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Effectiveness of New Born Care Programme on Perceived Maternal Competence and Satisfaction of Nigerian Mothers

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Abstract
The new born needs frequent care. This depends on the mother's awareness, attitude and skills, thus maternal competence is vital. Therefore a new born care teaching programme to increase maternal competence and satisfaction is needed. To determine the effect of new born care programme on maternal competence and association between the maternal competence and selected demographic profiles among antenatal mothers, a Quasi - experimental pretest- posttest design study with control group was conducted.
80 pregnant mothers attending antenatal clinic were recruited based on the inclusion criteria.
The intervention was new born care programme using audio-visual teaching. The study group and comparison group had 40 participants each. Outcomes were measured with the Parenting Sense of Competence (PSOC) scale at baseline and post intervention at two days after delivery.
Mothers who received new born care program had an improvement in the maternal competence from low (pretest) to high (post test) satisfaction rating. Significant difference was identified between the pretest and post test of the study group according to efficacy ($t= 3.92$, $p = 0.0078$) and satisfaction ($t = 4.748$, $p = 0.0014$). There was a significant difference ($p = 0.0397$, $t = -2.453$) in the level of maternal competence between the study and comparison group after the new born care programme at satisfaction rating. Significant relationship was established ($P<0.05$) between the level of maternal competence and age ($x^2= 8.95$, $p= 0.014$) and parity ($x^2=6.85$, $p = 0.0325$) only but not with education, employment and family support.
The new born care program was effective in improving the maternal competence of antenatal mothers. Mother's age and parity were identified to influence maternal competence. We therefore suggest that new born care program be used to enhance the knowledge and competence of mothers on new born care using audio-visual teaching method.
Keywords: Antenatal mothers, Maternal competence, New born care program, Parenting Sense of Competence (PSOC) scale, Satisfaction

1.0 Introduction

Every year more than four million babies die during their first week of life due to inadequate care by mothers or caregivers (Bala, Devi and Gomathi, 2013). Basic care for all new born should include promoting and supporting early and exclusive breastfeeding, keeping the baby warm (prevention of hypothermia), increasing hand washing, baby bathing, providing hygienic umbilical cord and skin care and immunization (Kadam & Tata, 2012; Slipa & Shetty;2011). Adequate care of the new born baby depends on the mother's awareness, attitude and skills. Many times a mother has learnt it by paying a heavy price through the death of one or two of her infants. Thus maternal competence is vital and nurses are the ideal sources of assistance in this situation.

Maternal competence is the mother's knowledge, attitude and confidence in practice of the new born care. It is the maternal intelligence that influences infant development (Baker, et al, 2013). Satisfaction is the sense of pleasure and gratification experienced with the mothering role. Foster et al (2008) identified in their study with pregnant and post partum women that women generally lacked confidence in their ability to care for their children in the early postnatal period. Women show an improvement in maternal role competence at 6 months post partum. By this time, most mothers have recovered from child birth, became more sensitive and attached to their infant and started to master child care skills, which may contribute to a stronger sense of maternal role competence. Studies have shown that the knowledge of mothers are inadequate in areas of umbilical cord care, thermal care, feeding (exclusive breast feeding) and vaccine preventable disease/ immunization (Pdiyath & Bhatt, 2007; Vijayalakshmi, 2007; Slipa & Shetty, 2011). Strengthening maternal competence will improve her performance as a mother.

However, previous studies have identified factors that influenced development of competence as support from others (McComish & a Visger, 2009; Ngai, Wai-chi & Ip, 2010), previous experience (Senardh & Fernando, 2007), maternal well-being as depression, stress and anxiety (Paris, Bolton & Spielmen, 2010) and infant well being (Voegtline & Stifter, 2010). Other factors include age, education and parity (Drake et al, 2007), occupation and income (Anjum, Durgawale & Shinde, 2014). According to mercer (2006), cultural and societal

factors that may affect maternal competence on care of the new born include beliefs, and traditions surrounding child bearing, social status and larger health care system. Therefore, during a shorter hospital stay, nurses must assist the new mother and father to become acquainted with their new born care before discharge.

In this study, new born care program is used to enhance the knowledge and competence of mothers on new born care using audio-visual teaching method. We therefore want to find out the effect of new born care programme on maternal competence and satisfaction then, find association between the maternal competence and selected demographic variables among antenatal mothers.

2.0 Materials and Methods

2.1 Research Questions

This study specifically answers the following questions:

1. What is the level of maternal competence of antenatal mothers before and after the new born care program for study and comparison groups?

A. According to efficacy (B). According to satisfaction

2. Is there a significant difference between the levels of maternal competence of antenatal mothers before and after new born care program?

A. study group (B). Comparison group

3. Is there a significant difference between the maternal competence of the study and comparison groups of antenatal mothers after the new born care

4. Is there a significant relationship between maternal competence of antenatal mothers and the following variables: Maternal age, Parity, Educational attainment, Employment, Family support?

2.2 Theoretical Framework

This study was based on the Orem self-care deficit theory and Mercer becoming a mother theory. The application of this theory in the management of a patient will reveal how well the method of Nursing assistance (acting and doing for, guiding, teaching, supporting and providing a developmental environment) and the nursing systems (wholly compensatory, partly compensatory or supportive educative) could be used to solve the identified problems of the patient with self-care deficit (Orem, 1991). Ramona Mercer's becoming a mother theory in nursing formerly known as the theory of maternal role attainment focuses on the mother's role identification and role competence. The mother experiences satisfaction in her role as she gains confidence and competence in responding and providing care to her infant (Mercer, 2004). Competence is experienced only when the mother knows how, when and why she does something for her infant.

2.3 Design

A quasi-experimental pretest – posttest design with control group was used. The study involved an experimental treatment and the two groups of participants were observed before and after its administration.

2.4 Setting

This study was conducted in the antenatal and post natal ward of General Hospital Owerri Imo state, Nigeria. This hospital renders 9 hours antenatal care services to 50-90 pregnant women on clinic days and 40-80 deliveries in a month. The protocol was approved by the Research /Ethics Committee of the hospital. The mothers received written and verbal information about the study for voluntary participation. All participants consented and data were treated confidentially. The instrument was used with the permission of the developer.

2.5 Participants

The sample consisted of a purposive sample of pregnant mothers. The participants attended antenatal clinic in this unit and were screened for eligibility. The inclusion criteria were pregnant mothers of 37^{th} and above, who are available during the study and are willing to participate, above 18years old and competent to consent and who are of low risk pregnancy. However, women with the following conditions were excluded; pregnancy not up to 37^{th} week, not available on study days and not willing to participate or with serious obstetrics needs co-morbidities. Statistical power analysis (G*power 3.0.10 software) was performed to determine the sample size for both groups. Total sample size was calculated to be 52. Meanwhile, for further strengthening of this study's reliability, 80 participants were included (40 for each group).

2.6 Intervention

The intervention was designed to improve maternal competence by offering a new born care program via audio – visual teaching on bathy-bathing, cord care, provision of warmth and exclusive breast feeding . The study group only received this teaching before delivery.

2.7 Data Collection Procedures

Data were collected using the questionnaire containing the demographic data and the PSOC. The research assistant recruited the participants and those who met the criteria were allocated to study or comparison group. 80 pregnant mothers were asked to complete the baseline questionnaire at the antenatal unit. Each participant was advised to answer the questionnaire independently. A total of 79 questionnaires (40 – study, 39 – comparison) were returned. Follow up questionnaire were completed 2 days after delivery. 76 copies (38 of study and 38 of comparison group) were distributed and returned. Three (3) mothers did not deliver in the hospital.

2.8 Instrument

Maternal competence was measured with the 16 item Parenting Sense of Competence scale (PSOC) developed by Gibaud – Wallston & Wandersman (1978). It measures maternal competence in two dimensions: efficacy subscale (PSOC-E) -7 items and satisfaction subscale (PSOC-S) – 9items. The scale ranges from 1 (strongly disagree) to 6 (strongly agree). The result of this study was interpreted based on high and low ratings using the mean score. Mean score of 3.99 and below is low rating while 4 and above is high rating. PSOC has internal consistency of 0.82. Gilmore and Cuskelly (2008) reported internal consistency of 0.72 (mothers) and 0.76 (fathers). The demographic variables considered were age, parity, education, employment and family support.

2.9 Data Analysis

The data were analyzed using statistical package for the social sciences (SPSS) version 20.0. Descriptive statistics included frequency, percentage, mean and standard deviation. T-test was used to determine the difference between groups while chi-square test used to test the relationship between variables.

3.0 Findings

3.1 According to efficacy

Table A1 and A2 show the mean score of the maternal competence of antenatal mothers before and after the new born care program for study and comparison groups according to efficacy. The study group had the total score of (M=30.40, SD = 11.447) pretest and (M = 33.34, SD = 9.935) post test while the comparison group had (M = 31.13, SD = 10.394) pretest and (M = 31.82, SD = 10.621) post test. Both study and comparison groups had high efficacy ratings in pretest and post test.

Table A1*: Mean scores of maternal competence of antenatal mothers before and after the new born care program for study group.*

	PSOC Statements	PRE-TEST			POST TEST		
		Mean	SD	Interpretation	Mean	SD	Interpretation
1.	The problems of taking care of a child are easy to solve once you know how your actions affect your child.	4.42	1.687	High efficacy	4.39	1.839	High efficacy
6.	I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good mother.	4.58	1.518	High efficacy	5.08	1.323	High efficacy
7.	Being a mother is manageable and any problems are easily solved.	3.92	1.667	Low efficacy	4.55	1.446	High efficacy
10.	I meet my own personal expectations for expertise in caring for my child.	4.26	1.589	High efficacy	4.76	1.218	High efficacy
11.	If anyone can find the answer to what is troubling my child, I am the one.	4.55	1.519	High efficacy	4.92	1.421	High efficacy
13.	Considering how long I've been a mother, I feel thoroughly familiar with this role.	4.29	1.784	High efficacy	4.45	1.483	High efficacy
15.	I honestly believe I have all the skills necessary to be a good mother to my child.	4.37	1.683	High efficacy	5.18	1.204	High efficacy
	Total score **total Mean score**	**30.40** **4.34**	**11.447**	**High efficacy**	**33.34** **4.76**	**9.935**	**High efficacy**

Table A2*: mean scores of maternal competence of antenatal mothers before and after the new born care program for comparison group*

	PSOC Statements	PRE-TEST			POST TEST		
		Mean	SD	Interpretation	Mean	SD	Interpretation
1.	The problems of taking care of a child are easy to solve once you know how your actions affect your child.	4.50	1.673	High efficacy	4.55	1.704	High efficacy
6.	I would make a fine model for a new mother to follow in order to learn what she would need to know in order to be a good mother.	4.68	1.416	High efficacy	4.74	1.537	High efficacy
7.	Being a mother is manageable and any problems are easily solved.	4.37	1.460	High efficacy	4.45	1.464	High efficacy
10.	I meet my own personal expectations for expertise in caring for my child.	4.24	1.403	High efficacy	4.32	1.435	High efficacy
11.	If anyone can find the answer to what is troubling my child, I am the one.	4.74	1.329	High efficacy	4.84	1.326	High efficacy
13.	Considering how long I've been a mother, I feel thoroughly familiar with this role.	4.26	1.465	High efficacy	4.32	1.453	High efficacy
15.	I honestly believe I have all the skills necessary to be a good mother to my child.	4.34	1.649	High efficacy	4.61	1.701	High efficacy
	Total score **Total mean score**	**31.13** **4.447**	**10.394**	**High efficacy**	**31.82** **4.546**	**10.621**	**High efficacy**

3.2 According to satisfaction

Table B1 and B2 show the mean score of the maternal competence of antenatal mothers before and after the new born care program for study and comparison groups according to satisfaction. The study group had the total score of (M = 32.13, SD = 15.827) pretest and (M = 36.68, SD = 15.174) post test while the comparison group had (M = 32.37, SD = 14.018) pretest and (M = 32.37, SD = 14.434) post test. The study group had low satisfaction rating at pretest which increased to high satisfaction after the new born care program. The comparison group low satisfaction rating for both pretest and post test.

Table B1*: Mean scores of maternal competence of antenatal mothers before and after the new born care program for study group.*

	PSOC Statements	PRE-TEST			POST TEST		
		Mean	SD	Interpretation	Mean	SD	Interpretation
2.	Even though being a mother could be rewarding, I am frustrated now while my child is at her present age.	3.95	1.785	Low satisfaction	4.89	1.467	High satisfaction
3.	I go to bed the same way I wake up in the morning feeling I have not accomplished a whole lot	3.42	1.912	Low Satisfaction	3.26	1.841	Low Satisfaction
4.	I do not know what is it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated	3.87	1.847	Low Satisfaction	4.47	1.502	High Satisfaction
5.	My mother was better prepared to be a good mother than I am.	3.74	1.826	Low Satisfaction	4.50	1.705	High Satisfaction
8.	A difficult problem in being a mother is not knowing whether you're doing a good job or a bad one.	3.11	1.410	Low Satisfaction	3.66	1.697	Low Satisfaction
9.	Sometimes I feel like I'm not getting anything done.	3.16	1.534	Low Satisfaction	3.45	1.688	Low Satisfaction
12.	My talents and interests are in other areas, not in being a mother	3.89	1.871	Low Satisfaction	4.58	1.670	High Satisfaction
14.	If being a mother of children were only interesting, I would be motivated to do a better job as a mother.	3.11	1.813	Low Satisfaction	3.47	1.856	Low satisfaction
16.	Being a mother makes me tense and anxious.	3.89	1.828	Low Satisfaction	4.39	1.748	High Satisfaction
	Total scores **Total mean score**	**32.13** **3.57**	**15.827**	**Low** Satisfaction	**36.68** **4.07**	**15.174**	**High** Satisfaction

Table B2*: Mean scores of maternal competence of antenatal mothers before and after the new born care program for comparison group.*

	PSOC Statements	PRE-TEST			POST TEST		
		Mean	SD	Interpretation	Mean	SD	Interpretation
2.	Even though being a mother could be rewarding, I am frustrated now while my child is at her present age.	3.97	1.668	Low Satisfaction	3.92	1 .730	Low Satisfaction
3.	I go to bed the same way I wake up in the morning feeling I have not accomplished a whole lot	3.29	1.469	Low Satisfaction	3.29	1.469	Low Satisfaction
4.	I do not know what is it is, but sometimes when I'm supposed to be in control, I feel more like the one being manipulated	4.18	1.333	High Satisfaction	4.16	1.424	High Satisfaction
5.	My mother was better prepared to be a good mother than I am.	4.32	1.710	High Satisfaction	4.37	1.731	High Satisfaction
8.	A difficult problem in being a mother is not knowing whether you're doing a good job or a bad one.	2.74	1.537	Low Satisfaction	2.68	1.561	Low Satisfaction
9.	Sometimes I feel like I'm not getting anything done.	3.68	1.579	LOW Satisfaction	3.71	1.642	LOW Satisfaction
12.	My talents and interests are in other areas, not in being a mother	4.61	1.733	HIGH Satisfaction	4.66	1.760	HIGH Satisfaction
14.	If being a mother of children were only interesting, I would be motivated to do a better job as a mother.	2.61	1.306	Low Satisfaction	2.55	1.37	Low satisfaction
16.	Being a mother makes me tense and anxious	2.97	1.684	Low Satisfaction	3.03	1.747	Low Satisfaction
	Total scores **Total mean score**	**32.37** **3.59**	**14.018**	**Low** Satisfaction	**32.37** **3.59**	**14.434**	**Low** Satisfaction

Table 2A shows that the mean scores for efficacy was (M= 30.40) pretest and (M=33.34) post test while satisfaction mean scores was (M= 32.13) pretest and (M= 36.68) after the new born care program. The study group had a significant difference between the pretest and post test with efficacy as (t= 3.92, p = 0.0078) and satisfaction as (t = 4.748, p = 0.0014).

Table 2A*: comparison of pretest and post test for study group*

Competence scale	Pre-test		Post test		t-value	p-value
	Mean	SD	Mean	SD		
Efficacy	30.40	11.447	33.34	9.935	3.922	0.0078*
Satisfaction	32.13	15.827	36.68	15.174	4.748	0.0014*

*significant at p<0.05

Table 2B*: comparison of pretest and post test for Comparison group*

Competence scale	Pre-test		Post test		t-value	p-value
	Mean	SD	Mean	SD		
Efficacy	31.13	10.394	31.82	10.621	3.444	0.0137*
Satisfaction	32.37	14.018	32.37	14.434	0.000	1.000

*significant at p<0.05

The above table presents the level of significance for comparison group. There is a significant difference in the comparison group in terms of efficacy (t= 3.44, p = 0.0137) with mean scores as (M= 31.13) pretest and (M= 31.82). In terms of satisfaction, there was no significance difference (t=0.000, p= 1.000) with mean scores of (M= 32.37) pretest and (M= 32.37) posttest.

Table 3*: comparison of post tests of study and Comparison groups*

Competence scale	Study group Post test		Comparison group Post test		t-value	p-value
	Mean	SD	Mean	SD		
Efficacy	33.34	9.935	31.82	10.621	-2.278	0.06295
Satisfaction	36.68	15.174	32.37	14.434	-2.453	0.0397*

*significant at p<0.05

The above table shows that there was no significant difference between the post test of study and control group in terms efficacy (t=-2.278, p= 0.06295). Meanwhile, there was a significant difference in terms of satisfaction (t= -2.453, p = 0.0397).

Table 4: ***Demographic profile of the participants from study (N=40) and comparison group (N=39)***

Variables	Study group F (%)	Comparison group F (%)	X^2	P-value
Age: 16 – 30	26 (65.0)	13 (33.3)		
31 – 45	14 (35.0) M=30.05	24 (61.5) M=38	8.954	0.011*
46 – 60	0 (0.0)	2 (5.1)		
Parity: 1 – 3	30 (75.0)	26 (66.7)		
4 – 6	6 (15.0)	13 (33.3)	6.853	0.0 33*
7 – Above	4 (10.0)	0 (0.0)		
Education: primary	2 (5.0)	4 (10.3)		
Secondary	6 (15.0)	13 (33.3)	5.086	0.079
Tertiary	32 (80.0)	22 (56.4)		
Employment:				
Housewife	6 (15.0)	2 (5.1)		
Civil servant	18 (45.0)	13 (33.3)	6.101	0.107
Business women	8 (20.0)	17 (43.6)		
Student	8 (20.0)	7 (17.9)		
Family support:				
Yes	20 (50.0)	26 (66.7)	2.255	0.133
No	20 (50.0)	13 (33.3)		

From the above table, the mean age for the study group is 30.5 years of age. Most of the participants in this group are in the 16 to 30 age bracket, 1 to 3 numbers of children (75%), attained tertiary education (80%), civil servant (45%) and has family support (50%). While in the comparison group, the mean age is 38 years of age. Majority are in the age 31 – 45 age bracket (61.5%), 1 – 3 numbers of children (66.7%), attained tertiary education (56%), business women (43.6%) and has family support(66.7%). participants in both groups are all married (100%).

As stated on the table above, chi-square test result shows the value of 8.954 at df = 2 with p-value as 0.0114 for age, $X^2 = 6.853$, P= 0.0325 at 2 df for parity, $X^2 = 5.086$, df= 2, p= 0.079 for education, $X^2 = 6.101$, p= 0.107 for employment and $X^2 = 2.255$, 0.133 for family support.

4.0 Discussion

The purpose of this study is to determine the effect of new born care program on maternal competence of antenatal mothers and find relationship between maternal competence and selected demographic variables.

1. The study and comparison groups had high efficacy in pretest and posttest. The study and comparison groups had low satisfaction pretest but study group became high after the new born care program while comparison group remained at low satisfaction. This shows that new born care education is essential to promote the mothers' child care efficacy/satisfaction level. Arslan & Hatipoglu (2007) concluded that providing education and counseling to mother from prenatal to postnatal increases maternal competence. For the efficacy high pretest scores, there were numerous factors that may contribute to this. One was identified as social support. 50% of the study group and 66.7% of the mothers in comparison group have family support after delivery. Secondly, they exhibited previous knowledge of new born care by their statements.

2. Significant difference was identified between the pretest and post test of the study group according to efficacy and satisfaction. This means that the new born care program was effective to improve the level of maternal competence. Bala, Devi & Gomathi (2013) identified instructional teaching program as effective to increase the knowledge of postnatal mothers regarding new born care. This implies that new born care program should be incorporated into the antenatal teachings. This finding is also supported by Kadam & Tata (2012) and Ngai et al (2009).

3. Significant difference was identified between the pretest and post test of the comparison group according to

efficacy while there is no significant difference identified between the pretest and post test of the comparison group according to satisfaction.

4. There is no significant difference between the posttest of study and comparison groups according to efficacy while there is a significant difference between the posttest of study and comparison groups according to satisfaction. Mothers in the study group had satisfaction with their new born care after the new born care program. They expressed happiness and fulfillment in their maternal role after delivery. Similar studies have been done using different methods to assess their effectiveness in improving the maternal knowledge or competence regarding new born care. Shanthi (2009) assessed the effect of compact disc on the knowledge and practice of neonatal care. The findings showed the effectiveness of CD in increasing the knowledge of mothers. Internet –based (Salonen et al, 2011), and telephone follow-up (Gao et al, 2010) were also found effective to improve maternal knowledge and competence regarding new born care.

5. Relationship was established between the levels of maternal competence and age and parity but not with employment status, educational attainment and family support. In support to this study, relationship between maternal competence and age was proved by Drake et al (2007). Ngai & Chan (2012) in their study on the stress, maternal role competence and satisfaction identified that age had significant correlations with maternal competence and satisfaction. Studies made by Drake et al (2007) and Anjum, Durgawale & Shinde (2014) illustrated that parity of the pregnant women contribute significantly to their level of maternal competence in newborn care. Studies have shown contrary findings that family support is significantly associated with maternal competence (McComish & Visger, 2009; Ngai, Wai-Chai & Ip, 2010).

5.0 Conclusions

Based on the findings of this study, new born care program was effective in improving the maternal competence level of antenatal mothers. This should be incorporated into antenatal and postnatal teachings to enable the mothers become competent with their mothering role especially the first-time mothers. Age and parity (previous experiences) were identified as having influence on the level of maternal competence.

No broad generalization could be made due to small sample size and limited area of study.

5.1 Recommendations

1. New born care program using audio-visual method should be implemented for teaching in the antenatal units and be done consistently in order to achieve improved maternal competence and reduce infant morbidity and mortality.
2. New born care program should be included in nursing orientation programs, continuing education programs and as clinical competency requirement.
3. Further studies should be done on this topic but using only primips and for a longer period and on the effect of mothers' perception of maternal competence on new born care.
4. Further studies should be done using larger sample size and if possible multiple centers used.

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