

**Effect of Maternal Empowerment Program on Psychological Distress and Parenting Confidence among Mothers of Premature Infants Admitted to Neonatal Intensive Care Unit**

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**Abstract**

**Background:** Premature infants' admission to a Neonatal Intensive Care Unit (NICU) may adversely impact on mother's psychological status, typically experience high stress levels, anxiety, and depressive symptoms and low of confidence. **Aim of the study:** This study aimed to evaluate the effect of an empowerment program on Psychological Distress and Parenting Confidence in Mothers of Premature Infants Admitted to Neonatal Intensive Care Unit. **Research Design:** A quasi - experimental design (one group pre test- post test design) was utilized to achieve the aim of this study. **Setting:** The study was conducted at Neonatal Intensive Care Unit at Benha University Hospital which was linked to Ministry of Higher Education, Qalyubia Governorate. **Sample:** A convenience sampling consisted of 60 mothers having premature infants admitted to Neonatal Intensive Care Unit at Benha University Hospital. **Tools:** For data collection, the following tools were used: I) A structured interviewing questionnaire included socio-demographic data and clinical data of mothers and infants, II) Parental stress scale (PSS), III) The Beck Anxiety Inventory (BAI), IV) The Edinburgh postnatal depression scale (EPDS) and V) Karitane Parenting Confidence Scale (KPCS). **Results:** More than half of the studied subjects reported severe psychological distress, and more than two-thirds had low parenting confidence prior to the implementation of the empowerment program, while nearly two thirds of them had high confidence after implementation of the program. Also, there was a highly statistically significant negative association between their overall level of confidence and their overall levels of stress, anxiety, and depression post program implementation. **Conclusion:** The maternal empowerment program had a positive effect on reducing psychological distress and improving parenting confidence among mothers of preterm babies admitted to the Neonatal Intensive Care Unit. **Recommendations:** It is recommended to conduct more research with larger sample size and longer follow-up times at various intervals.

**Keywords:** Empowerment Program, Parenting Confidence, Premature infants, Psychological Distress.

**Introduction:**

Preterm birth is a potential risk not just for the child's growth, which may result in dysfunctional evolutionary consequences relating to every aspects of the child's growth, but also for parents, particularly for mothers, who must care for the infant on a daily basis in the hospital (Polizzi et al.,2021). The

neonatal intensive care unit (NICU) leads to considerable psychological distress among parents, which includes feelings of anxiety and depression. Maternal anxiety and depression can persist for an extended period after childbirth, negatively affecting a mother's ability to appropriately respond and interact with her infant. Both the parents and

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the infants are harmed by parental distress. Maternal distress can range from mild to severe, and the degree of distress is correlated with the newborn's cognitive and behavioral development (**Bowers, 2018**).

Mothers often face significant stress due to the emotional and physical separation from their baby, as well as the disappointment of not fulfilling their idealized parental role. The sense of separation and exclusion they experience can be attributed to the absence of vital physical and emotional closeness that forms a crucial bond between mothers and their newborn infants (**Psychogiou et al., 2020**). These mothers may experience frustration and guilt, believing that their baby's hospitalization is their own responsibility. They may also develop attachment issues due to being unable to fulfill their maternal responsibilities while separated from their baby. Furthermore, they might lack specialized knowledge about their infant's health or illness, and information sharing may be limited to visiting hours. This can result in uncertainty, anxiety, and stress about the baby's condition and prognosis (**Asghari et al., 2021**).

Anxiety is a widespread experience that can be both challenging and beneficial. It functions as a natural mechanism within the body to detect potential threats and prompts individuals to respond appropriately. So, typical anxiety serves as a defense mechanism against some threats. Low degrees of anxiety are beneficial; on the other hand, prolonged and severe anxiety impairs psychological and physiological processes. Multiple stressors, including preterm birth, the infant's health, the complexity of the NICU setting, and the infant's perceived vulnerability, might increase the risk of psychological distress in

NICU mothers, including anxiety (**Lotterman et al., 2019**).

Depression has been extensively examined as a major risk factor for a mother's health, the development of her unborn child, and the strength of the mother-child attachment (**Abdel salam, 2018**). Depression can affect any woman who has a baby in the Neonatal Intensive Care Unit, and it is a common problem during stressful times. However, health care professionals, family, friends, and even the mother herself may overlook it. Mothers who experience depressive symptoms negatively affect both their roles as parents and their bond with the child. The effects of depression range from mild to severe as they get worse. They affect not only the mother but also every member of her family (**Shiab El-Din et al., 2020**).

Up until six to eight weeks after delivery, mothers with preterm infants showed low parental confidence. For parents to fulfill their obligations as parents effectively, parenting confidence is crucial. A research indicated that when mothers of premature babies hospitalized to the neonatal intensive care unit (NICU) had the chance to get knowledge of fundamentals of newborn care, including nursing, swapping out diapers, determining temperature of body, and washing, they felt more confident. Better results for newborn health and mother-infant interactions are associated with teaching mothers of premature babies how to take care of their babies while they're at the hospital. Additionally, mothers who are more confident in their parenting skills have better self-control and abilities to care for their children, which supports baby health and wellness (**Jang & Ju, 2020**).

Parents of preterm infants are currently experiencing less psychological distress because to a variety of interventions. Among these strategies, which come in many forms, is empowerment. Enhancing one's capacity for critical thought, rational decision-making, and self-determination is the process of empowerment. When participating in empowerment program, healthcare professionals partner with individuals who are gaining power, helping them to identify issues and worries, communicate their emotions, create goals and plans of action, and receive feedback on their development (Zhang et al., 2021).

Empowerment program is a behavioral educational program designed specifically for parents of preterm babies may contain facts regarding baby behavior, parenting techniques, parental engagement in the care of the babies, the relationship between the parents and the babies, and the change from one role as a parent to another. Empowerment programs have been shown to reduce negative parental feelings compared to standard therapies. They have also been shown to improve parent-infant contact, self-efficacy, parenting confidence, and caring behaviors (Ghomi et al., 2019).

#### **Significance of study:**

Every year, 14, 9 million babies are born preterm (about 11% of all live births globally), and the number is increasing. Before being discharged home, preterm babies may need to stay in the neonatal intensive care unit (NICU) for a considerable amount of time following birth. Parenting can be really challenging during this time. Parental stress brought on by NICU stays is a severe problem that can influence parenting techniques and lead to long-term mental and health issues for both parents and their babies (VanVeenendaal et al., 2020).

Levels of maternal stress and psychological anguish encountered by women have continued to be important, ranging from 30% to 70% after childbirth. One in every three women will suffer from an anxiety condition eventually in their life, particularly after motherhood. This occurrence is anticipated to occur 6.1-27.9% of the time. Anxiety was found to have a substantial link with unremarkable birth outcomes, such as premature birth (Swee Leong et al., 2018).

#### **Aim of the study:**

To evaluate the effect of maternal empowerment program on psychological distress and parenting confidence among mothers of premature infants admitted to neonatal intensive care unit.

#### **It will be accomplished by:**

1. Assessing levels of the psychological distress and parenting confidence.
2. Developing and implementing the maternal empowerment program.
3. Evaluating its effect on psychological distress and parenting confidence among mothers.

#### **Research Hypothesis:**

Level of psychological distress among mothers of premature babies would be reduced and parenting confidence would be enhanced following the program's implementation.

#### **Subject & Methods:**

**Research design:** to achieve the study's goal, a quasi-experimental design (one group pre – post test design) was used. Experimental study in which an independent variable is changed is analogous to quasi-experimental research. There is no control group, random selection, random assignment, or active

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manipulation, which sets it apart from experimental research.

### **Research Setting:**

The research carried out at Benha University Hospital's Neonatal Intensive Care Unit, which is connected to the Qalyubia Governorate's Ministry of Higher Education.

### **Research Subject:**

**Sample size:** This study consisted of 60 mothers.

### **Sampling type:**

A convenience sampling who met following criteria:

### **Inclusion criteria:**

- Mother's agreement to participate in the study.

-Mothers of prematurely born infants (gestational age 28–36 weeks) who were admitted to a NICU.

### **Exclusion criteria:**

-Mothers with history of psychological illness and addiction.

**Tools of data collection:** The data was gathered using the following tools. The researchers translated all of the tools into Arabic, then retranslated into English and checked for accuracy.

### **Tool (I): A structured interviewing questionnaire sheet:**

It was utilized to collect sociodemographic and clinical data of mothers and infants and it included:

**A-Mother's characteristics as** (age, educational level, job, residence, family income, number of pregnancy, number of birth, type of delivery and previous history of the birth of premature infant).

**B- Infant's characteristics as** (weight at birth (weeks), gestational birth age, sex, birth order and length of hospitalization).

### **Tool (II): Parental stress scale (PSS):**

**Berry, (1995)** developed this scale. It was used to assess mothers' perceptions of the Neonatal Intensive Care Unit and their level of stress. It had eighteen items that represented both positive (such as emotional rewards and personal growth) and negative (such as demand and restriction) aspects. Every item was given a rating on a 5-point Likert scale, with the options being strongly disagree, disagree, agree, and highly agree.

This scale is simple to use, can be administered as an interview in less than ten minutes, and all items may be calculated. The range of this score was 18 to 90; a higher score indicated higher levels of stress, while a lower score indicated a lower level of stress.

### **Scoring system:**

- Mild stress: <50%
- Moderate stress: 50 % - 70%
- Sever stress :> 70%

### **Tool (III): The Beck Anxiety Inventory (BAI):**

**Beck et al., (1988)** developed this scale. It was used to assess the severity of general anxiety symptoms in NICU mothers. It consisted of 21 affective and somatic anxiety symptoms rated on a 4-point scale of experienced severity ranging from 0 to 3 where 0 indicates (Not at all), 1 (Mildly, but it didn't bother me much), 2 (Moderately, but it wasn't pleasant at times), and 3 (Severely, it bothered me a lot).

### **Scoring system:**

- (0 – 7) grades represent minimal, nonclinical significant symptoms
- (8 -15) grades represent mild anxiety symptoms

- (16 - 25) grades represent moderate symptoms
- (26 - 63) grades represent severe symptoms

**Tool (IV): The Edinburgh postnatal depression scale (EPDS):**

Wisner, (2002) created this scale (EPDS). It was developed to identify women at risk of creating depression after giving birth by recognizing depressed symptoms in mothers. It contained ten items. This scale is simple to administer and compute, taking less than 10 minutes. All items are scored from 0 to 3, with a maximum score of 30. A score of 13 has been confirmed to have a good predictive value for diagnosing women at risk of creating depression after giving birth.

**Scoring system:**

- Low risk: < 50%
- Moderate risk: 50 % - 70%
- High risk :> 70 %

**Tool (V): Karitane Parenting Confidence Scale (KPCS):**

This scale was created by Črnčec et al., (2008). It is a 15-item self-report questionnaire designed for mothers of children between the ages of 0 and 12 months that assesses parents' subjective self-efficacy or confidence in their parenting skills. A four-point rating system is used, with scores of 0 (never), 1 (not often), 2 (yes, occasionally), and 3 (yes, most of the time).

**Scoring system:**

There are no reverse-scored, and all items are scored in the same sequence. That is, the first response for each item is scored 0, the second 1, and so on. Items categorized as not relevant receive a score of 2. The KPCS has a possible score range of 0-45. The following clinical cut-off scores are suggested: non-clinical range >40, mild clinical range 36–39, moderate clinical range 31–35, and severe clinical range  $\geq 31$ .

**Methods:**

**Preparatory phase:**

A comprehensive literature review was carried out on the study area, including electronic studies, readily available books and papers, doctoral dissertations, research and peer interaction, as well as ideas from other sources and periodicals to create a knowledge base pertinent to the study field and to obtain a comprehensive understanding of all aspects related to the research topic in order to design the program and tools.

**Content Validity:**

Prior to the onset of data collection, five professionals with specialized knowledge in psychiatric and mental health nursing evaluated the instruments to make certain that the questions were relevant, obvious, complete, and applicable. The jury's suggestions led to the necessary changes being made, and the final form was developed.

**Reliability of the tools:**

The researchers applied reliability to test the internal consistency of the tool by administering the same instruments to the same individuals in comparable circumstances once. Test-retest reliability was calculated by comparing the results of repeated testing. The Beck Anxiety Inventory has a Cronbach's alpha of 0.90 and The Edinburgh Postnatal Depression Scale had a Cronbach's alpha of 0.91.

**Administrative approval:**

Primary official approval letter obtained from the Ethics Committee of the Benha University Faculty of Nursing. And then from the dean of faculty of nursing to the director of Benha University Hospital to conduct the proposed study. Once the objectives and design of the study were

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clarified, it was possible to carry it out with the least amount of resistance.

### **Ethical consideration:**

Every participant in the study was made aware that their involvement was entirely voluntary. The confidentiality and anonymity of each participant would be valued and safeguarded. The subjects were made aware that the information contained in the tools would only be utilized for research and that they might choose to leave the study at any moment or not participate at all. Once they agreed to participate in the research, they were required to sign a consent form.

### **Pilot study:**

Prior to beginning fieldwork, a pilot study was carried out to verify the tools' applicability and accuracy and determine how long it would take to finish each task. It was conducted on 10% of the sample size (6 mothers), who were part of the study's final sample. In light of pilot study's results, no modifications were needed.

### **Fieldwork:**

The actual study was divided into four phases:

#### **1-The assessment phase:**

Each mother gave their oral agreement before the interview began, following a description of the goals of the study. Mothers were interviewed using the tools of the study. The researchers filled out the interviewing schedules for each mother (pre-test), and depending on the mother's ability to react, each interview lasted 20-30 minutes. Pre-testing took one month to complete.

#### **2- The planning phase:**

In light of the findings from the first phase (phase 1) and a review of relevant

literature, empowerment program content was created to reduce psychological distress and improve parenting confidence among mothers of premature infants. The contents of program were prepared according to mothers' level of understanding in simple Arabic language. Based on the identified needs, teaching materials were prepared and the training strategy was created. In addition, the schedule, teaching sessions, media included, and the handout were prepared in the form of a booklet.

#### **3- The implementation Phase:**

Empowerment program was implemented to every of the studied mothers who were divided into small groups (5groups); each subgroup was composed of 12 mothers. The program was given through sessions; the total number of sessions was 8 (1 introduction about of program, 2 theoretical and 4 practical sessions and the final session for mothers to revise the program content and gaining overview about the all sessions and their objectives). Every subgroup participated in eight sessions; these sessions were arranged as 2 sessions in two days/ week at (Sunday and Monday) .Each session lasts 25-30 minutes for theoretical and 40-60 minutes for practical. The empowerment program's sessions were carried out from the beginning of July 2022 to the end of October 2022.

The program was done through lectures and discussions in small groups as teaching methods for theory. However, role play, demonstration and re-demonstration were employed as practical skills. As regard the educational material used, they were booklet and real objects. The researchers greeted and introduced themselves to the mothers at the start of each session. At the

end of every session mothers were discussed to resolve any misunderstandings that may have arisen through making conclusion and taking feedback from mothers about content of the session and orienting them about the content of the next session and then the researchers thanked the mothers. Every session started with a brief summary of the previous one's content, followed by a discussion of the following one's goals in plain language suitable for the mothers' comprehension level. This was done to make sure the moms understood the program's material. After the final session, the researchers created a post-test using the data gathering instruments they had previously employed.

**Program's content was applied in the following steps:**

**Session 1:** Starting with familiarity between the researchers and mothers, a brief overview, explanation of the program schedule, and presentation of the program's content.

**Session 2:** Contains the tendered information about characteristics of premature infants, the distinctions between newborns who are immature and mature, orientation to NICU function and environment, emotional expression of premature infants and NICU admission.

**Session 3:** Interpretation of infant's behaviors, its growth and development, and gives further suggestions regarding increasing the mother's participation to take care of the infant and meeting its needs.

**Session 4:** Applying mediation-based stress reduction skills.

**Session 5:** Routine care of premature infants (proper and safe feeding, skills enhancement

on how to cope with an emergency situations).

**Session 6:** Psychological care for mothers (Apply an exercise to reduce negative emotions, Apply deep breathing exercise).

**Session7:** Provision of parental confidence and emotional support for infant care.

**Session 8:** Summary of the main points of the program content.

**4: Evaluating phase:**

This phase aimed to evaluate the effect of maternal empowerment program to reduce psychological distress and improve parenting confidence on mothers of premature infants by using post-test that similar to the pre-test was applied.

**Data Analysis:**

All data were gathered, labeled, tallied, and then statistically examined. The Statistical Package for Social Sciences (SPSS version 20.0) was utilized to conduct statistical analysis; also Microsoft Office Excel is used for data processing and graphical display. For quantitative data, descriptive statistics were used in the form of mean and standard deviation, and for qualitative variables, frequency and percentages. Qualitative categorical variables were compared using chi-square test. Between variables, the Pearson correlation coefficient was determined. Statistical significance was considered at p-value  $p \leq 0.05$ , and considered highly statistically significance at p-value  $p \leq 0.001$ . parametrical tests, such as the paired (t) test, which compares mean scores between the same sample at different research phases, and the independent (t) test, which compares mean scores between the sample as control and study groups.

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### Results:

**Table (1)** shows that, mean age of the studied mothers is  $34.01 \pm 5.76$  years, the most of them (98.3%) are married and two thirds of them (65%) have secondary education. According to family income, more than three quarters of the studied mothers (76.7%) have insufficient income and more than half of them (58.3%) are from urban areas. Also, less than one third of them (30%) are work and mean of number of pregnancy and births are  $2.10 \pm 0.76$  and  $1.99 \pm 0.45$ . Furthermore, less than two thirds (60%) of the studied mothers have normal type of delivery.

**Figure (1)** reveals that, more than three quarters (80%) of the studied mothers not have previous history of the birth of a premature infant.

**Table (2)** detects that, mean weight of the studied infants is  $1.59 \pm 0.32$  and mean of gestational age is  $32.2 \pm 2.89$ . Also, nearly two thirds (63.3%) of them are females and more than half (60%) of them their birth order is 2 to 3. Furthermore, mean length of hospitalization is  $2.26 \pm 0.33$ .

**Table (3)** reports that, about two thirds (65%) of the studied mothers suffered from severe stress pre empowerment program, while more than half (55%) have mild stress post implementation of the program with high significant difference at p-value  $<0.01^{**}$ . Regarding to anxiety inventory, more than half (58.3%) of the studied mothers suffered from severe anxiety pre empowerment program, while more than one third (36.7%) of them have minimal anxiety post implementation of the program with high significant difference at p-value  $<0.01^{**}$ . According to postnatal depression scale, more than half (51.7%) of the studied mothers have high risk to depression pre empowerment

program, while nearly three fifths (56.7%) of them have low risk post implementation of the program, with high significant difference at p-value  $<0.01^{**}$ .

**Table (4)** reports that, more than two thirds (66.7%) of the studied mothers have low parenting confidence pre empowerment program, while nearly two thirds (63%) of them have high confidence post implementation of the program, with high significant difference at p-value  $<0.01^{**}$ .

**Figure (2)** describes that, more than two thirds (66.7%) of the studied mothers have low parenting confidence pre empowerment program, while nearly two thirds (63%) of them have high confidence post implementation of the program, with high significant difference at p-value  $<0.01^{**}$ .

**Table (5)** describes that, high significant model detected through f test value was 14.660 with p value .000<sup>\*\*</sup>. This model explain 59% of the variation in stress detected through  $r^2$  value 0.59. Also, explained that education level, family income, number of births and number of pregnancies have high frequency negative effect on stress at p value  $<0.01^{**}$ . On other hand, job and previous history of the birth of a premature infant have slight frequency negative effect on stress at p value  $<0.05^*$ . Meanwhile, age has slight positive effect on stress level at p value  $<0.05^*$ .

**Table (6)** stats that, high significant model detected through f test value was 13.912 with p value.000<sup>\*\*</sup>. This model explains 58% of the variation in anxiety detected through  $r^2$  value 0.58. Also, shows that education level, number of births and number of pregnancies have high frequency negative effect on anxiety at p value  $<0.01^{**}$ . On other hand, previous history of the birth of a premature



infant have slight frequency negative effect on anxiety at p value  $<0.05^*$ . Meanwhile, age and family income have no effect on anxiety at p value  $>0.05$ .

**Table (7)** states that, high significant model detected through f test value was 11.019 with p value.000\*\*. This model explains 48% of the variation in depression detected through  $r^2$  value 0.48. Also, shows that education level and number of pregnancies have high frequency negative effect on depression at p value  $<0.01^{**}$ . On other hand, job, number of births, previous history of the birth of a premature infant have slight frequency negative effect on depression at p value  $<0.05^*$ . Meanwhile, family income has no effect on depression at p value  $>0.05$ .

**Table (8)** stats that, high significant model detected through f test value was 12.400 with p value. 000. This model explains 56% of the variation in parenting confidence scale

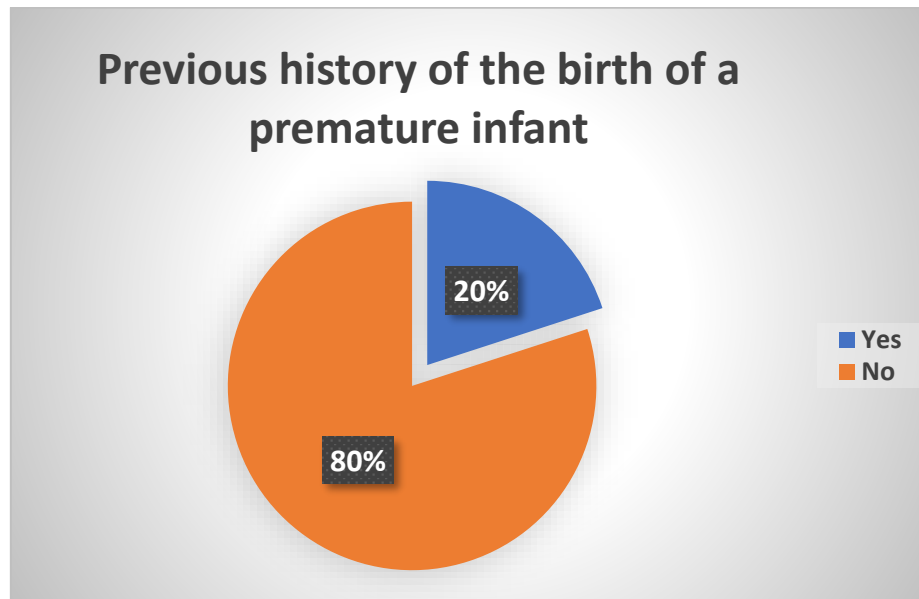
detected through  $r^2$  value 0.560. Also, shows that age, education level and number of births have high frequency positive effect on parenting confidence at p value  $<0.01^{**}$ . On other hand, number of pregnancies, previous history of the birth of a premature infant have slight frequency positive effect on parenting confidence at p value  $<0.05^*$ . Meanwhile, job, family income have no effect on parenting confidence at p value  $>0.05$ .

**Table (9)** reveals that, there is a highly statistically significant positive correlation between stress and anxiety at p value  $<0.01^{**}$ , also that there is a highly statistically significant positive correlation between stress, anxiety and depression at p value  $<0.01^{**}$ . While, there is a highly statistically significant negative correlation between total level of confidence and total level of stress, anxiety and depression among the studied mothers at p value  $<0.01^{**}$ .

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**Table (1): Distribution of the studied mothers according to their characteristics (n=60)**

<b>Characteristics of the studied mothers</b>	<b>N</b>	<b>%</b>
<b>Age</b>		
Less than 25 years	6	10
From 25 years to less than 30 years	9	15
From 30 to less than 35 years	28	46.7
From 35 years to more	17	28.3
Mean SD	34.01±5.76	
<b>Residence</b>		
Rural	25	41.7
Urban	35	58.3
<b>Educational level</b>		
Illiterate	1	1.7
Read and write	5	8.3
Preparatory school	7	11.7
Secondary school	39	65
University	8	13.3
<b>Family income</b>		
Sufficient	14	23.3
Insufficient	46	76.7
<b>Job</b>		
Work	18	30
Not work	42	70
<b>Number of pregnancies</b>		
One time	19	31.7
2-3 times	37	61.7
4 or more	4	6.6
Mean SD	2.10±0.76	
<b>Number of births</b>		
One time	22	36.7
2-3 times	36	60
4 or more	2	3.3
Mean SD	1.99±0.45	
<b>Type of delivery</b>		
Cesarean section	24	40
Normal	36	60



**Figure (1): Distribution of the studied mothers according to previous history of the birth of a premature infant.**

**Table (2): Distribution of the studied infants according to their characteristics (n=60)**

Infants characteristics	N	%
<b>Weight at birth</b>		
Less than 1 kg	5	8.3
From 1 kg to less than 2 kg	37	61.7
From 2 kg to 2.5 kg	18	30
Mean SD	1.59±0.32	
<b>Gestational birth age</b>		
From 26 to 28 wks	4	6.7
From 29 to 30wks	20	33.3
From 30 wks to less than 37 wks	36	60
Mean SD	32.2±2.89	
<b>Sex</b>		
Male	22	36.7
Female	38	63.3
<b>Birth order</b>		
First baby	22	36.7
Baby (N 2) or 3	36	60
Baby (N 4) or more	2	3.3
<b>Length of hospitalization</b>		
Less than one week	8	13.3
From one to less than three weeks	40	66.7
From three to less than five weeks	9	15
Five weeks or more	3	5
Mean SD	2.26±0.33	

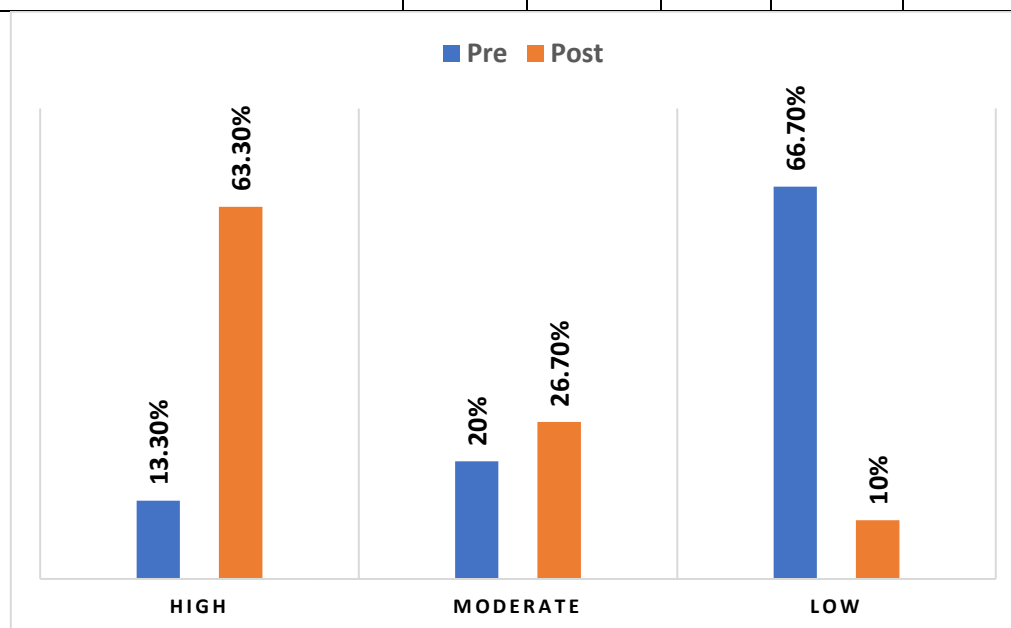
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**Table (3): Distribution of the studied mothers according to total of psychological distress domains pre and post empowerment program (n=60)**

Total of psychological distress domains	Pre		Post		Chi-square P value
	N	%	N	%	
<b>Parental stress scale</b>					
Mild	8	13.3	33	55	18.997 <0.01**
Moderate	13	21.7	18	30	
Severe	39	65	9	15	
<b>Beck Anxiety Inventory</b>					
Minimal	5	8.3	22	36.7	17.665 <0.01**
Mild	7	11.7	25	41.7	
Moderate	13	21.7	9	15	
Severe	35	58.3	4	6.6	
<b>Edinburgh postnatal depression scale</b>					
Low risk	9	15	34	56.7	19.100 <0.01**
Moderate risk	20	33.3	17	28.3	
High risk	31	51.7	9	15	

**Table (4) Distribution of the studied mothers according to total of parenting confidence scale pre and post empowerment program (n=60)**

Total of parenting confidence	Pre		Post		Chi-square P value
	N	%	N	%	
High	8	13.3	38	63.3	17.006 <0.01**
Moderate	12	20	16	26.7	
Low	40	66.7	6	10	



**Figure (2) Distribution of the studied mothers according to total of parenting confidence scale pre and post empowerment program**

**Table (5): Multiple Linear regression model for stress (n=60).**

		Unstandardized Coefficients	standardized Coefficients		
		B	B	T	P. value
<b>Age</b>		.298	.203	4.087	.034*
<b>Education level (high)</b>		-.366	.298	7.008	.007**
<b>Job (work)</b>		-.250	.187	3.114	.042*
<b>Family income (sufficient)</b>		-.401	.338	6.932	.008**
<b>Number of births</b>		-.301	.237	7.001	.007**
<b>Number of pregnancies</b>		-.299	.226	5.999	.009**
<b>Previous history of the birth of a premature infant(yes)</b>		-.201	.158	4.771	.041*
<b>Model</b>	<b>R<sup>2</sup></b>	<b>Df.</b>	<b>F</b>	<b>P. value</b>	
<b>Regression</b>	<b>0.59</b>	7	14.660	<b>.000**</b>	

a. Dependent Variable: **stress**

b. Predictors: (constant): age, education level, job, family income, number of births, number of pregnancies and previous history of the birth of a premature infant.

**Table (6): Multiple Linear regression model for anxiety (n=60).**

		Unstandardized Coefficients	standardized Coefficients		
		B	B	T	P. value
<b>Age</b>		.132	.093	1.761	.062
<b>Education level</b>		-.290	.213	6.914	.009**
<b>Job</b>		-.198	.112	2.878	.040*
<b>Family income</b>		-.087	.016	1.684	.071
<b>Number of births</b>		-.330	.286	8.045	.002**
<b>Number of pregnancies</b>		-.346	.293	9.332	.000**
<b>Previous history of the birth of a premature infant</b>		-.211	.176	4.205	.031*
<b>Model</b>	<b>R<sup>2</sup></b>	<b>Df.</b>	<b>F</b>	<b>P. value</b>	
<b>Regression</b>	<b>0.58</b>	7	13.912	<b>.000**</b>	

a. Dependent Variable: **anxiety**

b. Predictors: (constant): age, marital status, education level, job, family income, number of births, number of pregnancies and previous history of the birth of a premature infant.

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**Table (7): Multiple Linear regression model for depression (n=60).**

		Unstandardized Coefficients	standardized Coefficients		
		B	B	T	P. value
<b>Age</b>		.231	.188	3.980	.035*
<b>Education level</b>		-.355	.298	8.156	.000**
<b>Job</b>		.201	.167	2.980	.041*
<b>Family income</b>		-.069	.022	0.987	.090
<b>Number of births</b>		-.245	.197	5.001	.011*
<b>Number of pregnancies</b>		-.269	.221	6.012	.009**
<b>Previous history of the birth of a premature infant</b>		-.200	.145	3.786	.038*
<b>Model</b>	<b>R<sup>2</sup></b>	<b>Df.</b>	<b>F</b>	<b>P. value</b>	
<b>Regression</b>	<b>0.48</b>	7	11.019	.000**	

a. Dependent Variable: **depression**

b. Predictors: (constant): age, marital status, education level, job, family income, number of births, number of pregnancies and previous history of the birth of a premature infant.

**Table (8): Multiple Linear regression model for Parenting Confidence Scale (n=60).**

		Unstandardized Coefficients	standardized Coefficients		
		B	B	T	P. value
<b>Age</b>		.260	.210	5.990	.009**
<b>Education level</b>		.401	.327	10.676	.000**
<b>Job</b>		.100	.023	1.040	.088
<b>Family income</b>		.097	.012	0.967	.097
<b>Number of births</b>		.301	.234	6.001	.004**
<b>Number of pregnancies</b>		.229	.165	3.002	.041*
<b>Previous history of the birth of a premature infant</b>		.234	.179	3.098	.032*
<b>Model</b>	<b>R<sup>2</sup></b>	<b>Df.</b>	<b>F</b>	<b>P. value</b>	
<b>Regression</b>	<b>0.56</b>	7	12.400	.000**	

a. Dependent Variable: Parenting Confidence Scale

b. Predictors: (constant): age, marital status, education level, job, family income, number of births, number of pregnancies and previous history of the birth of a premature infant.

**Table (9): Correlations between the studied variables post empowerment program**

		<b>Stress</b>	<b>Anxiety</b>	<b>Depression</b>	<b>Confidence</b>
<b>Stress</b>	r. p		0.657 <0.01**	0.599 <0.01**	-0.486 <0.01**
<b>Anxiety</b>	r. p	0.657 <0.01**		0.601 <0.01**	-0.508 <0.01**
<b>Depression</b>	r. p	0.599 <0.01**	0.601 <0.01**		-0.547 <0.01**
<b>Confidence</b>		-0.486 <0.01**	-0.508 <0.01**	-0.547 <0.01**	

\*Slight significant <0.05\* \*\*high significant if p value <0.01\*\*

**Discussion:**

Premature birth is a traumatic experience for the parents since it necessitates hospitalization and family separation, both of which lead to psychological stress in the parents and poor bonding to their infant. In the care of the newborn, mothers play a crucial role. It is crucial to support them in feeling more competent to educate and care for their child. The maternal empowerment program proved effective in lowering mothers' psychological discomfort related to their time in the NICU and boosting their parental confidence (**Bowers, 2018**).

The result of the present study showed that, more than three quarters of the studied mothers had not previous history of the birth of a premature infant while one fifth of them had history. This could be due to complications that occurred during pregnancy such as gestational diabetes, pre-eclampsia, placenta previa or threatened abortion and possible exposure of mother to the same conditions that result in preterm at every stage of pregnancy. This result was inconsistent with the study done by **Shiab El-Din et al., (2020)** who concluded that nearly half of the participants had past history of pre-mature infants.

Concerning to total parental stress level of the studied mothers, the result of the present study revealed that, about two thirds of the studied mothers suffered from severe stress pre empowerment program, while more than half of them had mild stress post implementation of the program. From the researcher point of view this might be due to that the program was found to be effective in reducing the level of stress among mothers. With implementation of the empowerment program, the mothers during the intervention group felt less stress about the NICU environment, the separation from their infant and the way their baby looked and behaved and treatments in the NICU. This result was congruent with the study done by **Janeswari & Manjubala, (2020)** who reported that there was significant reduction in the level of stress among mothers of neonates after the administration of COPE program to the mothers of neonates.

Regarding to total level of anxiety of the studied mothers, the result of the present study illustrated that, more than half of the studied mothers suffered from severe anxiety pre empowerment program, while more than one third of them have minimal anxiety post implementation of the program. This may be due to providing emotional support, empowering mothers, familiarity with

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surroundings and supportive department policies, and training them to practice new skills through guided and organized participation during the program. This result was in the same line with the study done by **Mianaei et al., (2019)** who reported that the anxiety level of the mothers reduced after performing COPE program.

Concerning total depression level among the studied mothers,, the result of the present study showed that, more than half of the studied mothers had high risk to depression pre empowerment program, while nearly three fifths of them had low risk post implementation of the program. This could be due to applying psychological interventions to the mothers as deep breathing exercises to improve the psychological state of them and to reduce negative emotions. This result was contradicted with the study done by **Nieves, (2017)** who indicated that there was no significant difference between the pre-intervention groups and post the intervention group.

The result of the present study illustrated that, more than two thirds of the studied mothers had low parenting confidence pre empowerment program, while nearly two thirds of them had high confidence post implementation of the program, with high significant difference. From the researcher point of view this might be due to encouraging the mothers repeatedly practicing specific infant-care activities as breast feeding where breastfeeding difficulties in premature infants can decrease mothers 'confidence and also mothers' confidence was enhanced because increasing their ability to recognize the infant's needs during the program and also observation and protection of the newborn, contact with neonates, positive perception by nurses, and therapeutic communication with

nursing staff . This result was supported by the study done by **Jang& Ju, (2020)** who revealed that there was a significant difference increase after an educational intervention and the parenting confidence of mothers of preterm infants improved.

The result of the present study revealed that education level, number of births and number of pregnancies had high frequency negative effect on anxiety and depression. On other hand, previous history of the birth of a premature infant had slight frequency negative effect on anxiety and depression. Meanwhile, age and family income had no effect on anxiety and depression. From the researcher point of view this might be due to the importance of education and experiences of the parent. Highly educated parents are more aware towards the correct and healthy methods while dealing with their infants so that the anxiety level and depression decreased. This result was congruent with the study done by **Carvalho et al., (2019)** who found that there was high negative effect of education level, number of births and number of pregnancies on the anxiety level and depression of the parents.

The present study also illustrated that age, education level and number of births had high frequency positive effect on parenting confidence. On other hand, number of pregnancies, previous history of the birth of a premature infant had slight frequency positive effect on parenting confidence. Meanwhile, job, family income had no effect on parenting confidence. This might be due to building parental confidence has the potential to have enduring positive effects. By using a strengths-based approach and building upon parents' confidence in dealing with particular challenges, parents can be empowered to cope with future challenges and situations,



including having the confidence to call upon and accept help if necessary in the future and allowing them to make decisions regarding the care of their child. This result was congruent with the study done by **Coleman& Karraker, (2017)** who mentioned that age, education level and number of births has high positive effect on maternal self-efficacy beliefs, competence in parenting.

Finally, the result of the present study revealed that, there was highly positive correlation between stress, anxiety and depression. This might be due to mothers who are separated from their newborns exhibit elevated levels of stress, anxiety, and sadness. These parents' psychological responses include anxiety, agitation, sobbing, sadness, anger, melancholy, difficulty focusing, and hopelessness. These disorders are typically linked to mothers' lack of understanding about how to engage with their newborn while they are in the hospital and how to fulfill their role as parents.

While there is highly negative correlation between confidence level and stress, anxiety and depression level of mothers this might be due to for parents to effectively carries out their responsibilities, confidence in their parenting is crucial. Additionally, mothers with greater parental confidence are better able to care for and regulate their infants, which lower stress and ultimately improve the health and wellness of the child. This result was in the same line with the study done by **Mohammaddoos et al., (2021)** who reported that there was highly statistically significant correlation between stress, anxiety and depression while, there is no statistically significant correlation between confidence level and stress, anxiety and depression.

### **Conclusion:**

The maternal empowerment program had a positive effect on reducing psychological distress and improving parenting confidence among mothers.

### **Recommendations:**

-It is recommended that application of empowerment program for all Mothers of Premature Infants.

- It is recommended to conduct additional research with larger sample numbers and longer follow-up times at various intervals.

### **Acknowledgement:**

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### **References:**

**Abd Elsalam, Z. (2018).** Relationship among Depression, Anxiety and Mother Infant Bonding in Mothers of Premature babies.

**Asghari, E., Shirin abadi Farahani, A., Nourian, M., Bonakchi, H., & Gholami, S. (2021).** The Effects of Telenursing on Stress in Mothers with Premature Infants. Evidence Based Care, 10(4), 7-16.

**Beck, A., Epstein, N., Brown, G., & Steer, R. (1988).** An inventory for measuring clinical anxiety: psychometric properties. Journal of Consulting and Clinical Psychology, 56, 893–897.

**Berry, J. (1995).**The parental stress scale: initial psychometric evidence. Journal of social and personal. <https://doi.org/10.1186/s12884-020-02956-2>.

**Bowers, L. (2018).** An Empowerment Program to Reduce Parental Distress and Neonatal Length of Stay. Doctoral thesis of Nursing Practice, University of Missouri-Kansas City.

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- Carvalho, A., Linhares, M., Padovani, F., & Martinez, F. (2019).** Anxiety and depression in mothers of preterm infants and psychological intervention during hospitalization in neonatal ICU. *Span J Psychol*; 12:61-70
- Coleman, P., & Karraker, K. (2017).** Maternal self efficacy beliefs, competence in parenting, and toddlers' behaviour and developmental status. *Infant Mental Health Journal*, 24(2), 126-148.
- Črnčec, R., Barnett, B., & Matthey, S. (2008).** *Karitane Parenting Confidence Scale: Manual.* Sydney South West Area Health Service. Sydney:Australia.
- Ghomi, R., Hosseini,V., & Ahmedi, F.(2019).**Effect of an empowerment program on the caring behaviors of mothers with preterm infants: the health belief model approach, *Int. J. Health Promot. Educ.*57:55-66.
- Jang, E., & Ju, H. (2020).**Effects of an Infant Care Education Program for Mothers of Late-preterm Infants on Parenting Confidence, Breastfeeding Rates, and Infants' Growth and Readmission Rates.*Child Health Nurs Res*, Vol.26, No.1: 11-22.
- Jnaneswari, K., & Manjubala, D. (2020).** Effect of COPE Program (Creating Opportunities for Parent Empowerment) on Maternal Stress and Parent Neonate Interaction among NICU Mothers. *Archives of Reproductive Medicine and Sexual Health.* ISSN: 2639-1791, Volume 3, Issue 1, PP: 16-23
- Lotterman, J., Lorenz, J., & Bonanno, G. (2019).** You Can't Take Your Baby Home Yet: a longitudinal study of psychological symptoms in mothers of infants hospitalized in the NICU. *Journal of clinical psychology in medical settings*, 26(1):116-22.
- Mianaei1, S., Karahroudy, F., Rassouli, M., & Tafreshi, M. (2019).** The effect of Creating Opportunities for Parent Empowerment program on maternal stress, anxiety, and participation in NICU wards in Iran. *Iranian Journal of Nursing and Midwifery*, Vol. 19 | Issue 1 94.
- Mohammaddoos, F., Mosayebi, Z., Peyrovi, H., Chehrzad, M., & Mehran, A. (2021).** The effect of mothers' empowerment program on premature infants' weight gain and duration of hospitalization. *Iranian Journal of Nursing and Midwifery Research.* Vol. 21 ,Issue 4.
- Nieves, H. (2017).** "Effect of a Parent Empowerment Program on Length of Stay and Parental Stress in the Neonatal Intensive Care Unit". *DNP Projects.* 167. [https://uknowledge.uky.edu/dnp\\_etds/167](https://uknowledge.uky.edu/dnp_etds/167)
- Polizzi, C., Perricone, G., Morales, M., & Burgio, S. (2021).**A Study of Maternal Competence in Preterm Birth Condition, during the Transition from Hospital to Home: An Early Intervention Program's Proposal. *Int. J. Environ. Res. Public Health*, 18,8670.
- Psychogiou, K., Ashworth, C., Weaver-Lowe, L., Carroll, C., Callow, C., & Edi-Osagie, N. (2020).** Novel use of Facetime in supporting maternal-infant bonding. *Journal of Neo-natal Nursing*, 26(2), pp.106-108.
- Shiab El-Din, S., Mourad, G., El-Fatah, A., & Osman, W. (2020).** Assessment of Depression and Stress Symptoms among Mothers of Premature Infants Admitted to Neonatal Intensive Care Unit. *Tanta Scientific Nursing Journal*, 19(2), 51-67.

**Swee Leong, O., Khatijah, L., Mahmoud, D., Kim, L., Kim, G., & Salimah, J. (2018).** Stress and Anxiety among Mothers of Premature Infants in a Malaysian Neonatal Intensive Care Unit, *Journal of Reproductive and Infant Psychology*, DOI: 10.1080/02646838.2018.1540861.

**VanVeenendaal, N., VanKempna, A., Franckc, L., O'Briend, K., Limpense, J., VanderLee, J., VanGoudoever, J., & VanderSchoora, S. (2020).** Hospitalising preterm infants in single family rooms versus

open bay units: A systematic review and meta-analysis of impact on parents. *E Clinical Medicine* 23:100388.

**Wisner, P. (2002).** Postpartum depression, *N Engl J Med*; 347(3): 194-199.

**Zhang, O., Jinhua, W., Xiaoyu, S., & Zhihong N. (2021).** Empowerment programs for parental mental health of preterm infants: A meta-analysis. *Journal of Patient Education and Counseling*. G Model, PEC-6916; No. of Pages 8.

## تأثير برنامج تمكين الأمومة على الضيق النفسي وثقة الوالدين لدى أمهات الأطفال المبتسرين الذين يدخلون وحدة العناية المركزة لحديثي الولادة

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إن دخول الاطفال المبتسرين في وحدة العناية المركزة لحديثي الولادة قد يؤثر سلبا على الوظائف النفسية للأم. عادةً ما تعاني أمهات الاطفال المبتسرين الذين يدخلون وحدة العناية المركزة لحديثي الولادة من مستويات عالية من التوتر والقلق وأعراض الاكتئاب وانخفاض الثقة. لذلك هدفت هذه الدراسة إلى تقييم تأثير برنامج تمكين الأمومة على الضيق النفسي وثقة الوالدين لدى أمهات الأطفال المبتسرين الذين يدخلون وحدة العناية المركزة لحديثي الولادة. وتم تطبيق هذه الدراسة على عينة مناسبة من 60 أم لديهم أطفال مبتسرين تم إدخالهم إلى وحدة العناية المركزة لحديثي الولادة بمستشفى بنها الجامعي. وأظهرت نتائج هذه الدراسة أن أكثر من نصف الأمهات الخاضعين للدراسة تعاني من ضائقة نفسية شديدة، وأكثر من ثلثيهن لديهن ثقة أبوية منخفضة قبل تطبيق برنامج التمكين، في حين أن ما يقرب من ثلثيهن لديهن ثقة عالية بعد تطبيق البرنامج. كما توجد علاقة ارتباطية سلبية ذات دلالة إحصائية عالية بين مستوى الثقة الكلي ومستوى التوتر والقلق والاكتئاب لدى الأمهات بعد تطبيق البرنامج. وأستنتجت هذه الدراسة أن لبرنامج تمكين الأمومة أثر إيجابي في تقليل الضائقة النفسية وتحسين الثقة الوالدية لدى أمهات الأطفال المبتسرين المقبولين في وحدة العناية المركزة لحديثي الولادة. وقد أوصت الدراسة بإجراء المزيد من الدراسات بأحجام عينات أكبر وفترات متابعة أطول على فترات زمنية مختلفة.