

# Maternal Profile, Awareness and Utilization of Basic Emergency Obstetrics and Newborn Care (BEmONC) in a Rural Municipality in Iloilo, Philippines

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**Abstract** – *This descriptive correlational study was conducted to determine the maternal profile, awareness and utilization of Basic Emergency Obstetrics and Newborn Care (BEmONC) among women of reproductive age (WRA) in a rural municipality in Iloilo. The 346 respondents were selected using stratified random sampling technique. Data were gathered using a structured interview schedule prepared and validated prior to the actual data collection. For univariate, frequency, percentage, and mean were utilized to describe the data while Chi-square, Gamma, and Cramer's V were used to analyze and determine relationships between variables. The results revealed that most of the respondents were highly aware of the Rural Health Unit (RHU) as a BEmONC facility and its services. However, most of them have utilized only the prenatal package but not the childbirth and postnatal services. Hypothesis testing found a significant relationship between utilization of BEmONC services and employment status, income level, educational status, OB score, pregnancy status and awareness of BEmONC services. Increasing awareness about maternal and child health care and facility-based services and educating women planning for safe childbirth to deliver in a BEmONC facility that is attended by a skilled medical health professional are essential for the survival of the mother and the newborn.*

**Keywords** – *BEmONC, Maternal health, Awareness of maternal health services, Utilization of maternal health services*

## INTRODUCTION

Women's utilization of maternal health care facility have a significant value to the wellbeing and survival of

both the mother and her child during childbirth (Gazali, Muktar, & Gana, 2012; Akum, 2013). However, despite the efforts of the concerned organizations and the government, the maternal and infant mortality rate in the Philippines remains high with a maternal mortality ratio of 162 per 100,000 live births (National Statistics Office, 2006 Family Planning Survey cited in Yabut & Bautista, 2007). According to the Department of Health (2009), "the current level of maternal mortality in the Philippines is mostly attributed to the predominance of home births (61 percent per the 2003 National Demographic and Health Survey) and the relatively high proportion (37%) of these are assisted by traditional birth attendants (TBAs) or *hilots*".

To help achieve the United Nations Millennium Development Goal 5 and in order to advance maternal health and reduce deaths, the priority strategy of the World Health Organization is the improvement of access, availability and utilization of emergency obstetric and newborn care and ensuring that all births are attended by a skilled health worker (WHO, 2008).

The differences in the utilization of health care services and the consequential unfavorable health outcomes are major public health concerns. Andersen's (1995) model of use of health care services suggests that "people's use of services is a function of their predisposition to use services, factors which enable or impede use and their need for care". It has been observed that several factors, including socioeconomic and demographic factors, have been documented in many studies, to affect utilization of such services (Chakraborty, et al., 2003; Onah, Ikeako & Iloabachie, 2006; Sharma, Sawangdee, & Sirirassamee, 2007; Adamu, 2011, Ochako, et al., 2011; Olayinka, Achi, Amos, & Chiedu, 2014). Awareness or lack of knowledge of services was found to be associated with

maternal service utilization and a strong predictor of skilled antenatal and delivery use (Worku, Yalew, & Afework, 2013; Olayinka, et al., 2014).

Similar to what was pointed out by Mahamadu (2011), this study on health care utilization needed because despite the investments in the public health system in the Philippines in increasing the availability of maternal and child health services, Maternal Mortality Rate has not dropped significantly. While there can be many factors that can influence women's utilization or underutilization of health care services, certain socioeconomic and demographic factors and awareness of maternal health care services seem to relate to the use of these services.

It is hoped that through this study, the researchers can generate valuable information about awareness and utilization of BEmONC, that is one of the intervention strategies in improving the quality of maternal and child health care and in reducing maternal deaths.

### **OBJECTIVES OF THE STUDY**

This study was conducted to determine the maternal profile, awareness and utilization of Basic Emergency Obstetric and Newborn Care (BEmONC) facility and its services among women of reproductive age (WRA) in a rural municipality in Iloilo, and whether or not these factors are related to each other.

Specifically, this study aimed to determine: the respondents' profile in terms of civil status, employment status, family income, educational attainment, parity, gravidity, place of prenatal check-up, place of last delivery and pregnancy status; the awareness of the services offered by the BEmONC facility; the extent of utilization of BEmONC services; and whether or not there is a significant relationship between the respondents' civil status, employment status, family income, educational attainment, obstetric score, pregnancy status, respondents' awareness of the services offered by the BEmONC facility and the utilization of BEmONC services among WRA.

### **MATERIALS AND METHODS**

The design of the study was descriptive correlational using one-shot survey. The study population were the WRA who have given birth for the last five years. The 346 respondents were selected using a stratified random sampling technique out of 3,532 from 28 Barangays of the municipality.

The interview schedule was designed to elicit data required for this study. The instrument was based on the Implementing Health Reforms Towards Rapid Reduction in Maternal and Neonatal Mortality Manual

of Operations (DOH, 2009). Content validity was ensured and for reliability, the instrument was pretested to 5 percent of the total sample.

The researchers observed appropriate ethical conduct that was maintained throughout the study. Informed consent was sought from the study population during the field data collection. The respondents were also informed that their participation in the study was voluntary.

Prior to actual interview, a letter of permission was first sent to the Mayor of the municipality that stated the purpose of the study and the assurance of the confidentiality of the information that will be obtained. The respondents were interviewed by five trained data gatherers between October to December of 2012. After data gathering, field editing was done to ensure completeness of the data obtained.

The data were analyzed with Statistical Package for Social Sciences (SPSS) version 19. Frequency, percentage, and mean were utilized for univariate. To examine the relationship involving nominal variables, the Chi-square test was used, and to determine the strength of association between each variables, the Cramer's V was utilized, the result were interpreted using Guilford's (1956) scale interpretation. To analyze the relationship involving ordinal variables, Gamma was employed. Five percent level of significance was used for all tests of relationship between variables of the study.

### **RESULTS AND DISCUSSION**

The maternal profile of the respondents is shown in Table 1. Majority (97 percent) of WRA in the municipality were married, at least high school (68 percent), unemployed (92 percent) and earns Php 1,000 to 5,000 (84 percent). A little less than three-fourths (70 percent) were multigravida and multipara with a mean OB score of 4. The usual place for the pre-natal testing was the RHU of the municipality (47 percent), but also one of the least facilities used for delivery (17 percent). There were those who preferred to have home births (40 percent) which place them at risk to suffer from complications such as hemorrhage and postpartum infection. In terms of pregnancy risk, majority (83 percent) had low-risk pregnancy while 14 percent of them were classified as high-risk with the most common manifestations of severe vomiting, anemia, and swelling of the legs. The health care providers, therefore, should focus on the most common pregnancy complications and how to manage it, in order to avoid maternal and fetal death.

**Table 1. Distribution of respondents according to maternal profile**

Profile	%
<b>Civil Status</b>	
Single	3.18
Married	96.82
<b>Educational Attainment</b>	
Elementary level	17.05
High School level	67.92
College level	15.03
<b>Employment Status</b>	
Employed	8.09
Unemployed	91.91
<b>Family Monthly Income (Php)</b>	
1000-5000	83.82
5001- above	16.18
<b>OB Score</b>	
<b>Gravidity</b>	
Primigravida (1)	5.49
Multigravida (2-4)	70.52
Grand multigravida (5 and above)	23.99
<b>Mean= 4</b>	
<b>Parity</b>	
Primipara (1)	7.23
Multipara (2-4)	69.65
Grand multipara (5 and above)	23.12
<b>Mean= 4</b>	
<b>Place of Prenatal Check-up</b>	
RHU	47
Hospital	22
Barangay Health Station	25
Private Doctor	6
<b>Place of delivery of last pregnancy</b>	
RHU	17
Hospital	38
Barangay Health Station	5
Home Births	40
<b>Pregnancy Risk Status</b>	
High-risk	13.87
Low-risk	86.13

#### Awareness of BEmONC facility and services

The data on awareness of the respondents of the various services offered by the RHU as a BEmONC facility are presented in Table 2. The respondents' level of awareness was measured by the number of services they were aware of. In general, most (83 percent) of the WRA were highly aware of the services offered at the RHU.

There are 20 primary services provided in the BEmONC facility which were divided into three main

services; prenatal, childbirth and postpartum and postnatal services. The prenatal services include activities and interventions done for the mother during prenatal check-up. Among the services offered during prenatal visit, mostly are aware of promotion of exclusive breastfeeding and counseling on family planning (95 percent), BP determination (94 percent), early detection and management of pregnancy complication (93 percent) and monitoring of height and weight (92 percent). The prenatal services they were least aware of were deworming and blood testing.

More than three-fourths (77.75 percent) were aware of the services offered for childbirth services, and many (85 percent) were aware of the postpartum and postnatal services. The most familiar postpartum and postnatal services to the WRA were family planning counseling (95 percent), provision of family planning services (93 percent) and essential neonatal care (90 percent).

The figures show that health care providers must provide health teachings and reinforce or give more emphasis on the specific items that the respondents were least aware of.

#### Utilization of BEmONC facility and services

Table 2 also presents the data on the utilization of the respondents of the different services provided by the RHU. The figures show that more than half of the respondents (58 percent) highly utilized the services of the RHU most especially the pre-natal services. Among the pre-natal services, almost all (95 percent) used the promotion of exclusive breastfeeding, monitoring of height and weight, and BP determination. The least utilized among the services in the prenatal package is the prevention and management of other diseases.

Furthermore, only nearly half (48.34 percent) utilized the childbirth services and only a little over one-fourth (28.42 percent) used the postpartum and postnatal services. Also, there were only twenty-five (7.23 percent) out of three hundred forty-six WRA who used the prevention and management of other diseases among the postpartum and postnatal services.

The data indicate that most WRA visit the RHU for prenatal services but prefer to deliver in other places or unit for childbirth and postpartum services. Some of those who used the prenatal services in the RHU chose to give birth in a hospital or Barangay Health Station. It is notable that despite its prohibition, there were still a significant proportion (40%) of WRA who opted for home delivery.

**Table 2. Distribution of respondents according to awareness and utilization of different RHU services**

<b>BEmONC Services</b>	<b>Awareness</b>	<b>Utilization</b>
	<b>%</b>	<b>%</b>
<b>Prenatal Services</b>		
1. Promotion of Exclusive Breast Feeding	95	95.38
2. Counseling on Family Planning	95	80.92
3. Micronutrient Supplementation	94	76.59
4. BP Determination	94	94.79
5. Early Detection and Management of Pregnancy Complication	93	49.42
6. Monitoring of Height and Weight	92	94.79
7. Measurement of Fundic Height against the AOG, FHR, and Movement	87	87.28
8. Prevention and management of other diseases	81	49.13
9. Deworming	60	87.28
10. Screening and Blood Test	53	80.64
<b>Childbirth Services</b>		
11. Provision of Immediate Postpartum Care	84	47.69
12. Monitoring of VS and Progress of Labor	80	49.71
13. Identification of Signs and Symptoms	75	48.27
14. Active Management of Third Stage of Labor	72	47.69
<b>Postpartum and Postnatal Services</b>		
15. Counseling on Family Planning	95	38.73
16. Provision of Family Planning Services	93	35.26
17. Essential Neonatal Care	90	35.26
18. Micronutrient Supplementation	87	19.36
19. Provision of Immediate Postpartum Care	84	34.68
20. Postpartum Check-up	60	7.23
21. Prevention and management of other diseases		
<b>Level of Awareness</b>		
High	83	
Low to Moderate	17	
<b>Extent of Utilization</b>		
High		58.09
Low		41.91

### Relationship between maternal profile, awareness and utilization of BEmONC facility and services

Table 3 shows the relationship between selected variables and utilization of BEmONC services. The statistical test shows no significant relationship between civil status and utilization of the RHU services as supported by a Chi-square result of 3.22 with a p-value of 0.07. This negates the findings of Onah, Ikeako & Iloabachie (2006); Ochako, et al. (2011) that found an association between civil/marital status and utilization of health care services such as timing of first antenatal care visit and the type of delivery assistance that mothers have received.

The data further show that there is a significant relationship between educational attainment and utilization of services in the RHU (Chi-square value of 17.31 with a p-value of 0.002). Furthermore, the Cramer's V value of 0.22 indicates a low but positive association between the two variables. Formal education of WRA influences their use of BEmONC facility and its services. The higher the educational

attainment of the women are, the more likely they are to utilize the services. Education is one of the predisposing factors in the model of health care utilization by Andersen (1995). Education may predispose women to use the services because educated women know and understand more about the nature of the pregnancy and its possible complications. Also, education is crucial in analyzing the decision of whether to seek care at health facility or not. The findings of previous studies conducted by Chakraborty, et al. (2003); Onah, Ikeako & Iloabachie (2006); Sharma, Sawangdee, & Sirirassamee (2007); Ochako, et al. (2011); Adamu (2011); Olayinka, et al. (2014) revealed that education had a strong influence on the timing of first antenatal care visit, the type of delivery assistance received and in the use of Maternal Child Care Services in Bangladesh, Nepal, Kenya, Nigeria, and Bayelsa State corroborate the result of this study.

As to the relationship between employment status and utilization, the Chi-square test statistic reveals a significant relationship between employment status and

utilization (4.37,  $p$ -value=0.036). Employed women are more likely to utilize the BEmONC facility and its services since they have more income thus, have the capability to finance use of services. Adamu (2011) found that employment was a significant predictor of utilization of Maternal Health Care Services in one

region in Nigeria but not in others. An earlier study in Enugu, southeastern Nigeria by Onah, Ikeako & Iloabachie (2006) likewise reported a significant association between choice of institutional or non-institutional deliveries and occupational level.

**Table 3. Relationship between maternal profile, awareness and utilization of BEmONC facility and services**

Variables		p value	Interpretation
Civil status	Chi-square = 3.22	0.070	Not Significant
Employment status	Chi-square = 4.37	0.036	Significant
Income level	Gamma =0.439	0.002	Significant
Educational attainment	Chi-square = 17.31; Cramer's V = 0.22	0.002	Significant
Gravidity	Chi-square = 11.41; Cramer's V = 0.21	0.003	Significant
Parity	Chi-square = 24.57; Cramer's V = 0.27	0.000	Significant
Pregnancy status	Chi- square = 126.86	0.000	Significant
Level of awareness	Chi-square = 14.81	0.004	Significant

The relationship between income and utilization is significant at .05 level with a gamma coefficient of 0.439 ( $p$ -value= 0.002). The higher the income of the women, the more likely they will utilize the RHU services. Household wealth or economic status and family wealth index were found to be strong predictors of utilization of services (Sharma, Sawangdee, & Sirirassamee, 2007; Ochako, et al., 2011; Adamu, 2011). Cost has been a major barrier in seeking for appropriate health care (Shaikh, & Hatcher, 2007). The costs of seeking health care and costs of facility-based delivery may include expenses for transportation, medications, and other medical supplies (Borgh, Ensor, Neupane, Tiwari, 2004). According to Andersen's (1995) model, income is an enabling factor which makes it easier or difficult for an individual to use health care services. Even if the mother is predisposed to use the services, it won't translate to utilization if she does not have the necessary resources to avail these services.

In terms of the respondents' OB score, the result of the Chi-square tests (11.41 in gravida; and 24.57 in para) and Cramer's V tests (for gravida is 0.21 and 0.27 for para) indicate that there is a significant low correlation or definite but small relationship between the two variables. The more children the women have, the more likely they are to utilize the BEmONC facility and its services. This study supports the result of Onah, Ikeako & Iloabachie (2006) which found a significant relationship between parity and use or choice of institutional or non-institutional deliveries. Olayinka, et al. (2014) also found a significant association between parity and utilization. The higher the gravidity and parity, the more likely they utilized the services.

There is also a significant association between pregnancy status and utilization (Chi-square test = 126.86,  $p$ -value = 0.004). The result echoes the finding of Chakraborty, et al. (2003) that revealed the significant influence of severity of disease condition in explaining the utilization of maternal health care. They further described that women, who had a life-threatening condition, are more likely to seek care from a doctor or nurse to treat their poor or ill state. Pregnancy status is a need factor in Andersen's (1995) model. In this study, pregnancy status is taken as a perceived need of WRA which refers to the health status, perceived by the individual and further cited by Aroian, Wu & Tran (2005) as "to how the individual view their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional services" that leads to utilization of maternal health care services. Women, who have more children and who have high-risk pregnancy status, are more likely to utilize the BEmONC facility and its services because they recognize that there is a need to protect themselves.

This situation in the municipality is alarming. One considerable risk to women who have delivered five times or more is uterine atony that leads to unnecessary deaths. Giving birth in a safe health facility and availing postpartum services will help prevent these complications, and if not prevented, at least these will be managed appropriately in a timely manner. Although more than half of the respondents highly utilized (58.09 percent) the services in the RHU, the services used the most was only the prenatal packages. Childbirth and postnatal services, considered crucial stages of pregnancy, were not highly utilized. It is also worth mentioning that although about two-thirds (64.58

percent) of women who had high-risk pregnancy had high level of utilization of the RHU services, the remaining 35.42 percent who had a low level of utilization could not be ignored. Since these women in this study belong to the high-risk classification, they have a greater chance of suffering untoward complications during labor, delivery, and postpartum period.

Moreover, it was hypothesized that the higher the awareness of BEmONC facility services, the higher the level of utilization will be. The statistical test reveals a Chi-square of 14.81 with a p-value of 0.004 which means that there is a significant relationship between awareness and utilization. Awareness or knowledge is one of the predisposing factors in Andersen's (1995) health care utilization model. The more the WRA are aware of the services, the more likely they are to utilize the BEmONC facility and its services. The finding substantiates the study of Worku, Yalew, & Afework (2013) which revealed that awareness was found to be much more relevant for skilled maternal service utilization in Northwest Ethiopia. Similarly, Olayinka, et al., 2014 found that poor knowledge of the existing services was associated with barrier to utilization of maternal health services among reproductive women in Amassoma community, Bayelsa State.

## CONCLUSIONS AND RECOMMENDATIONS

Despite the progress in recent decades that has been made in the RHU facility of the municipality to improve maternal health outcomes, maternal mortality is still high. And while a lot of factors contribute to such maternal health outcomes, low use of maternal health care services during pregnancy and delivery that is provided by well-trained and well-equipped medical health professionals is recognized as an important factor contributing to maternal death.

Even though the utilization of antenatal care provided by health professionals is relatively high in the municipality, the delivery and postnatal care services are not fully utilized. This situation needs urgent attention. The low use of these services can put women's lives at greater risk. Underutilization can potentially increase the number of maternal deaths that occur during delivery due to direct obstetric and postpartum complications.

Also, women in the municipality have births delivered at home. Traditional birth attendants (TBAs) still play a role in assisting in childbirth, and in some Barangays, the percentage of assistance given by nonprofessional birth attendants is still unacceptably high. Birth under the supervision of a TBA is

unavoidable especially when birth is inevitable, thus; there might be a need for provision of proper training to TBAs to increase their competencies. TBAs need to be trained to improve their knowledge and skills, so as to provide better services. However, prohibition of home delivery must be reiterated. Delivery in a health facility attended by a skilled or trained medical health professional is being advocated by the WHO and DOH to ensure safe childbirth. An amplified effort to ensure facility-based delivery is still needed.

The predisposing, enabling and need factors in Andersen's health care utilization model contribute to explaining the differences in the use of maternal health care services. The awareness of women influences their utilization of BEmONC facility and its services. Women utilizing antenatal care services are more knowledgeable and are more aware of the services of the facility, thus are more likely to utilize these services as compared to those who are not utilizing them.

Consistent with the findings of most of the studies, the selected socioeconomic and demographic factors (employment status, income level, educational attainment, gravidity, parity and status of pregnancy) affect the utilization of maternal and child health care services. Consideration of these factors will contribute to the improved use of services of a BEmONC facility. However, because health care utilization may still require the voluntary decision of women to choose whether to employ these services or not, the underutilization of maternal health care services, particularly the lack of usage of delivery and postpartum care packages is perhaps related not only to awareness and socioeconomic and demographic characteristics but also to other factors like acceptability, adequacy, availability, affordability and accessibility that a facility and its services offer.

While the government has made several attempts to improve maternal health care by making services more accessible and by improving service quality through upgrading of the RHU as a BEmONC facility, it is recommended that the DOH and the Local Government of the municipality to review the maternal and reproductive health policy for better implementation so as to improve the services. The program policy change might include reconsideration of the cost-sharing policy, the re-classification and the re-pricing, if needed, of the coverage of National Health Insurance or Philhealth for Maternal and Child Health Care Packages.

Furthermore, the utilization of proper and modern maternal health care services is more likely to succeed if there is an effort to provide information to women.

The dissemination of information is needed to increase mothers' awareness of the benefits of using up to date health care facilities and assistance of a trained professional health personnel for delivery purpose. The health care providers must provide complete information about the services that are available in the health care facility. They should educate the mothers visiting for prenatal testing that they also offer childbirth and postnatal packages. They should also inform the mothers about the possible risks if they choose to deliver at home.

Future researchers can use this study as a benchmark for future studies that can be conducted in other BEMONC facilities. Using Andersen's model, they can explore other factors that promote or hinder the use of RHU facility and its services.

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