Stressors and Coping Strategies among Parents with Premature Infant

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Abstract

Background: Premature infants experience many problems during their stay in the neonatal intensive care unit (NICU). Premature birth creates a sense of loss in family members, especially mothers, and causes tension and stress. **Aim:** This study aims to a assess stressors and coping strategies among parents with premature infant. **Design:** A descriptive research design was utilized in this study. **Setting:** This study was conducted at al Raml children hospital (neonatal intensive care unit) Alexandria city. **subjects**: Convenient sample of (50 parents of premature infant) were selected. **Tools:** Tool I: Interviewing Questionnaire, II: The Parent stressor scale (PSS NICU), III: Ways of Coping check list (WCCL). **Results:** the majority of the parents in the studied sample mentioned that near to half of them had severe stress level , near to one third of parents had mild stress, more than one quarters of them had moderate stress, and increasing parents age lead to increase mean scores of stress due to changes in infant appearance and decrease parent infant relationship stressor with statistically significance differences. **Conclusion**: most types of stressors; changes in the infant appearance was the highest mean scores followed by changes in sight and unit light, then dealing with health team staff and lowest mean percent was parent infant relationship. Concerning, most coping strategies; parents seeking social support for instrumental reason had high mean percent followed by turning to religion, then denial of illness. Also, parents had more than half of mean percent in express of feeling, wishful thinking, behavioral restructuring, self-criticism and social support for emotional reason. **Recommendations:** Nurses should provide educational classes for parents about preterm infants to elevate their level of health awareness about disease and its care in outpatient clinics.

Keywords: Stressors, Coping Strategies, Parents, Premature Infants

Introduction:

Globally, prematurity is the leading cause of death in children under the age of 5 years. And in almost all countries with reliable data, preterm birth rates are increasing. Approximately 15 million infants worldwide are born before the 37th week of gestation in other words, prematurely. This number is gradually increasing. Approximately 1 million children die every year due to complications arising from premature birth. Babies who survive often live with problems such as learning disabilities, vision and hearing problems **(Çekin & Turan, 2018)**.

Inequalities in survival rates around the world are stark. In low-income settings, half of the babies born at or below 32 weeks (2 months early) die due to a lack of feasible, cost-effective care, such as warmth, breastfeeding support, and basic care for infections and breathing difficulties. In high-income countries, almost all of these babies survive. Suboptimal use of technology in middle-income settings is causing an increased burden of disability among preterm babies who survive the neonatal period **(Purisch & Gyamfi-Bannerman, 2017)**.

Preterm infants are particularly vulnerable to complications due to impaired respiration, difficulty in feeding, poor body temperature regulation and high risk of infection. With the increasing contribution of neonatal deaths to overall child mortality, it is critical to address the determinants of poor outcomes related to preterm birth to achieve further reductions in child mortality. Infants born prematurely are at risk for cerebral palsy (a group of nervous system disorders that affect control of movement and posture and limit

activity), developmental delays, and vision and hearing problems **(Priante et al., 2016)**.

During pregnancy, families develop expectations for their future babies according to their prior experience. However, premature birth may adversely affect such expectations.

Parent stress originates from the premature birth, the environment of the neonatal intensive care unit, changes in parental role perception, the health status of the mother and baby after birth and dependence on healthcare professionals. Parents with infants hospitalized in neonatal intensive care experience shock, doubt, frustration, guilt, sadness, depression, hostility, anger, fear, anxiety, grief, despair, feelings of failure and loss of self-esteem **(Finlayson, et al., 2014)**.

Coping strategies used and the abilities to deal with previous stressful situations may predict how parents may cope with the current stressful situation. A popular concept assumes that an individual uses the same coping strategies across all different stressful situations because the personal characteristics of the individual are relatively immutable attributes that are expected to operate in the same way on numerous occasions and which lead to the same coping responses **(Hall et al., 2015)**.

The nurses are required to provide emotional support for both parents. In fact, a combination of educational and emotional support might be most effective in reducing the psychological distress experienced by parents during their infant's hospitalization. Supportive nursing interventions in reducing parental stress is efficient and enabling the parents to cope with problems during their infant's hospitalization. Also supportive educational intervention could significantly lower stress scores among the fathers of infants in the NICU, but did not significantly change the mothers' stress scores **(Tandberg et al., 2018)**.

Significance of the Study

The proportion of premature children in Egypt has reached 10% to 12% of the birth rate **(MOH, 2016),** reducing the psychological stress among parents through studying causes of stress Parents with a premature infant can find themselves in a strange, advanced technological environment. It is an unexpected experience and extremely stressful for parents to have a premature infant and to have their babies treated in a neonatal intensive care unit **(Çekin & Turan, 2018)**.
not only serve parents, but also serve the providers of health care in hospitals.

The parent-infant bonding process that occurs during the newborn period establishes the foundation for a lifelong relationship. This typical process does not occur when the infant spends the first several weeks or months in the NICU **(Adhikari et al., 2019)**. Quantifying stress levels of parents and identifying the greatest environmental stressor by understanding the aspects of infants, parents and the environment that can cause stress may be useful in assisting the health personnel in understanding their importance and in improving the quality of care **(De Berker et al., 2016)**.

Aim of the Study

The aim of this study was to assess stressors and coping strategies among parents with premature infant

Research Questions

1. What are the types of stressors facing parents with premature infant?
2. What are the levels of stressors among parents with premature infant?
3. What are the coping strategies for parents with premature infant?

Subjects and Methods

The study was portrayed under four main designs as the following:

I. Technical Design:

A. Research design:

A descriptive research design was utilized in this study to conduct the study aim.

B. Research Setting:

This study was conducted at al Raml children hospital (neonatal intensive care unit) Alexandria city.

C. **Sampling:**

Convenient sample of all available parents with premature infant that were admitted to Neonatal Intensive care Unit and were eligible to participate in this study and providing direct care to their infants. The subject of the present sample included 50 parents

Part one: Socio demographic interviewing sheet was used to assess socio-demographic characteristics age, gender, educational level, occupation, income, salary and residence.

Part two: Medical assessment of preterm infant including: know diagnosis, identify preterm infant condition, gestational age, APGAR score, and vital signs.

Tool II: The Parent stressor scale (PSS NICU) developed by **Miles, (1991**) to measure the types of stressors facing parents at NICU and translated into Arabic language. It included 46 items in four subscales. The four subscales were stressors regarding sights and sounds (5 items); stressors regarding infant appearance (19 items); stressors regarding parent-infant relationship (10 items); and stressors regarding health care staff (12 items).

❖ **Scoring system**

Responses were scored under five-point Likert scale ranging from one to five in which 1= not at all stressful, 2= a little stressful, 3= moderately stressful, 4 = very stressful, and 5= extremely stressful. The range of total scores of each subscale was stressors regarding Sights and Sounds (1-25); stressors regarding Infant Appearance (1-95); stressors regarding Parent-Infant Relationship (1-50); stressors regarding health care staff (1-55); and the whole scale (1-225). Mild stress ranged between 1- 98 ; moderate stress ranged between 99 – 147 severe stress ranged between 148 – 225 scores.

Tool III: Ways of Coping check list (WCCL) developed by **Lazarus and folkman, (1984)** to measure the coping strategies for parents with premature infant to deal with stressors, modified by the researcher transferred into in Arabic language. It included 57 items denial (4 items); minimize situation (3 items);

D Tools of data collection: three tools were used in this study for data collection

Tool I: Interviewing Questionnaire: form was designed by the investigator and written in simple Arabic language based on scientific literature review to assess data about the following:

social support for emotional reason (3 items); wishful thinking (3 items); social withdrawal (4 items); escape -/ avoidance of problem (4 items); positive reinterpretation (4 items); acceptance (3 items); turning to religion (3 items); express of emotion (2 items); self-controlling (3 items); self-criticism (2 items); behavioral restructuring (4 items); cognitive restructuring (6 items), active coping (4 items); and seeking social support for instrumental reason (5 items).

❖ **Scoring system**

Responses were scored under Four-point Likert scale ranging from zero to three in which 0= not used, 1 = used somewhat, 2 = used quite a bit, and 3 = used a great deal, High scores indicated high levels of stress. The primary subscale consists of specific coping strategies parents use in response to stressful events which included denial; minimize situation; social support for emotional reason; wishful thinking; social withdrawal; escape -/ avoidance of problem; positive reinterpretation; acceptance; turning to religion; express of emotion; self-controlling; self-criticism; behavioral restructuring; cognitive restructuring, active coping; and seeking social support for instrumental reason.

Secondary substances: involved problem focused engagement: which included problem solving and cognitive restructuring subscales; emotion focused engagement which included social support and express emotions; problem focused disengagement: which included problem avoidance and wishful thinking and emotion focused disengagement which included social withdrawal and self-criticism.

Tertiary subscale: involves engagement which included problem solving, cognitive restructuring, social support and express emotions and disengagement: involves problem

avoidance and wishful thinking, social withdrawal and self-criticism.

Content validity and reliability:

The revision of tools was done by 7 expertise in psychiatric mental health specially to measure validity and reliability of tools was elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools.

II. Operational Design:

The operational design for this study consisted of three phases, namely preparatory phase, pilot study, and fieldwork.

Preparatory phase:

This phase included reviewing of literature related to types of stressors facing parents, and coping strategies for parents with premature infant by using books, articles, journals, and internet. This served to develop the study tools for data collection. During this phase, the investigator also visited the selected places to get acquainted with the personnel and the study settings. Development of the tools was under supervisors' guidance and expert's opinions were considered.

Pilot Study:

A pilot study was conducted on 10% of total sample of parents to test availability of study sample and clarity of the study tools. The pilot has also served to estimate the time needed for each subject to fill in the questions. According to the results of the pilot, no corrections and omissions of items were performed as needed. They were included in the main study subjects during the actual collection of data. The process of pilot study took one week (from 1-7/9) in sept. 2019.

Field Work:

The official permission was obtained from scientific research department, neonatal intensive care units Al Raml children hospital Alexandria city- Egypt. A letter was issued to them from the Faculty of Nursing, Ain-Shams University, explaining the aim of the study in order to obtain their permission and cooperation. The investigator first met with the parents explained the purpose of the study after introducing himself. The parents were assured that information collected treated confidentially, and it used only for the purpose of the research. Then, individual interviewing was done after obtaining the consent to participate. The investigator was visiting the study setting 3 days / weekly at morning and afternoon shift 1-2 parents / 3 days for 3 months from the period of 8 sept. to 19 December 2019 to collect data and implement this study. The purposes of the study were explained to the parents and took 30- 45 minutes nearly to complete the interview and filling the sheet of tools of data collection .

Reliability of the tools (tool II & tool III) were performed to confirm validity of tool and calculated statistically. The internal consistency measured to identify the extent to which the items of the tool measure the same concept and correlate with each other by Cronbach's alpha test were 0.92 and 0.850 respectively.

III. Administration design

An official approval was obtained from Dean of Faculty of Nursing Ain Shams university, a letter containing the title and aim was directed to the director of El Raml children hospital at Alexandria city to obtain the approval for data collection.

Ethical Consideration

The ethical research considerations in this study include the following:

- The investigator was clarifying the objective and the aim of the study to the patients included in the study.
- Anonymity and confidentiality of the data was assured and maintained.
- Parents was informed that they are allowed to participate or not in the study and that they have the right to withdraw from the study at any time.

IV. Statistical Design

Statistical analysis was done by using Statistical Package for the Social Science (SPSS (IBM 25.0). Quality control was done at the stages of coding and data entry. Data were presented by using descriptive statistics in the form of frequencies and percentage for qualitative variables. Graphs were done for data

visualization using Microsoft Excel. Inferential statistical tests of significance such as independent t-test and f-test were used to identify group differences and the relations among the study variables. Correlation test was done to investigate association between tertiary coping mechanism of parents with premature infants in the study sample and each type of stressors.

Results:

Table (1): shows that, the age of the studied parents ranged from 18 – 32 years with mean 25.8 ± 4.8 years. The majority (86.0%) of them was female, near about two third (62.0%) of them had read and write, and all (100.0%) of them married. Mostly of third or higher was free work and governmental work (44.0% & 36.0% respectively), more than half of them had daily income (54.0%), three quarters of them had insufficient salary and near to three quarters living in rural areas (76.0% & 70.0% respectively).

Table (2): As regards mean percent of each type of stressors facing parents with premature infants in the study sample represents that mean score of sight and light was 14.7 ± 1.1, infant appearance mean scores was 70.8 ± 4.3, parent infant relationship was 24.7 ± 3.9 and health team staff was 27.9 ± 4.0. As regards mean percent of each type of stressors facing parents with premature infants in the study sample demonstrates that changes in the infant appearance was the highest mean scores (74.5 % ± 4.5) followed by changes in sight and unit light, (58.8 %± 4.5) then dealing with health team staff (50.7% ± 7.5) and lowest mean percent was parent infant relationship (49.5% ± 7.7).As regards percentage distribution of total stressors levels facing parents with premature infants in the study sample figure 1 illustrates that 32.0% of parents had mild stress, 28.0% of them had moderate stress and 40.0% of them had sever stress level

Table (3): shows that, parents seeking social support for instrumental reason had high mean percent (79.2 % ± 13.8) followed by turning to religion (74.7% ± 22.2), then denial of illness (67.2% ± 11.2). Also, parents had more than half of mean percent in express of feeling (58.7% ± 19.9), wishful thinking (56.0% ± 11.7), behavioral restructuring (52.8% ± 17.6), self-criticism (52.7% ± 25.3) and social support for emotional reason (51.6% ± 13.4).

Table (4): reveals that, mean score of secondary coping mechanism were 15.2 ± 3.8 for emotional disengagement, 9.9 ± 5.0 for problem disengagement, 10.2 ± 3.8 for emotional engagement, and 27.7 ± 3.4 for problem engagement also, emotional engagement had high mean percent than problem engagement (57.6% ± 7.0 vs 22.8% ± 8.5)

Table (5): presents that, studied parent had high mean score in engagement than disengagement mechanism (37.9 ± 4.7 vs 25.1 ± 5.4) and (40.8% ± 5.1 vs 32.1 ± 6.9) of studied parent had engagement mechanism to facing stressors.

Table (6): reveals that increasing parents age lead to increase mean scores of parents' engagement, male parents had high mean scores in engagement than female parent, and free work parents had high mean scores in engagement than other occupation with statistically significance differences P - value .05, .0001, & .001 respectively.

Table (7): shows that, increasing parents age lead to increase mean scores of stress due to changes in infant appearance and decrease parent infant relationship stressor with statistically significance differences P - value .0001& .0001 respectively .regarding relation between sex and types of stressor**,** shows that female parent had high mean score of stress than male parent when occur changes in an infant appearance, parent infant relationship and health care staff behaviors with P - value .0001, .0001 & .05 respectively. Also, housewives had high mean scores of stresses than parent works in free or governmental work with statistically significance differences work P - value .001, & .002 respectively.regarding relation between salary and types of stressor, reveals that insufficient parents salary increase mean score of stress especially when occur changes in an infant appearance, and parent

infant relationship with P - value .002& .003 respectively and parents who living in the rural area had higher mean score of stress with change in infant appearance than parents living in urban area with statistically significance differences work P - value .015.

Table (8): demonstrates that, there were faire negative correlation between parents engagement and different types of stressors as infant appearance (r=-.460, P value .0001), health care staff behaviors (r=-.323, P - value .016), parent infant relationship (r=-.287, P - value .044) and health care staff behaviors (r=-.301, P - value .034). Also, there was a fair negative association between parent disengagement and infant appearance (r=-.339, P - value .016).

Table (1): Demographic characteristics of parents with premature infant in the study sample (n= 50).

Demographic characteristics	**No.**	**%**
Age / years		
18- 22	17	34.0
23 – 27	15	30.0
28- 32	18	36.0
Mean ± SD	25.6 ± 4.8 years	
Gender		
Male	7	14.0
Female	43	86.0
Education level		
Read and write	31	62.0
Middle education	19	38.0
Marital status		
Married	50	100.0
Occupation		
Housewives	10	20.0
Free work	22	44.0
Governmental work	18	36.0
Income		
Daily	27	54.0
Monthly	23	46.0
Salary		
Sufficient	12	24.0
Insufficient	38	76.0
Residence		
Urban	15	30.0
Rural	35	70.0

Table (2): Mean and standard deviation of each type of stressors facing parents with premature infants in the study sample (n = 50).

Items	**Mean ± SD**	**Mean % ± SD**
Sight and light	14.7 ± 1.1	58.8 ± 4.5
Infant appearance	70.8 ± 4.3	74.5 ± 4.5
Parent infant relationship	24.7 ± 3.9	49.5 ± 7.7
Health care staff behaviors	27.9 ± 4.0	50.7 ± 7.5

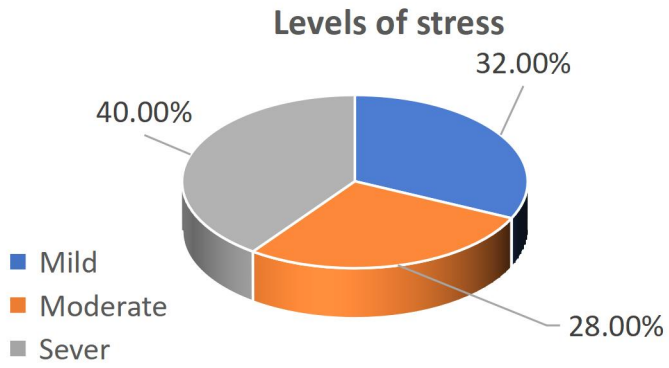

Figure (1): Levels of stress of parents with premature infant in the study sample (n=50).

Table (3): Mean and standard deviation of primary coping mechanism of parents with premature infants in the study sample (n = 50).

Items	Mean ± SD	Mean % ± SD
Denial	8.1 ± 1.3	67.2 ± 11.2
Minimize situation	2.4 ± 1.8	26.7 ± 20.7
Social support for emotional reason	4.6 ± 1.2	51.6 ± 13.4
Wishful thinking	5.0 ± 1.1	56.0± 11.7
Social withdrawal	1.5 ± 2.1	13.0 ± 17.5
Problem escape/ avoidance	1.5 ± 2.6	12.7 ± 22.0
Positive reinforcement	1.1 ± 2.6	9.0 ± 21.7
Acceptance	1.8 ± 2.1	20.4 ± 23.0
Turning to religion	6.7 ± 2.0	74.7 ± 22.2
Express of feeling	3.5 ± 1.2	58.7± 19.9
Self-controlling	.9 ± 1.2	10.0 ± 13.9
Self-criticism	3.2 ± 1.5	52.7 ± 25.3
Behavioral restructuring	6.3 ± 2.1	52.8 ± 17.6
Intellectual restructuring	3.3 ± 2.9	18.4 ± 16.0
Active coping	1.0 ± .9	8.2 ± 8.2
Seeking social support for instrumental reason	11.9 ± 2.0	79.2 ± 13.8

Table (4): Mean and standard deviation of secondary coping mechanism of parents with premature infants in the study sample (n = 50).

Items	Mean ± SD	Mean % ± SD
Emotional disengagement	15.2 ± 3.8	38.9 ± 9.7
Problem disengagement	9.9 ± 5.0	25.3 ± 12.9
Emotional engagement	10.2 ± 3.8	57.6 ± 7.0
Problem engagement	27.7 ± 3.4	22.8 ± 8.5

Table (5): Mean and standard deviation of tertiary coping mechanism of parents with premature infants in the study sample (n = 50).

Items	Mean ± SD	Mean % ± SD
Engagement	37.9 ± 4.7	40.8 ± 5.1
Disengagement	25.1 ± 5.4	32.1 ± 6.9

Table (6): Mean and standard deviation of tertiary coping mechanism of parents with premature infants in the study sample in relation to their demographic data (n = 50).

Demographic data	Engagement Mean ± SD	Disengagement Mean ± SD
Age / years		
18 < 22	37.0 ± 3.2	27.5 ± 5.7
23 < 27	37.1 ± 6.4	26.4 ± 4.3
28 – 32	40.1 ± 6.3	21.2 ± 4.7
F (P - value)	2.715 (.05*)	6.550 (.003**)
Sex		
Male	44.3 ± 5.9	33.3 ± 1.6
Female	36.9 ± 3.7	23.7 ± 4.5
T test (P – value)	4.541 (.0001**)	5.481(0.0001**)
Education level		
Read and write	37.6 ± 5.2	24.8 ± 6.1
Middle education	38.3 ± 3.9	25.5 ± 4.0
T test (P – value)	.481 (.633)	.474 (.638)
Occupation		
Housewives	36.8± 3.9	24.6 ± 4.7
Free work	42.8 ± 5.2	31.5 ± 4.2
Governmental work	36.5 ± 3.5	22.0 ± 3.6
F (P - value)	8.808 (.001**)	16.359 (.001**)
Salary		
Sufficient	38.5 ± 5.0	25.3 ± 6.2
Insufficient	37.4 ± 4.5	24.9 ± 4.6
T test (P – value)	.856 (.396)	.237 (.814)
Residence		
Urban	39.4 ± 4.7	27.1 ± 5.6
Rural	37.3 ± 4.7	24.2 ± 5.2
T test (P – value)	1.480 (.145)	1.755 (.086)

***≤ 0.05 significant **≤ 0.001 highly significant**

Table (7): Mean and standard deviation of each type of stressor facing parents with premature infants in the study sample in relation to their demographic data (n = 50).

Demographic data	Sight and sound Mean ± SD	Infant appearance Mean ± SD	Parent infant relationship Mean ± SD	Health care staff behaviors Mean ± SD
Age / years				
18 < 22	14.5 ± 1.3	66.5 ± 4.3	28.9 ± 1.7	27.5 ± 3.2
23 < 27	14.7 ± 1.1	72.0 ± 3.0	23.1 ± 3.6	27.9 ± 4.8
28 – 32	14.9 ± 1.0	73.5 ± 1.9	22.2 ± 1.9	28.2 ± 4.4
F (P - value)	.442 (.645)	20.275(.0001**)	37.736 (.0001**)	.120 (.887)
Sex				
Male	14.6 ± 1.4	63.4 ± 5.4	18.9 ± 2.5	25.6 ± 4.4
Female	14.7 ± 1.1	72.0 ± 2.5	25.7 ± 3.1	28.3 ± 4.0
T test (P – value)	.322 (.749)	6.867(.001**)	5.494 (.0001**)	2.201(.05*)
Education level				
Read and write	14.8 ± 1.1	70.7 ± 4.3	24.0 ± 3.4	28.4 ± 4.5
Middle education	14.4 ± 1.2	71.1 ± 4.4	25.9 ± 4.3	27.1 ± 3.3
T test (P – value)	1.112 (.272)	.298 (.767)	1.769 (.083)	1.070 (.290)
Occupation				
Housewives	14.8 ± 1.0	73.1 ± 2.2	26.6 ± 3.4	28.5 ± 4.0
Free work	14.1 ± 1.3	66.8 ± 7.1	21.8 ± 5.1	26.0 ± 3.6
Governmental work	14.9 ± 1.0	70.4 ± 2.3	24.0 ± 1.9	28.2 ± 4.2
F (P - value)	1.898 (.161)	10.087 (.001**)	7.358 (.002**)	1.395 (.258)
Salary				
Sufficient	14.6 ± 1.2	69.0 ± 5.1	23.1 ± 3.7	27.4 ± 4.3
Insufficient	14.8 ± 1.1	72.5 ± 2.3	26.2 ± 3.4	28.4 ± 3.9
T test (P – value)	.698 (.488)	3.227(.002**)	3.080(.003**)	.864 (.392)
Residence				
Urban	14.7 ± 1.1	68.6 ± 4.5	24.3 ± 4.1	28.3± 4.0
Rural	14.7 ± 1.1	71.8 ± 3.9	24.9 ± 3.8	27.7 ± 4.2
T test (P – value)	.135 (.893)	2.530 (.015*)	..564 (.575)	.409 (.685)

*≤ 0.05 significant **≤ 0.001 highly significant

Table (8): Correlation between tertiary coping mechanism of parents with premature infants in the study sample and each type of stressors facing them (n = 50).

	Engagement		Disengagement	
	R	P – value	r	P–value
Sight and sound	.063	.665	.030	.834
Infant appearance	-.460	.0001**	-.339	.016*
Parent infant relationship	-.287	.044*	.038	.791
Health care staff behaviors	.-301	.034*	-.267	.061

Discussion

Hospitalization in the neonatal intensive care unit (NICU) may continue for a few days to a few months, depending on the level of neonatal immaturity or medical condition . Since NICU admission is a stressful, difficult and terrifying experience for both infants and parents **(Priante et al., 2016)** .

Regarding the demographic characteristics of parents with premature infant, the current study showed that, the age of the studied parents ranged from 18 – 32 years with mean 25.8 ± 4.8 years. Near about two third of them had read and write this result might be due to Marriage at an early age.

This result come in the line with **(Çekin & Turan, 2018)** who studied "The stress levels of parents of premature infants and related factors in Nenoatal Intensive Care Units" and reported that near about two third of the studied sample there age between 19 -39., more than half of them had Middle / High school.

In addition this result come inconsistent with **(Aliabadi et al., 2014)** who studied "Supporting-emotional needs of Iranian parents with premature infants admitted to Neonatal Intensive Care Units" and reported that Parents' age ranged between 20 and 42 years. Also this result differ with **(Chen, Zhang, & Bai, 2016)** who studied "Effect of an educational intervention on parental readiness for premature infant discharge from the neonatal intensive care units" and reported that the mean age of the parents were 29·81 (4·72) and more than one third had middle school.

Also this result come in the line with **(Masumo, Mwape, Katowa-Mukwato, Maimbolwa, & Chirwa, 2019)** who studied "Perception of stressors by mothers with babies admitted to the Neonatal Intensive Care Unit in Women and New Born Hospital, Lusaka, Zambia" and stated that the most of the mother were in between 15- 30 years and the most of them had primary and secondary school.

Regarding the marital status the current study showed that all of the studied sample was married. This result might be due to Absence of pregnancy outside marriage in eastern societies. And presence of Pregnancy helps to prevent divorce . This result come inconsistent with **(Fróes, Mendes, Pedroza, & Cunha, 2020)** who studied "Stress experienced by mothers of preterm newborns in a neonatal intensive care unit" and reported that the most of studied mother were without companion

Also the current study illustrated that the majority of the studied sample was female this result come inconsistent with **(Chen et al., 2016)** who stated that slightly less than two third of the studied sample were father.

Regarding occupation the present study founded that mostly of third or higher was free work and more than one third had governmental work. This result come in consistent with **(Çekin & Turan, 2018)** Slightly less than two third of the studied sample not working. This result differ with **(Fróes et al., 2020)** who founded that more than two third of the studied sample work as maids. Also these results come inconsistent with **(Lim, Jayah, & Soon, 2017)** who studied "parental stress and its influencing factors in the neonatal intensive care unit" and reported that more than one third of the studied sample were housewife.

Regarding income the current study showed that more than half of the studied sample had daily income and three quarters of them had insufficient salary. This finding shed

the light on the insufficient salary is accompanied by the lack of follow-up of pregnancy and early detection of the birth of a premature infant This result come in consistent with **(Karbandi et al., 2018)** who studied "effects of empowering mothers of premature infants on their stress coping strategies" and reported that the most of the studied sample had sufficient income.

As regards mean percent of each type of stressors facing parents with premature infants in the study sample demonstrated that changes in the infant appearance was the highest mean scores followed by changes in sight and sound, then dealing with health team staff and lowest mean percent was parent infant relationship .

These results come inconsistent with **(Lim et al., 2017)** who reported that, the majority of the parents had a low level of stress in relation to the sight and sound of the NICU, around half of the parents had a low level of stress in relation to the infant's appearance and behavior, more than one quarter found it moderately stressful, and less than one fifth found it highly stressful. In relation to alteration of the parental role, indicated that this caused a low level of stress, less than one third reported a high level of stress, and one quarter found it moderately stressful. Overall parental stress levels for hospitalization of their infant in the NICU were low for more than half of the participants, moderate for more than one third, and high for only 2.9%.

This result come in the line **(Hasanpour et al., 2017)** with who studied " Iranian parent-staff communication and parental stress in the neonatal Intensive Care Unit" and reported that A significant inverse correlation was found between parental stress and parent–staff communication scores.

Concerning total stressors levels facing parents with premature infants in the study sample illustrated that near to one third of parents had mild stress, more than one quarters of them had moderate stress and near to half of them had sever stress level.

Also the current study showed that near to three quarters living in rural areas. This results may be due to lack of availability of health care in rural areas which force parents to travel to urban areas for treatment . This result come inconsistent with **(Chen et al., 2016)** who mentioned that more than half of the studied parents live in the city.

This result contradicted with **Patil, (2014)** assessed level of stress and coping strategies seen among mothers of neonates in Krishna Hospital Karad , India and reported that more than two third of mothers had moderate stress and one third of them had severe stress. This difference in the finding may be due o differences in the sample characteristics and size.

Regarding the Mean and standard deviation of primary coping mechanism of parents with premature infants**, the present study** showed that, parents seeking social support for instrumental reason had high mean percent followed by turning to religion then denial of illness. Also, parents had more than half of mean

percent in express of feeling .wishful thinking, behavioral restructuring, self-criticism and social support for emotional reason. This result differ with **(Picci et al., 2015)** who reported that Positive reinterpretation and growth had high mean percent followed by followed by Active coping, then Seeking of instrumental social support and Acceptance .

Regarding the mean and standard deviation of secondary coping mechanism of parents with premature infants, the current study revealed that emotional engagement had high mean percent than problem engagement. this result come in accordance with **(Brelsford et al., 2016)** who reported that the most of the studied sample had Behavioral disengagement .

Regarding the mean and standard deviation of tertiary coping mechanism of parents with premature infants the current study revealed that increasing parents age lead to increase mean scores of parents' engagement, male parents had high mean scores in

engagement than female parent, and free work parents had high mean scores in engagement than other occupation with statistically significance differences. This result come in the line with **(Chipps et al., 2015)** who studied and reported that the parents' age, educational level, occupation, and infant birth weight were associated with parental stress.

Regarding the mean and standard deviation of each type of stressor facing parents with premature infants**,** the present study showed that, increasing parents age lead to increase mean scores of stresses due to changes in infant appearance and decrease parent infant relationship stressor with statistically significance differences . This results were supported by **(Chipps et al., 2015)** who stated that the current study found that parents' age, educational level, occupation, and infant birth weight were associated with parental stress. Regarding relation between sex and types of stressor, the current study showed that female parent had high mean score of stress than male parent when occur changes in an infant appearance, parent infant relationship and health care staff behaviors .

This result come in accordance with **(Lim et al., 2017)** who indicated that there is an association between gender and overall stress experienced by parents of infants hospitalized in the NICU. This result come in consistent with **(Ionio et al., 2016) who** studied "mothers and fathers in NICU: the impact of preterm birth on parental distress" and stated that mothers of preterm children had higher levels of intrusive feelings (Line 1), a higher tendency to be hyperactive (Line 2), and a significantly higher level of general stress (Line 3) than fathers of preterm babies. In addition **(Hasanpour et al., 2017)** reported that the mean stress scores of mothers were significantly higher than of fathers**.**

Regarding Education level the current study showed that there is no association between the educational level and overall stress experienced by parents of infants hospitalized in the NICU. This result come in the line with **(Lim et al., 2017)** who reported that there is no association between the educational level and overall stress experienced by parents.

Also, the current study showed that housewives had high mean scores of stresses than parent works in free or governmental work with statistically significance differences. This results were supported by **(Chipps et al., 2015)** who stated that the current study found that parents' age, educational level, occupation, and infant birth weight were associated with parental stress.

Regarding relation between salary and types of stressor, the current study revealed that insufficient parents salary increase mean score of stress especially when occur changes in an infant appearance, and parent infant relationship and parents who living in the rural area had higher mean score of stress with change in infant appearance than parents living in urban area with statistically significance differences. this result were confirmed by **(Gyamfi, Brooks-Gunn, & Jackson, 2001)** who studied "Associations Between Employment and Financial and Parental Stress in Low-Income Single Black Mothers" and reported that higher levels of depressive affect were related to more financial strain among non-employed mothers.

Regarding the correlation between tertiary coping mechanism of parents with premature infants, the present study demonstrated that, there were faire negative correlation between parents engagement and different types of stressors .Also, there was a fair negative association between parent disengagement and infant appearance. This result come in accordance with **(Zamanian, Poorolajal, & Taheri-Kharameh, 2018)** who studied " Relationship between stress coping strategies, psychological distress, and quality of life among hemodialysis patients" and reported that there were a significant relationship between stressors and using coping mechanism.

These results come inconsistent with **(Lim et al., 2017)** who reported that, the majority of the parents had a low level of stress in relation to the sight and sound of the NICU. Around half of the parents had a low level of stress in relation to the infant's appearance and

behavior, more than one quarter found it moderately stressful, and less than one fifth found it highly stressful. In relation to alteration of the parental role, indicated that this caused a low level of stress, less than one third reported a high level of stress, and one quarter found it moderately stressful. Overall parental stress levels for hospitalization of their infant in the NICU were low for more than half of the participants, moderate for more than one third, and high for only 2.9%.

This result come in the line **(Hasanpour et al., 2017)** with who studied " Iranian parent-staff communication and parental stress in the neonatal Intensive Care Unit" and reported that A significant inverse correlation was found between parental stress and parent–staff communication scores.

Conclusion

Based on the findings of the current study the following conclusions can be drawn that, near to one third of parents had mild stress, more than one quarters of them had moderate stress and near to half of them had severe stress level. Also, parents had more than half of mean percent in express of feeling, wishful thinking, behavioral restructuring, self-criticism, and social support for emotional reason. Finally present study showed that, increasing parents age lead to increase mean scores of stress due to changes in infant appearance and decrease parent infant relationship stressor with statistically significance differences P - value .0001& .0001 respectively.

Recommendations

Based on the results of the present study and research questions the following recommendations are suggested:

- Providing parents with support should be an integral part of neonatal intensive care units through family-centered care in these units.
- Providing posters, booklets, and leaflets for family caregivers in outpatient clinics.
- Encourage the important of regular follow up and regular investigation of infants to ensure early detection of any disease.
- Ensure the importance of community health nurses' role in teaching, supporting counseling and managing infants and their mothers.

-further research studies are needed to focus on studyimg stressors and coping strategies among parents wuth premature infant .

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