



# Maternal Mental Health Needs When the Unexpected Happens: A cross-sectional study among mothers with preterm infants in Western Kenya

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DOI: <https://dx.doi.org/10.4314/ajhs.v36i1.3>

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## Abstract

### BACKGROUND

Mothers of preterm infants are usually unprepared for the baby's birth earlier than expected, making them face emotional problems. Preterm births have increased lately with World Health Organization reporting an estimated prevalence of up to 5–18% and Kenya reporting an 18.3% prevalence. Mothers of preterm infants need special support to help them cope with this stressful event. The study determined the mental health needs of mothers with preterm infants in the neonatal care unit.

### MATERIALS AND METHODS

It was a hospital-based cross-sectional study among 182 mothers with preterm babies admitted to neonatal care units of two referral hospitals in Western Kenya. A simple random sampling technique was used to select the participants and data was collected using a semi-structured pretested questionnaire and Critical Care Family Needs Inventory scale (CCFNI). Analysis was done using STATA 15 and a significance level set at  $P \leq 0.05$  and 95% confidence interval.

### RESULTS

The majority of the respondents 67 (36.8%) were aged between 18-22 years and 34 (18.7%) were above 34 years. The majority, 148 (81.3%) of the mothers accepted that the needs indicated on the CCFNI scale were important. By subscales, responses from the information scale dominated the top-ranked "very important" and "important" responses. The items concerning "to have questions answered honestly" from the information scale and "to help with the infant's physical care" from the proximity scale were highly ranked "very important" (Mean, 3.50). Proximity and assurance sub-scales also dominated the top-ranked "very important" and "important" needs while support and comfort responses dominated the needs ranked slightly important. There exists at least a significant difference among the means at a  $p\text{-value}=0.006$ .

### DISCUSSION

The results are contrary to those from a study carried out in Saudia and Georgia which ranked needs from the assurance scale as most important, followed by proximity, information, comfort and finally support. However, the two studies are in agreement with the current study that needs from the support and comfort scales were least important. The difference could have been brought about due to the difference in the study population.



## CONCLUSION

**The most important mental health needs for mothers include proximity, assurance, and information. However, mothers with preterm babies in neonatal units have unmet mental health needs which should be addressed.**

*Keywords: Preterm Infants, Mental Health Needs, Newborn Care Unit, Mothers with Infants in Neonatal Care Unit*

[*Afr. J. Health Sci.* 2022 35 (6): 10-19]

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## Introduction

Mothers of preterm infants are usually unprepared for the baby's birth earlier than expected, making them face emotional problems (1). Preterm babies are born before 37 weeks gestation and because of their prematurity, they are admitted to Neonatal Care Unit (NCU) also known as the newborn care unit (NBU) for specialized care (2). World Health Organization has estimated the prevalence of premature birth to be 5–18% across around 184 countries of the world. In Kenya, a prevalence of 18.3% has been reported in a study carried out at Kenyatta National Hospital (KNH) (3). According to Alsaiani *et al.* (2), parents of premature babies experience multiple stressors related to several adverse conditions such as premature birth, post-delivery mother's medical condition, new parenthood feelings, vulnerability condition of the baby and baby's physical separation due to admission to the new-born unit. These stressors put the mothers of premature babies at risk of developing mental health problems also referred to as negative mental health states like postnatal depression, post-traumatic stress disorder, anxiety, negative mood states, and stress among others (2,4–6). According to Sartorius (7), mental health needs is a vague term usually mentioned as a justification for the development of a mental health service or program. It is noted that the term could also refer to the need for care that should be provided to people who have mental disorders or who are at risk of developing mental problems. According to Alsaiani *et al.* (2), little has been done on the mental health needs of parents of premature babies in low and middle-

income countries. In their study, Alsaiani (2) further noted that this gap is important as knowing the mental health needs of the parents of premature babies will make the health professionals prepare adequately to meet the needs of these parents. Parents have reported psychological needs which can help them cope with the stressful situation (6). Alsaiani *et al.* (2) in their study to investigate the needs of Saudi parents of preterm infants in the Neonatal Care unit also noted that parents with sick children have a strong need for information concerning their children's condition and behaviour. They indicated that they needed to help the parents feel confident and allay their anxiety. The same findings were reported in studies carried out in Botswana and South Africa. The studies noted that assurance, support, proximity to the infant, information, and comfort were some of the needs reported by the parents in the Neonatal Care Unit. According to the studies, parents in NCU needed assurance that their babies were being treated for pain and that they were being handled gently. They also needed information on the progress of their infant at least once a day (8,9). Yaman and Altay (10) emphasised that failure to provide information on why a baby has been hospitalised may cause parents and especially mothers to underestimate or exaggerate the situation. This, in turn, may prevent the parents from developing realistic expectations and imagining that the situation is someone else's and not theirs or they may experience intense feelings of hopelessness, loss, anxiety, and depression. Further, Steyn *et al.* (9) noted that parents in NCU needed emotional support, education on the characteristics and behaviour of the infant, a



welcoming environment, and parent empowerment on how to care for the baby to include how to express breast milk, how to feed and how to handle the baby. According to Hagen *et al.* (11) and Steyn *et al.* (9) parents in the neonatal care unit (NCU) need their opinion regarding their baby's care to be heard since they believe that this helps them to cope with the stressful event and the environment in the Neonatal care unit. Their studies further revealed that parents needed their parental roles as caregivers to be supported. According to Craig *et al.* (12), parents need to understand the behaviour of their infants to interpret and respond to the infant's needs. The study, therefore, sought to determine the mental health needs of mothers with preterm babies admitted to the Neonatal Care Unit (NCU). Knowing the mental health needs of these mothers will help the policymakers come up with future evidence-based interventions that will facilitate improved wellness and interaction outcomes of mother-infant dyads.

## Materials and Methods

### Study area

Kakamega County Teaching and Referral Hospital (KCTRH) and Vihiga County Teaching and Referral Hospital (VCTRH) are located in the Western part of the Country. The two hospitals have bed capacities of 320 and 300 and register approximately 4% and 3% preterm deliveries per month respectively.

### Study design and population

It was a hospital-based cross-sectional study among mothers with preterm infants admitted to Neonatal Care Unit between June and August 2021.

Mothers with babies born before 37 weeks gestation and admitted to NCU for at least five days or more. This was on assumption that the mothers could have been in NCU long enough and could outline what they needed to improve their mental health given the stressful state. Mothers with preterm infants born in the hospital consented to participate in the study. Mothers with preterm infants with congenital

abnormalities were excluded on assumption that they were likely to have special mental health needs. Those who were too sick to give consent were also excluded.

### Sample size determination

It was based on Yamane's Formula by Reid and Boore (13) which is used when the study population (N) is known. Adjustment for non-response was done with an anticipated non-response rate of 15%. A total of 182 mothers were interviewed in the two County Hospitals after proportionate allocation of the sample. The proportion to be interviewed in each facility was calculated by dividing the sample size by the population size multiplied by the stratum size where the stratum for this study was the study site (hospital). That is,  $n/N \times \text{Stratum size (Facility)}$  where  $n = 182$ ,  $N = 260$ , and the stratum size for KCTRH and VCTRH was 140 and 120 respectively. Therefore, 98 and 84 respondents were interviewed from KCTRH and VCTRH respectively.

### Sampling technique

The two County Teaching and Referral Hospitals were sampled purposively given the high numbers of preterm births registered in their District Health Information Systems (DHIS) report. Mothers with preterm infants were selected by simple random with the NCU admission register being used as the sampling frame. Simple random sampling was done through a lottery method where mothers from the admission register were given a number. After giving the mothers numbers, the researcher randomly drew numbers from the box to choose the sample. The process was applied in the two study sites.

### Data collection procedure and tools

Data was collected using data collection tools administered by the researcher and assisted by trained research assistants in the field of the study. The questionnaires were semi-structured, and pretested, and were used to obtain data on socio-demographic characteristics and information on the immediate pregnancy. The Critical Care Family



Needs Inventory scale (CCFNI) was used to assess the mental health needs of the mothers. Forty-five (45) needs statements adapted from Molter and Leske (14) were read to the participants and they were expected to respond to each statement by rating its importance to them on a scale of 1 (not important) and 4 (very important). The scale has been used in multiple research studies and it addresses five (5) subscales of needs namely support, comfort, information, and assurance and it was modified to suit this study (15). The last question on the CCFNI scale seeks to find out if the respondents felt that all their needs were met during their stay in the neonatal Care unit. This was a closed-ended question where those who responded with a 'NO' needed to expand and state why they felt their needs were not all met while in the Neonatal care unit.

### ***Data management***

On completion of data collection, data was cleaned, coded, and entered into an Excel spreadsheet after which it was transferred into STATA version 15 for analysis. Descriptive statistics were analysed in means and measures of dispersion (standard deviation and range) for all demographic variables with a significance level set at  $P \leq 0.05$ . There were 45 variables measured on the Modified Critical Care Family Needs Inventory (CCFNI). The overall mean was calculated in 45 variables and categorisation of the mean was done based on the following scale; 1 if the Mean  $< 1.5$ , 2 if the Mean  $\geq 1.5$  but  $< 2.5$ , 3 if the Mean  $\geq 2.5$  but  $< 3.5$ , and 4 if the Mean  $\geq 3.5$ . The values were labelled as 1 "Not important" 2 "slightly important", 3 "Important" and 4 "Very important". The collected data was presented in frequency tables, pie charts, and texts. Other summary statistics were also generated.

### ***Ethical considerations***

Approval to conduct the research was sought from Masinde Muliro University of Science and Technology (MMUST)

Institutional Ethics Review Committee (IERC) after which research permit approval was given by the National Commission for Science, Technology, and Innovation (NACOSTI). Permission was also sought from respective county governments and finally from Kakamega and Vihiga county referral hospitals' administration. The purpose of the study was explained to the participants before seeking written informed consent from them. Participation was on a voluntary basis and participants were free to withdraw at any stage of the study. Confidentiality was ensured by not having any form of identification on the data collection tools. All the questionnaires collected were stored in lockable cabinets accessible only to the researcher and research team. Further, a password was used to protect electronic data in the computer.

## **Results**

### ***Descriptive statistics of socio-demographic characteristics***

Table 1, shows the background characteristics of the respondents. One hundred and eighty-two (182) respondents were interviewed. The majority of the respondents 67 (36.8%) were aged between 18-22 years and the minority 34 (18.7%) were above 34 years. The majority 133 (73.1%) of the mothers in the study were married with 49 (26.9%) being single. Approximately 112 (84.2%) of the respondents in the study were from monogamous marriages with 21 (15.8%) coming from a polygamous family. The majority of the respondents 152 (83.5%) were Christians while 29 (15.9 %) were Muslims. In terms of educational achievements, the majority of the respondents had attained secondary and tertiary level education at 86 (47.3%) and 51 (28.0%) respectively. Self-employment 41 (22.5%) and housewife 48 (26.4%) were the predominant occupations among mothers with premature infants hospitalized in the Neonatal Care Unit (NCU).



### ***Mental health needs of participants***

From Figure 1, it is noted that a majority of the mothers about 148 (81.3%) accepted that the mental health needs as indicated on CCFNI were important to them with only approximately 18 (9.9%) of the respondents stating that the needs were slightly important. Another 16 (8.8%) of the mothers noted that the needs as indicated on the CCFNI were very important.

#### **The most important mental health needs of the participants**

By subscales, the study indicates that responses from the information scale dominated the top-ranked "very important" and "important" responses. The items concerning "to have questions answered honestly" from the information scale and "to help with the infant's

physical care" from the proximity scale were highly ranked "very important" (Mean, 3.50). The responses concerning the item "to see the infant frequently (mod)" from the proximity scale was ranked "important" (Mean, 3.49). Of the thirteen highly ranked "very important" and "important" responses, 9 of them were from the information scale, 3 from the proximity scale, and 1 from the assurance scale.

#### **Least important mental health needs for the participants**

Most of the items rated "slightly important" were from the support scale. That is 4 of the 10 lowest-ranked item responses came from the support scale, 3 from information, 2 from comfort, and 1 from the assurance scale.

**Table 1:**

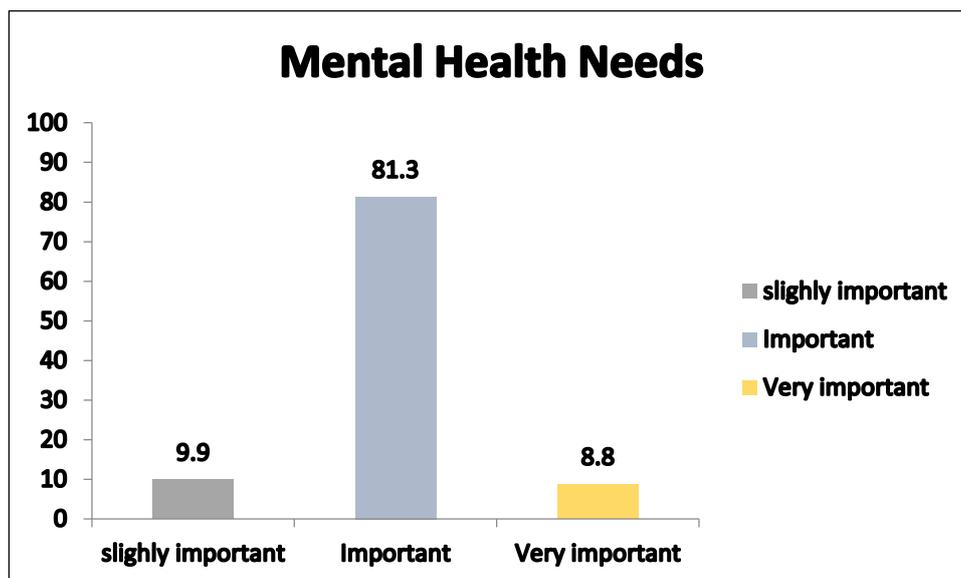
Descriptive statistics of sociodemographic characteristics for the respondents

Socio-Demographic Variables	n	%
<b>Age in Years</b>		
18-22	67	36.8
23-27	41	22.5
28-33	40	22.0
Above 34	34	18.7
<b>Marital Status</b>		
Single	49	26.9
Married	133	73.1
<b>Marriage Type</b>		
Monogamous	112	84.2
Polygamous	21	15.8
<b>Religion</b>		
Christian	152	83.5
Muslim	29	15.9
Other	1	0.6
<b>Education</b>		
None	4	2.2
Primary	41	22.5
Secondary	86	47.3
Tertiary	51	28.0
<b>Occupation</b>		
Self- Employment	41	22.5
Casual	39	21.4
White Collar	22	housewife
Housewife	48	26.4
Student	32	17.6



The item "to talk to the same nurse every day" from the information scale was ranked lowest slightly important (Mean, 2.31) while "to be alone at any time" from the comfort scale was ranked second lowest (Mean, 2.37) and "to have a place to be alone while in the hospital" from comfort scale was ranked third lowest slightly important at (Mean, 2.52).

Generally, the highest reported mean score among the 5 scales was the proximity scale (Mean=3.47 and SD=0.04) and the least reported mean score was the comfort scale (Mean=2.76 and SD =0.29). There exists at least a significant difference among the means in the five sub-scales as indicated by p-value=0.006.



**Figure 1:**  
Importance of Mental Health Needs to the Mothers

**Table 2:**  
Mental Health Needs Ranked as Very Important among Mothers with Infants Hospitalized in Neonatal Care Unit.

Study variables	Mean	SD
To have questions answered honestly	3.53	0.69
To help with the patient's physical care	3.50	0.63
To see the infant frequently (mod)	3.49	0.73
To be called from the ward about changes in the infant's condition	3.42	0.75
To have the waiting room near the NICU (mod)	3.42	0.82
To be assured that the best care possible is being given to the patient	3.37	0.75
To know specific facts concerning the infant's progress	3.37	0.69
To know how the patient is being treated medically	3.34	0.74
To have explanations of the environment before going into the critical care unit for the first time	3.32	0.73
To talk to the doctor every day	3.31	0.75
To know exactly what is being done for the patient	3.31	0.81
To be told about transfer plans while they are being made	3.31	0.81
To receive information about the infant at least once a day	3.30	0.71



### ***Opinions about the mental health needs met***

A majority of the mothers 93 (51.1%) at 95% CI [0.44-0.58] felt that their Mental Health Needs were met while 89 (48.9%) of the respondents at 95% CI [0.42-0.56] felt otherwise as per the chart below.

### **Discussion**

The study sought to determine the mental health needs of mothers with preterm infants admitted to NCU. The mothers ranked proximity needs as the most important, followed by assurance, information, support, and comfort. This is contrary to studies carried out in Saudia and Georgia which sort to determine the needs of parents with preterm infants admitted to NCU. According to the studies, needs from the assurance scale were ranked the most important, followed by proximity, information, comfort, and finally support (2,15). However, the two studies are in agreement with the current study that needs from the support and comfort scales were

ranked as the least important needs for the parents.

The difference could have been brought about by the fact that in the two studies, the sample population was parents as opposed to the current study whose population was mothers. According to the mothers in the current study, NCU was located away from the postnatal ward where the mothers stay, and therefore moving up and down to go and feed the baby every 2 hours was very hectic for them (mothers). Some of the mothers were also scared of touching their babies and this kept them away from them.

This could have been one of the reasons contributing to the proximity scale being ranked second among the needs of parents in the two studies because fathers do not need to go and breastfeed and therefore the distance to NCU could not be of great importance to them (2,15). However, both studies ranked needs from the information scale as number three. This shows that parents with babies in NCU need information about their babies.

**Table 3:**  
Mental Health Needs Ranked as Slightly Important among Mothers with Infants Hospitalized in NCU.

<b>Study variables</b>	<b>Mean</b>	<b>SD</b>
To be assured it is all right to leave the hospital for awhile	2.82	1.05
To be told about someone to help with family problems	2.79	0.96
To have comfortable furniture in the waiting room	2.78	1.04
To have a pastor visit	2.78	0.86
To visit at any time	2.74	0.91
To have a telephone near the waiting room	2.66	0.86
To feel it is all right to cry	2.59	1.01
To have a place to be alone while in the hospital	2.52	1.00
To be alone at any time	2.37	0.99
To talk to the same nurse every day	2.31	0.92

**Table 4:**  
Mental Health Needs categories among mothers with infants hospitalized in NCU

<b>Scale</b>	<b>Mean</b>	<b>SD</b>	<b>p-value</b>
Proximity	3.47	0.04	0.006
Assurance	3.19	0.22	
Information	3.13	0.29	
Support	2.94	0.24	
Comfort	2.76	0.29	

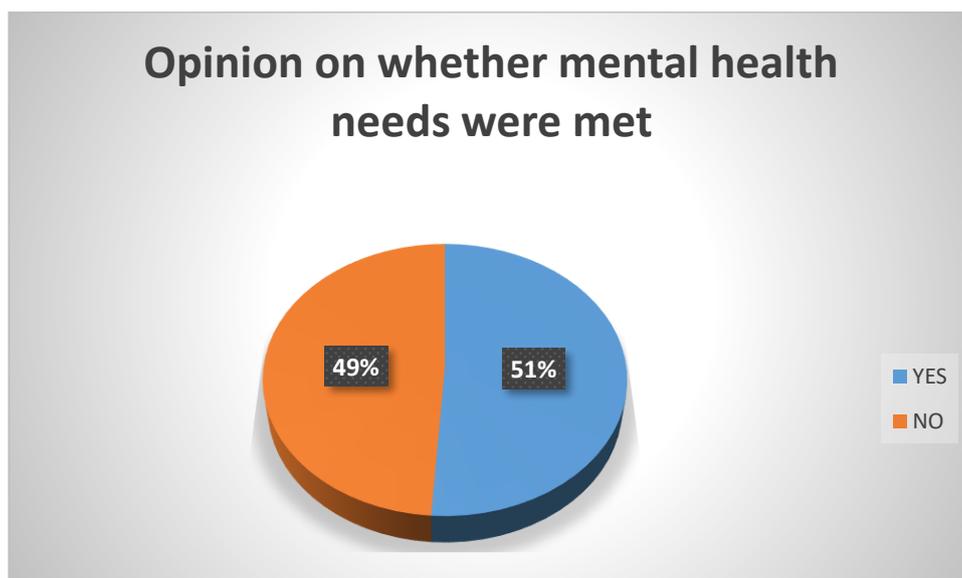
They need to know that their infants are progressing well and what they should expect from the tiny infants among others. This has also been supported by Ncube *et al.* (16), who in their study reported that some of the needs that help mothers cope with the situation are support from NCU staff, information about their baby, and encouragement and support from other mothers. The current and the previous two studies by Alsaiani *et al.* and Mundy *et al.* (2,15) are also in agreement that parents/mothers with preterm babies in NCU are not interested in being comfortable since most items in this scale were ranked lowest. This could be attributed to the fact that having a preterm baby in itself is stressful enough and being comfortable like having a good meal or having comfortable seats while in NCU was not very important to most of them.

In their study on the perinatal – Neonatal care journey for parents of preterm infants, Franck *et al.* (17) also agree with the findings of this study that mothers need assurance that their babies will be fine and they also need information about their infants. This, according to Franck *et al.*(17) could allay

anxiety and build the confidence of the mothers enabling them to care for their babies. Their study was carried out in Northern Ireland in the UK which is a high-income county. The similarity in the results could suggest that mothers of preterm infants face similar challenges irrespective of where they come from and therefore need assurance and information about the well-being of their babies.

### Study limitations

One of the limitations was that the study was conducted in county referral hospitals only and therefore the findings represent the population that had preterm infants in a specific NCU at a particular time of the year. Potential differences in practice may exist in private institutions and in national referral hospitals that may influence the generalizability of the findings but this may be transferrable to similar settings. Another limitation was that the sample was mothers only and the findings may not be the same if fathers with preterm infants admitted to NCU were interviewed.



**Figure 2:** Respondent’s opinion on the mental health needs met while in Neonatal Care Unit



## Conclusion

Mental health needs for mothers with preterm infants include proximity, assurance, information, support, and comfort needs. Although slightly more than half of the mothers stated that all their needs were met, mothers with preterm babies in NCU have unmet mental health needs. Some of the needs that needed to be addressed include information and proximity needs. According to the mothers, they would like to be close to their infants but they are not able to simply because of fear. The fear is brought about by the infants' characteristics, the NCU environment (sounds, equipment, procedures done on the babies), and the lack of prior information on what they expect from the preterm infant.

## Implication to practice

Findings from the current study have significant implications for practice and highlight the need of addressing NCU mothers' mental health needs sensitively through evidence-based interventions. This could facilitate improved wellness and interaction outcomes of mother-infant dyads.

## Acknowledgements

As authors, we would like to acknowledge all the mothers with preterm infants who participated in the study as well as their infants. We also thank Eleen Lihabi, Jacklyne Oside, Iddah and Irene who were the research assistants for the role they played in collecting data and the healthcare workers in maternity and newborn units.

## Conflict of Interest

No conflict of interest

**Sources of funding** – No funding was given

## Author Contributions

Concept development- Mukabana B, Makworo D.

Study Design – Mukabana B, Makworo D, Mwenda C.

Data collection and analysis - Mukabana B, Makworo D, Mwenda C.

Manuscript preparation - Mukabana B, Makworo D, Mwenda C.

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