman S, Blacher J, Baker BL. Fathers’ and mothers’ perceptions of father involvement in families with young children with a disability. Am J Intellect Dev Disabil 2001;26(4):325-38.

109. John DS, Pai L, Belfer ML, Mulliken JB. Effects of a child with a craniofacial anomaly on stability of the parental relationship. J Craniofac Surg 2003;14(5):704-8.

110. Kulagina E. The social and economic situation of families with handicapped children. Russ Educ Soc 2003;4511:42-61.

111. Mokhtar Motamedin Fariba Sohrabi sSM. Compare mental health, marital satisfaction and assertiveness between parents of students with
intellectual disability and normal in Azerbaijan. Knowledge and research in psychology Journal - Research Islamic Azad University - Khorasgan (Isfahan) 2008; 35:123-52. [In Persian]

112. Sarvghad S, Dianat A. A study of learning and problem-solving styles of university students (a case study of marvdasht islamic azad university students). Journal Management System 2009;2: 77-92. [In Persian].