INTERNATIONAL ORGANIZATION OF
IOAS
ACADEMIC STUDIES

The Effects of Schema Therapy on the Anxiety of Preterm Infant's Mothers Hospitalized in the NICU

Mina Afshar[1]

MSc of Psychiatric Nursing member of the nursing faculty of Azad University Takestan , Qazvin
m.afshar0913@gamil.com

Abstract

Introduction: The Mothers of newborns suffer from high levels of depression and anxiety much earlier and need to be admitted to the neonatal intensive care unit. of preterm infants who needs hospitalization in NICU experiences a various degree of anxiety and depression. Therefore, this study was aimed to determine the effects of schema therapy on the anxiety of mothers of preterm infants which hospitalized in the NICU.

Methods: In this Experimental study 60 mother of infants who hospitalized in NICU of Qazvin medical university in 2018 were selected through simple sampling and assigned in two equal group of intervention and control group randomly. Data was collected using Beck anxiety inventory and Young schema questionnaire-short form (YSQ-SF). The intervention includes individualized schema therapy sessions that provided 2 sessions per week for 5 consecutive weeks. The control group didn't receive any special intervention from researcher. Data was collected at beginning of the study, at the end of fifth week, one, two, and three months later. Data was analyzed using SPSS software package, version 23 through using descriptive and inferential statistics.

Results: The study findings showed that schema therapy can reduce anxiety of mothers of preterm infants in intervention group comparing with control group (P<0.001). Determination and comparison of participant's anxiety in four stage of anxiety level measurements and its relationship with schema therapy have shown that interaction and group effects and also p value of group (schema therapy group) was statistically significant (P<0.001).

Conclusion: Considering the study findings, schema therapy can be used by psychiatric nurses for reducing the anxiety of mothers of preterm infants who hospitalized in NICU as non-invasive and effective intervention.

Introduction

The birth of a preterm infant and hospitalization in neonatal intensive care unit (NICU) is a stressful event and cause a various level of anxiety in their parents (1). According to world health organization, almost 15 million preterm infants delivered every year which is one tenth of all births. This statistic is different in various countries with 5-18 percent differences (2). About 12 percent of live births are preterm in Iran which is around 120 thousand infants every year. Moreover, 27 to 70 percent of mothers of preterm infants experience high levels of psycho-emotional stresses (3).

Stress, anxiety, and depression reflecting a set of cognitive and behavioral conditions that seen in stressful events of the human life (4) and giving birth to a preterm infant is one of these special conditions (5) which is bring about a significant psychological crisis for parents (6, 7). Most of the time, hospitalization of a preterm infant is inevitable due to requiring intensive cares, especially preterm infants, sick and low weight infants or those with congenital anomalies; which, all are stressful for parents (1, 10). High levels of anxiety and depression have been reported in parents of preterm infants in comparison to full term ones (1, 10-12).

Preterm labor worsening the mother psychological diseases (13). Many research studies investigated the stress level of mothers during and after pregnancy and reported the mother anxiety level as one of the strongest risk factors for mothers' mental problems and disruption of infant and even fetus growth and development. World health organization recommended that health care providers should applying some interventions for improving anxiety level of pregnant women (1, 10, 16), such as family-based interventions (1), psychotherapy (14), improving family bound (13), and schema therapy (15).

Schema therapy was first introduced by Young and colleagues is a new integrative therapy that primarily based on the expansion and development of traditional cognitive-behavioral treatments and concepts for characterological disorders (17). It's argued that mental schemas

are deep and undeniable structs that continues throughout life span, results from development of child mood and character along with his ineffective experiences in relation to family and relatives at the beginning of his life. It's resulted from memories, emotions, cognitive patterns, and physical feelings, in which, their activity causes a high level of emotions (18). Morris (2005) have shown that those who suffer from depression, anxiety, and stress have early maladaptive schemas (19). These early maladaptive schemas are contributing with psychotic and psychological problems such as anxiety disorders, depression, interruptive behaviour, eating disorders, and drug abuse (20).

Schema therapy have been tested on the total anxiety, depression, stress, personality disorders, and substance abuse and shown a positive result. Moreover, schema therapy have been used for other patients groups such as happiness and mental health of patients with type II diabetes (21), decreasing aggression and social anxiety in adolescents (22), social anxiety of students (23), trilogy of somatization, anxiety and depression (24), eating disorders (25), mental health of borderline personality disorders (26), depressive signs in young adults (27), and many other mental disorders. The results of these studies shown significant differences in the anxiety of participants.

Previous studies suggested that anxious people have had early maladaptive schemas (19). The conceptual and theoretical foundations of the subject suggesting that early maladaptive schemas are among the main causes of the anxiety (19) that should be resolved through appropriate interventions. In this accord, it was determined that anxiety of mothers of preterm infants who hospitalized in NICU is a predictor of disordered mother-infant relationship (28), child's relational and interaction problems after one years old (29), and has detrimental effects on the child care after discharge from hospital (30). Therefore, early identification of anxious mothers in order to begin preventive interventions and treatment, especially for supporting mother health and better mother-child bound is necessary (29).

Considering above mentioned and the role of mother health on the health of family, mother, and infant; provision of mental health for mother, particularly anxiety of mother of preterm infants is a priority due to high level of anxiety that they experienced (10, 17). We know that early maladaptive schemas are one of the important causes of anxiety (19) which should be modified through appropriate interventions.

Previous research studies in Iran and other countries addressed the necessity of psychological interventions for mothers of preterm infants due to the high prevalence of anxiety in this group and importance of modifying early maladaptive schemas due to the relationships between anxiety and these schemas. Although previous studies support the use of the schema therapy in reducing anxiety in different groups, it has not yet been tested on mothers of preterm infants. Therefor current study was aimed to determine the effects of schema therapy on the anxiety of mothers of preterm infants who hospitalized in Qazvin university of medical science selected hospitals. We've trying to test the hypothesis of schema therapy is effective in reducing the anxiety of mothers of preterm infants hospitalized in NICU.

Material and methods

This was a randomized clinical trial with repeated measurements at baseline, after intervention, one month and three-month follow-up that performed on a sample of mothers of preterm infants hospitalized in NICU of selected hospital of Qazvin university of medical science. The inclusion criteria were delivering before 26-37 weeks of pregnancy and Beck anxiety level scores of 16 or over. The death or discharge of infant or history of using anxietolytic drugs was considered as exclusion criteria. A sample of 60 eligible mothers were selected and divided in two group of experiment and control using randomized block with 4 ranks.

According to the master's thesis by Bostanabadi and colleagues (1), the mean and standard deviation of the anxiety scores of mothers after the intervention were estimated for both the control and experimental groups at a significance level of $\alpha = 0.05$ and $\beta = 0.1$. The sample size was calculated using the following formula.

$$n = \frac{(Z_{1-\frac{\alpha}{2}} + Z_{1-B})^2(\sigma_1{}^2 + \sigma_2{}^2)}{(\mu_1 - \mu_2)^2} = \frac{(1.96 + 1.28)^2(13.23^2 + 12.28^2)}{(51.54 - 36.72)^2} \sim 18$$

Therefore, a total of 36 participants were included in the study for each group, and accounting for a 30% attrition rate, 48 participants were initially recruited. To ensure the reliability of the results, this sample size was further increased to 60 participants, with 30 participants in each group.

Before signing the written consent form, the mothers were informed about the objectives and methods of the study, the voluntary nature of their participation, their right to withdraw from the study at any time, the assurance that the intervention would not affect standard treatments, the adherence to the principle of confidentiality of information, and the presentation of results in an aggregated manner.

Data were collected using demographic questionnaire for parents, demographic questionnaire for infant, infant medical checklist, Beck anxiety inventory, and Young schema questionnaire-short form (YSQ-SF). The parent demographic questionnaire was researcher made tool that assessed age, marital status, education level, employment, number of siblings, history of abortion, history of preterm labor, participating in other psychotherapeutic intervention, history of psychiatric disease, alcohol and drug abuse. The questionnaire was presented to ten faculty members of the School of Nursing and Midwifery for the purpose of content validity assessment. The questionnaire was approved and subsequently used as a demographic information instrument.

The participant's anxiety level was measured using Beck anxiety inventory (BAI). The BAI is a 21-item multiple-choice self-report inventory that measures the severity of an anxiety in adults and adolescents. Each of the items on the BAI is a simple description of a symptom of anxiety in one of its four expressed aspects of subjective, neurophysiologic, autonomic, and panic related dimensions. Every item of BAI has four possible answer choices in Likert-type scoring from 0 (not at all) to 3 (severely) (31). BAI designed especially for measuring severity of clinical anxiety signs and symptom. The total score of BAI fall in the range of 0 to 63. The score of 0-7 is interpreted as "minimal", 8-15 as "mild", 16-25 as "moderate" and 26-63 as "severe" anxiety level (32). The BAI internal consistency (Cronbach alpha) ranges from 0.92 to 0.94 for adults and test-retest reliability is 0.75 (32). it was tested for Iranian samples with reliability of 0.91 (23). The early maladaptive schemas were determined using Young schema questionnaire – short form (YSQ-SF).

The YSQ-SF was scored in a 6-point Likert-type scale (1 = Completely untrue for me, 2 = Mostly untrue of me, 3 = Slightly more true than untrue, 4 = Moderately true of me, 5 = Mostly true of me, 6 = Describes me perfectly). It's composed of 75 items that measure 15 subitems including emotional deprivation (q1-q5), abandonment (q6-q10), mistrust abuse (q11-q15), social isolation (q16-q20), defectiveness shame (q21-q25), failure (q26-q30), dependence incompetence (q31-q35), vulnerability to harm (q36-q40), enmeshment (q41-q45), subjugation (q46-q50), self-sacrifice (q51-q55), emotional inhibition (q56-q60), unrelenting standards (q61-q65), entitlement (q66-q70), and insufficient self-control (q71-q75). The highest the score of participants, more advanced is the maladaptive schema; if total score in each subitem was higher than 5, the schema have been fixed in the person's mind (17, 33). The construct validity of YSQ-SF was reported as Cronbach alpha 0.62 to 0.90 (35) and for Iranian population it has coefficient of 0.92 (33).

Following the acquisition of informed consent to participate in the study, the demographic information questionnaire and the anxiety scale were completed through in-person interviews. Subsequently, individuals who reported moderate to severe anxiety levels on the Beck Anxiety Inventory were included in the study. After completing the short form of the Young Schema Questionnaire, the participants were randomly assigned to either the control or experimental group using a block randomization method with blocks of four. The demographic information questionnaire was completed through self-report. After ensuring the homogeneity of the two groups, participants in the experimental group underwent schema therapy processes individually, following the approved protocol. The schema therapy was administered by a trained researcher who had received certification, with sessions conducted twice a week over a duration of five weeks. The sessions lasted 90 minutes and were conducted in a designated training room. During this period, the control group did not receive any specific intervention. Subsequently, the Beck Anxiety Inventory and the Young Schema Questionnaire were administered immediately after the intervention, as well as one month, two months, and three months later (Table 1) [16, 23].

The collected data were analyzed using SPSS software version 23, employing descriptive and inferential statistics appropriate to the normality of the study variables, as assessed by the Shapiro-Wilk test, with a confidence level of 95%. In this study, to ensure the homogeneity of the experimental and control groups at the baseline, the Mann-Whitney U test was employed for comparing the means of quantitative baseline and dependent variables with a normal distribution. For comparing the means of ranked baseline variables that did not follow a normal distribution, the Mann-Whitney U test was also used. Additionally, the Chi-square test was utilized to compare the frequency distribution of qualitative baseline variables between the two groups. Additionally, to compare the mean anxiety scores of mothers between the two groups, the Mann-Whitney U test was employed. For comparing the mean anxiety scores of mothers before and after the intervention, as well as during the follow-up assessments over time, the non-parametric Friedman test was utilized.

The results of the study, analyzed using the Mann-Whitney U test and Chi-square test, indicated that the two groups did not have statistically significant differences regarding the variables of age, marital status, education level, employment, history of miscarriage, previous preterm birth, and birth order of the child at the time of entry into the study (p > 0.05) (Table 2). To assess the normality of parental anxiety scores at all time points, the Shapiro-Wilk test was employed, confirming the non-normality of the observations (p < 0.05).

The results indicate that prior to the intervention, there was no significant difference in the mean anxiety scores of parents, as assessed by the Mann-Whitney U test (p > 0.05). In the within-group analyses, at the post-test and follow-up assessments, the experimental group showed a greater reduction in mean scores; specifically, after three months of follow-up, the mean scores decreased from 24.47 ± 10.08 (before the intervention) to 16.93 ± 7.81 (three months post-intervention), which was statistically significant (p < 0.05). Additionally, the mean scores in the control group decreased from 24.47 ± 10.05 to 17.83 ± 7.56, which was also statistically significant (p < 0.05). Overall, the mean anxiety scores in the experimental group were lower after the intervention compared to the control group, and this difference was even more pronounced one month after the intervention; however, these differences were not statistically significant (p > 0.05) (Table 3).

According to the scoring system of the Beck Anxiety Inventory by (Halfaker et al). (2011), the majority of participants (70%) exhibited moderate anxiety levels (33). Overall, the majority of participants at the baseline of the study (70%), at the end of the intervention (41.7%), and during the first follow-up (43.3%) demonstrated moderate anxiety. However, during the second follow-up, the majority of participants in both the experimental and control groups exhibited mild anxiety levels (58.3%). This finding suggests that the intervention implemented in this study led to a reduction in anxiety levels in the experimental group; however, no statistically significant difference was observed, indicating that it did not result in changes to the underlying maladaptive schemas but rather moderated the outcomes of these schemas (Figure 1).

The results indicated that the difference in maladaptive schemas before and after the intervention was not statistically significant (p < 0.05). Considering the statistical power of 1 and 0.59, which reflects the precision of the significance of the effects, it can be concluded that there is no statistically significant difference between the various domains of maladaptive schemas at the two time points (before and after the intervention) in both the experimental and control groups (Table 4).

Discussion

Based on the objectives of the research, the results of this study indicate that schema therapy can lead to a reduction in maternal anxiety. In explaining the findings of the present study, it can be stated that the schema therapy approach is a comprehensive framework that incorporates cognitive-behavioral, interpersonal, attachment, and experiential events within an integrated therapeutic model. This approach utilizes four primary techniques—cognitive, behavioral, relational, and experiential—to challenge maladaptive schemas, which are the root causes of dysfunctional and irrational thoughts. Additionally, it facilitates the emotional release of buried negative emotions, such as anger stemming from unmet needs for self-soothing and secure attachment to others during childhood. Another explanation for these findings is the ability of schema therapy to promote behavioral pattern-breaking. This strategy assists clients in planning and implementing behavioral tasks to replace maladaptive and ineffective coping responses with more adaptive behavioral patterns.

Numerous studies have shown that anxious individuals possess maladaptive schemas. Consistent with the present study, Morris (2005) demonstrated that individuals suffering from depression, anxiety, and stress also exhibit maladaptive schemas. These maladaptive schemas are associated with personality traits characterized by psychological distress and various psychological problems, including anxiety

disorders, depression, disruptive behaviors, eating disorders, and substance abuse [18].

The results of the study by Hemmati Zadeh et al. (2016) investigated the impact of schema therapy on social anxiety among male high school students in District 1 of the Hamadan Education Department. The findings indicated that schema therapy effectively reduced aggression and social anxiety in adolescent boys aged 17 to 18 in Hamadan County, which aligns with the current study [21]. Additionally, the results of the study by Safarinia (2014), which examined the effect of schema therapy on social anxiety in university students, demonstrated that group schema therapy significantly reduced maladaptive schemas and symptoms of social anxiety. This study also employed a repeated measures design for the dependent variable of social anxiety [22].

Eberhart et al. (2011) concluded in their assessment of symptoms in adult samples that internal sources of stress and anxiety in individuals are associated with several maladaptive schemas, including emotional deprivation, distrust/abuse, social isolation, defectiveness, failure, and subjugation. These maladaptive schemas subsequently contribute to the development of anxiety and depression [25].

Additionally, Harris et al. (2002) conducted a study titled "Parental Understanding, Maladaptive Schemas, and Symptoms of Depression in Young Adults" in the United States, which demonstrated that maladaptive schemas related to defectiveness and shame, insufficient self-discipline, vulnerability, and incompetence—self-deprecation are correlated with depressive symptomatology [26]. In other words, negative schemas contribute to the emergence of depressive symptoms. The severity of depression was significantly correlated with all five dimensions of Young's conceptualized schemas, whereas more severe anxiety was significantly correlated only with the dimension of inhibition/overprotection.

Maleki et al. (2015) conducted a study titled "The Impact of Schema Therapy on Reducing Symptoms of Anxiety and Depression in Nursing and Midwifery Students." The results indicated a significant reduction in anxiety symptoms within this group. The findings of this study are consistent with the results of the present study [34].

Hamidpour et al. (2011) also examined the efficacy of schema therapy in treating women with generalized anxiety disorder. The results indicated that the effect of schema therapy on treatment targets is significant, demonstrating that schema therapy is effective in treating generalized anxiety disorder in women. The data from this study are consistent with the findings of the present study [35]. Similar to the study by Safarinia and the current study, schema therapy has shown a significant reduction in anxiety symptoms among patients with anxiety disorders [35].

Khalighi et al. (2016) aimed to determine the effectiveness of emotional schema therapy in reducing worry, symptoms, and signs of anxiety in patients with generalized anxiety disorder. Their sample underwent ten one-hour therapy sessions, and patients were assessed seven times using relevant scales. The follow-up period for the study was two months. Unlike cognitive therapy, schema therapy follows a downward process and operates from a top-down perspective. In other words, emotions in various situations influence the schemas in individuals. The authors suggested that emotional schema therapy can be cautiously considered an effective treatment in psychological interventions for patients with generalized anxiety disorder [36].

According to the study, maladaptive schemas in the test group were assessed after the intervention period, revealing that less than one-third of the research units in both the test and control groups exhibited maladaptive schemas. Among the participants in the test group, the most frequently observed maladaptive schemas included abandonment (43.3%), distrust/maltreatment (36.7%), defectiveness (36.7%), and self-sacrifice (36.7%).

Conclusion

Considering that anxiety levels among mothers of premature infants are high, the results of this study suggest that non-pharmacological interventions and the identification of maladaptive schemas in mothers, along with timely interventions, can lead to a reduction in psychological symptoms, particularly anxiety. Therefore, it is recommended to utilize this psychological intervention to reduce anxiety in mothers of premature infants admitted to neonatal intensive care units. However, it is important to note that this research was accompanied by limitations, including a single-gender sample and a small sample size.

Considering that anxiety levels among mothers of premature infants are high, the results of this study suggest that non-pharmacological interventions and the identification of maladaptive schemas in mothers, along with timely interventions, can lead to a reduction in psychological symptoms, particularly anxiety. Therefore, it is recommended to utilize this psychological intervention to reduce anxiety in mothers of premature infants admitted to neonatal intensive care units. However, it is important to note that this research was accompanied by limitations, including a single-gender sample and a small sample size.

References

1. Arshadi Bostanabad M, NamdarAreshtanab H, Balila M, Asgari Jafarabadi M, Ravanbakhsh K. Effect of Family-centered Intervention in Neonatal Intensive Care Unit on Anxiety of Parents. Int J Pediatr. 2017;5(6):5101-11.

2. Organization WH. Preterm birth Geneva: World Health Organization; 2017 [Available from: http://www.who.int/mediacentre/factsheets/fs363/en/.

3. Jafari Mianaei S, Alaee Karahroudy F, Rassouli M, Zagheri Tafreshi M. The effect of Creating Opportunities for Parent Empowerment program on maternal stress, anxiety, and participation in NICU wards in Iran. Iran J Nurs Midwifery Res. 2014;19(1):94-100.

4. Jebrayili M. The stress resources from the viewpoints of mothers of infants hospitalized in NICU. Nursing Midwifery. 2009;15(4):35-41.

5. Cano G, Sánchez-Luna M. providing parents with individualized support in a neonatal intensive care unit reduced stress, anxiety and depression. Acta Paediatr. 2015;104(2015):e300–e5.

6. Lindberg B, Öhrling K. Experiences of having a prematurely born infant from the perspective of mothers in northern Sweden. International Journal of Circumpolar Health. 2008;67(5):461-71.

7. Lee S-N, Long A, Boore J. Taiwanese women's experiences of becoming a mother to a very-low-birth-weight preterm infant: a grounded theory study. International Journal of Nursing Studies. 2009;46(3):326-36.

8. Bastani F, Ali Abadi T, Haghani H. The effectiveness of participatory care program in neonatal intensive care unit on state anxiety of mothers of preterm newborns. Journal of Babol University of Medical Sciences. 2012;14(3):59-65.

9. Segre L, Chuffo-Siewert R, Brock R, OHara M. Emotional distress in mothers of preterm hospitalized infants: a feasibility trial of nurse-delivered treatment. Journal of Perinatology. 2013;33(12):924-8.

10. Pace C, Spittle A, Molesworth C, Lee K, Northam E, al e. Evolution of Depression and Anxiety Symptoms in Parents of Very Preterm Infants During the Newborn Period. JAMA Pediatrics. 2016;170(9):863-70.

11. Ionio C, Colombo C, Brazzoduro V, Mascheroni E, Confalonieri E, Castoldi F, et al. Mothers and Fathers in NICU: The Impact of Preterm Birth on Parental Distress. Europe's Journal of Psychology. 2016;12(4):604-21.

12. Welch M, Halperin M, Austin J, Stark R, Hofer M, Hane A, et al. Depression and anxiety symptoms of mothers of preterm infants are decreased at 4 months corrected age with Family Nurture Intervention in the NICU. Arch Womens Ment Health. 2016;19(1):51-61.

13. Neri E, Agostini F, Salvatori P, Biasini A, Monti F. Mother-preterm infant interactions at 3 months of corrected age: influence of maternal depression, anxiety and neonatal birth weight. Front Psychol. 2015;6(1234):1-12.

14. Youshizadeh M. Assessing the effectiveness of schema therapy on reducing depression symptoms in women with obsessive-compulsive disorder. International Journal of Philosophy and Social-Psychological Sciences. 2017;3(6):18-24.

15. Kenner C, Press J, Ryan D. Recommendations for palliative and bereavement care in the NICU: a family-centered integrative approach. Journal of Perinatology. 2015;35(2015):519-23.

16. Young JE, Klosko, J. S., Weishaar, M. E. . Schema therapy: A practitioner's guide. London: Guilford Press; 2003.

17. Cecero JJ, Nelson, J. D., Gillie, J. M. . Tools and tenets of schema therapy: toward the construct validity of the early maladaptive schema questionnaire–research version (EMSQ-R). Clinical Psychology and Psychotherapy. 2004;11(5):344-57.

18. Muris P. Maladaptive schemas in non-clinical adolescents: Relations to perceived parental rearing behaviours, big five personality factors and psychopathological symptoms. Clinical Psychology and Psychotherapy. 2006;13(6):405-13.

19. Sam Khaniyani N, Yazdandoost, R. Y., Asghar-Nejad, F. A. . Faces patterns of perfectionism, mental schemas and confirm whether the depression of thought and behavior. Journal of Clinical Psychology. 2003;8(3):65-74.

20. Khoshnud G, Shirkavand N, Ashuri J, ArabSalari Z. The impact of Schematherapy on happiness and mental health of patients with type II diabetes. Jounal of Nursing Diabetes. 2015;3(1):8-18.

21. Hemmati Sabet V, Rohani Shahrestani N, Hemmati Sabet A, Ahmadpanah M. The Effectiveness of Schema Therapy in Reducing Aggression and Social Anxiety in adolescents of Hamedan city aged 17 to 18 years. Shenakht Journal of Psychology and Psychiatry. 2016;3(2):82-93.

22. Safarinia M, Zare H, Karami J, Solgi Z. the effect and duration of group schema therapy on social anxiety of the students. Pajoohanded - SBMU Journal. 2014;4(100):211-8.

23. Shahamat F. Forecasts public health symptoms (somatization, anxiety and depression) Based on primary maladaptive schemas. Journal of Psychology University of Tabriz. 2010;5(20):107-28.

24. Simpson S, Morrow E, Reid C. Group schema therapy for eating disorders: a pilot study. Frontiers in psychology. 2010;1(182):1-10.

25. Nadort M, Arntz A, Smit J, Giesen-Bloo J, Eikelenboom M, Spinhoven P, et al. Implementation of outpatient schema therapy for borderline personality disorder with versus without crisis support by the therapist outside office hours: A randomized trial. Behaviour Research and Therapy. 2009;47(11):961-73.

26. Harris A, Curtin L. Parental perceptions, early maladaptive schemas, and depressive symptoms in young adults. Cognitive Therapy and Research. 2002;26(3):405.

27. Zelkowitz P, Papageorgiou, A., Bardin, C., Wangd, T. . Persistent maternal anxiety affects the interaction between mothers and their very low birthweight children at 24 months. Early Human Development. 2009;85(1):51-8.

28. Schmücker G, Brisch, K. H., Köhntop, B., et al. . The influence of prematurity, maternal anxiety, and infants' neurobiological risk on mother–infant interactions. Infant mental health journal. 2005;26(5):423-41.

29. Brooten D, Gennaro, S., Brown, L. P., et al. . Anxiety, Depression, and Hostility In Mothers of Preterm Infants. Nursing Research. 1988;37(4):213-6.

30. Lovibond P, Lovibond S. The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. Behaviour research and therapy. 1995;33(3):335-43.

31. Beck A, Steer R. The Beck Anxiety Inventory Manual. San Antonio, TX: Psychological Corporation; 1990.

32. Eghbalmanesh A, Nooryan K, Zoladl M. The impact of Group Schema therapy on depression, anxiety and stress in patients with Insulin-dependent diabetes. Yasuj: Yasuj University of Medical Sciences; 2016.

33. Halfaker DA, Akeson ST, Hathcock DR, Mattson C, Wunderlich TL. 3 - Psychological Aspects of Pain. In: Lennard TA, Walkowski S, Singla AK, Vivian DG, editors. Pain Procedures in Clinical Practice (Third Edition). Saint Louis: Hanley & Belfus; 2011. p. 13-22

34. Maleki Z, Naderi I, Ashoori J, Zahedi O. The effect of schema therapy on reducing symptoms of anxiety and depression in nursing and midwifery students. jmed. 2015; 10 (1) :47-56

35. Hamidpour H, Dolatshai B, Pour shahbaz A, Dadkhah A. The Efficacy of Schema Therapy in Treating Women's Generalized Anxiety Disorder . IJPCP. 2011; 16 (4) :420-431

36. Khalegh M, Mohammadkhani Sh, Hasani J. Effectiveness of Emotional Schema Therapy in Reduction of Worry and Anxiety's Signs and Symptoms in Patients with Generalized Anxiety Disorder: Single-Subject Design. jcp. 2016; 8(2)- 43-55

INTERNATIONAL ORGANIZATION OF
IOAS
ACADEMIC STUDIES

Table 1 - Content of Schema Therapy Sessions in the Experimental Group

Introduction and Establishment of Ground Rules. The objectives of the study were outlined to reduce anxiety and assess the suitability of participants for schema therapy, which included an initial evaluation aimed at understanding the current issues faced by the mothers. At the end of the session, each participant was given a life history questionnaire as a family assignment to gather comprehensive information regarding their current problems, symptoms, history, interpersonal relationships, biological factors, memories, and life experiences.	**Session 1**
The results of the life history questionnaire and the Young Schema Questionnaire were analyzed for each mother, allowing for a precise identification of the individuals' maladaptive schemas and current issues related to having a premature infant.	**Session 2**
Using the childhood imagery technique related to emotions, the following aspects were considered: 1. Recognizing and eliciting the participants' schemas. 2. Understanding the developmental roots of the schemas. 3. Connecting the schemas to issues associated with premature birth. 4. Assisting the mothers in experiencing the emotions related to the schemas.	**Session 3**
In this session, the focus was on experiential techniques to overcome schema avoidance through the following methods: examining the advantages and disadvantages of engaging in the exercises, starting with calming imagery, progressing to more anxiety-provoking topics, and utilizing emotional regulation techniques such as mindfulness or relaxation training.	**Session 4**
Using the schema validity testing technique, the focus was on addressing individuals' maladaptive schemas. The mothers were guided to examine objective evidence that supports their schemas and to provide a new definition of confirming evidence.	**Session 5**
A list of confirming evidence for the schemas was compiled, and the evidence was examined from different perspectives. Additionally, events that the mothers consider as confirming evidence for their schemas were also taken into account.	**Session 6**

		Session 7
In this session, with the aim of helping mothers recognize the self-destructive nature of their coping styles, replace them with healthier behaviors, and enhance their overall well-being, an evaluation of the advantages and disadvantages of individuals' coping styles was conducted.		**Session 7**
Using the empty chair technique, a dialogue was established between the "schema aspect" and the "healthy aspect." The mothers were taught to perform the technique themselves and to practice engaging both the schema aspect and the healthy aspect.		**Session 8**
With the assistance of the mothers, educational schema cards were prepared, which included the strongest evidence and arguments against the schemas. The cards were completed using the participants' own words and examples. Additionally, the members learned to fill out the schema recording form when their schemas were activated, in order to work on the issue and reach an appropriate solution. This form was given to them as homework at the end of the session.		**Session 9**
In this session, the schema recording form for each example was reviewed, and a summary of all techniques was provided to them in a brochure. Additionally, their questions were addressed to clarify any ambiguities they had.		**Session 10**

Table 2: Examination of Demographic Variables in the Two Study Groups

Level of Significance	Total	Control (Percentage) Number	Test (Percentage) Number	Specifications	
*P =0/830	27/60±5/469	27/57±4/932	27/63±6/043	**Age**	
^P =0/718	57(95)	29(96/7)	28(93/3)	Married	**Marital Status**
	3(5)	1(3/3)	2(6/7)	Divorced	
^P =0/412	4(6/7)	1(3/3)	3(10/0)	Primary Education	**Education**
	8(13/3)	2(6/7)	6(20/0)	Middle School	
	13(21/7)	8(26/7)	5(16/7)	Secondary Education	
	15(25/0)	8(26/7)	7(23/3)	Associate Degree	
	20(33/3)	11(36/7)	9(30/0)	Bachelor's Degree and Higher	
^P =0/107	53(88/3)	24(80)	29(96/7)	Homemaker	**Employment**
	4(6/7)	3(10)	1(3/3)	Self-employed	
	3(5/0)	3(10)	0	Employee	
^P =0/542	14(23/3)	(20)6	8(26/7)	Yes	**History of Abortion**
	46(76/7)	24(80)	22(73/3)	No	
The two groups were identical	16(26/7)	8(26/7)	8(26/7)	Yes	**Premature Birth**
	44(73/3)	22(73/3)	22(73/3)	No	
^P =0/196	22(36/7)	11(36/7)	11(36/7)	First	**Child's Birth Order**
	35(58/3)	16(53/3)	19(63/3)	Second	
	3(5/0)	3(10/0)	0	Third	

* = Mann-Whitney Test   ^ = Chi-Square Test

INTERNATIONAL ORGANIZATION OF
iOAS
ACADEMIC STUDIES

Table 3 - Examination of Mothers' Anxiety Before and After Intervention in Two Groups

Significance Level (Friedman Test)	Three Months After the Intervention	Two Months After the Intervention	One Month After the Intervention	After the Intervention	Before the Intervention	Group Anxiety
	Mean ± Standard Deviation	Mean ± Standard Deviation	Mean ± Standard Deviation	Mean ± Standard Deviation	Mean ± Standard Deviation	
< 0/001P*	16/93 ± 7/81	17/77 ± 8/98	19/13 ± 7/02	22/60 ± 8/76	24/47 ± 10/08	Experiment
< 0/001P*	17/83 ± 7/56	19/03 ± 8/97	22/20 ± 7/31	22/50 ± 7/96	24/47 ± 10/05	Control
	= 0/338P	= 0/287P	= 0/086P	= 0/982P	= 0/994P	Significance Level (Mann-Whitney Test)

Table 4 - Frequency Distribution and Comparison of the Status of Early Maladaptive Schemas of Mothers of Preterm Infants in the Test and Control Groups at the End of the Study Period

Statistics		No		Yes			
P-value	χ^2	%	number	%	number	Group	Maladaptive Schema
0/065	17/00	76/7	23	23/3	7	Experiment	Emotional deprivation
		73/3	22	26/7	8	Control	
0/102	25/78	56/7	17	43/3	13	Experiment	Abandonment
		70	21	30	9	Control	
0/808	9/343	63/3	19	36/7	11	Experiment	Mistrust / Abuse
		76/7	23	23/3	7	Control	
0/436	17/27	83/3	25	16/7	5	Experiment	Social Isolation / Alienation
		83/3	25	16/7	5	Control	
0/18	17/45	86/7	26	13/3	4	Experiment	Defectiveness / Shame
		76/7	23	23/3	7	Control	
0/547	15/67	63/3	19	36/7	11	Experiment	Failure

		80	24	20	6	Control	
0/325	16/90	86/7	26	13/3	4	Experiment	Dependence / Incompetence
		83/3	25	16/7	5	Control	
0/789	9/63	80	24	20	6	Experiment	Vulnerability to Harm and Illness
		73/3	22	26/7	8	Control	
0/597	9/27	83/3	25	16/7	5	Experiment	Enmeshment
		70	21	30	9	Control	
0/536	13/87	80	24	2	6	Experiment	obedience
		80	24	20	6	Control	
0/679	15/67	63/3	19	36/7	11	Experiment	Self-sacrifice
		73/3	22	26/7	8	Control	
0/849	6/35	73/3	22	26/7	8	Experiment	Emotional inhibition
		80	24	20	6	Control	
0/316	18/14	90	27	10	3	Experiment	Unrelenting standards
		80	24	20	6	Control	
0/414	14/49	76/7	23	23/3	7	Experiment	Entitlement
		83/3	25	16/7	5	Control	
0/595	11/19	83/3	25	16/7	5	Experiment	Insufficient self-control
		63/3	19	36/7	11	Control	
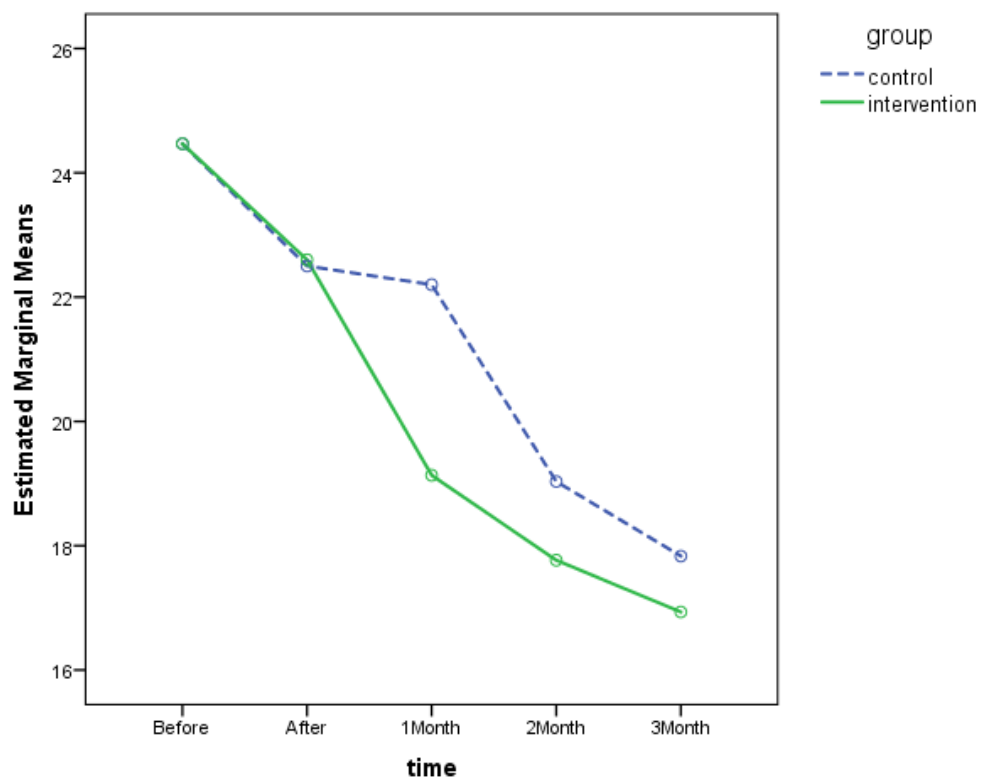
Figure 1 – Examination of the Trends in the Mean Anxiety Scores of Parents in Two Groups and Follow-up Assessments.
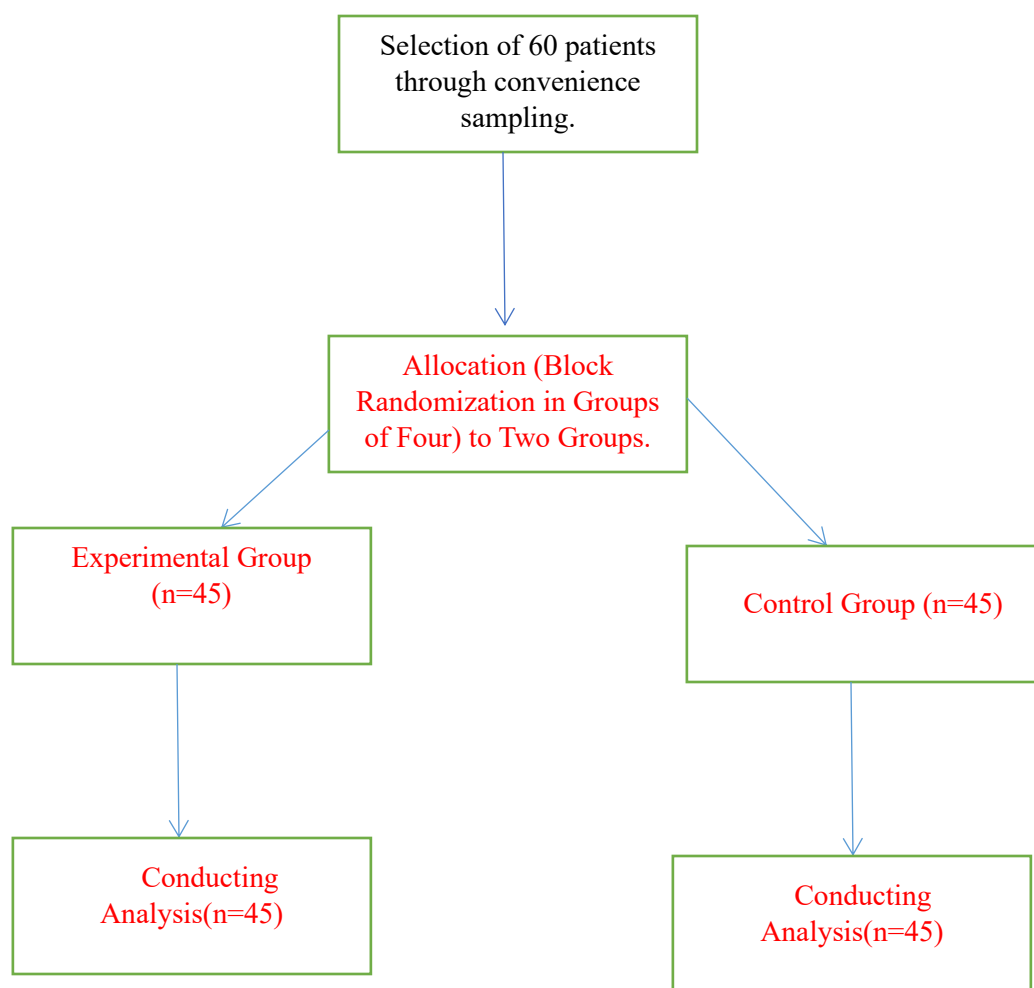
Figure 2 - CONSORT Flow Diagram for Sampling Process.