Determinants of Utilization of Postnatal Care
in Kapchorwa District, Eastern Uganda

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산후건강관리서비스 이용의 결정요인에 관한 연구
-우간다 동부 카프초르와 구를 중심으로-

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국문초록

목적: 사하라 이남 아프리카 지역 중저소득국가 모성보건지표의 더딘 개선율은 MDG 5(모자보건향상) 미달성의 주요 원인 중 하나로 꼽힌다. 따라서 본 연구는 우간다 동부 카프초르와 구의 모성사망과 밀접한 산후건강관리(PNC, Postnatal care)서비스 이용결정요인을 파악하는데 있다. 이를 통해 지역건강관리자들에게 PNC 서비스 이용 개선을 위한 정책 수립 및 방안 마련에 기초자료를 제공하고, 궁극적으로는 MDG 5 지표 개선에 일조하고자 한다.

방법: 표본 집단은 카프초르와 구의 15세~49세 여성들 중 최근 1년 내에 출산을 경험한 자들을 대상으로 편의추출 되었다. 조사기간은 2014년 7월부터 10월까지였으며, 구조화된 설문에 총 171명이 응답하였고, 19명의 주요 정보제공자와의 심층면담도 실시하였다. 응답자의 사회인구학적 특성 및 PNC 이용 행태를 알아보기 위해 빈도분석을 실시하였으며, 각 독립변수가 PNC 이용에 어떤 영향을 미치는지 파악하기 위해 로지스틱 회귀분석을 실시하였다.

결과: 응답자의 55%만이 의료시설의 PNC 서비스를 받은 것으로 나타났다. 로지스틱 회귀분석을 통해서는 응답자의 연령과 사회적 네트워크, 인지된 건강상태, 산전관리서비스 이용이 PNC 서비스 이용에 긍정적인 영향을 미치는 것으로 나타났으며 의료시설과의 거리, 가족의 규모는 부정적인 영향을 미치는 것으로 나타났다.

결론: PNC 서비스 이용개선을 위해서는 먼저 여성의 사회적 자본 확충 및 개선을 위한 모성보건교육

인 소프트 인프라 지원이 지자체 차원에서 실시되어야 할 것이며, 서비스 이용을 가능케 하고 접근성을 높이는 응급후송체계 구축과 같은 물리적 인프라 지원도 도입되어야할 것이다. 또한 가족계획 서비스를 제공하는 등 모성보건관리에 대한 지자체의 민감성을 높이는 것도 필요하겠다.

주제어: Andersen의 모델, 모성건강관리서비스, 산후건강관리 서비스, 모성보건교육

Ⅰ. INTRODUCTION

Globally between 1990 and 2013, the maternal mortality ratio declined by only 2.6% per year far from the annual decline of 5.5% required to achieve the fifth Millennium Development Goal(MDG 5). The risk of women in a developing country dying from a pregnancy related cause is 25 times higher than that of women living in a developed country. Almost all maternal deaths(99%) occur in developing countries, more than half occur in Sub Saharan Africa and almost one third in South Asia. The MDG 5 calls for reduction in maternal mortality ratio by 75% between 1990 and 2015(WHO, 2007). One of the key indicator to measure this goal is the proportion of pregnant mothers who received postnatal care(PNC) since most maternal deaths occur during delivery or the first 24 hours postpartum.

Sub Saharan Africa has the highest maternal mortality ratio(MMR) in the world with an average of 500 maternal deaths per 100,000 live births accounting for half of the world's total maternal deaths. Sub Saharan Africa is the region with the lowest coverage of skilled delivery utilization with only 45% of women having skilled attendant at birth. Uganda is one of the developing countries with high maternal mortality of 438 per 100,000 live births and maternal deaths alone account for 20.4% of the total disease burden. An estimated 74% of maternal deaths could be averted if all women had access to the interventions for preventing or treating pregnancy and birth complications in particular emergency obstetric care. Reports show that most maternal deaths are due to direct obstetric causes such as post-partum hemorrhage, sepsis, obstructed labor, infections, unsafe abortions, ruptured uterus, eclampsia and hypertensive diseases of pregnancy (Ronsmans et al., 2006; MOH, 2009).

Skilled care after child birth saves the lives of women and new born babies. As a result use of PNC are recognized as one of the key maternal health care(MHC) services to improve health outcomes for women and children. However, use of PNC is still very low in Uganda. According to Uganda Demographic and Health survey in 2011, two thirds of the women in Uganda gave birth at home and only 23% of all women received postnatal care services within the critical two days following delivery. Besides, 74% of the women did not receive postpartum care at all(UBOS, 2007). This is happening amidst progress in coverage with over 90% of the population living within 5km from health facilities. Also maternal health care services are provided free of charge in all public health facilities. Therefore utilization of PNC is a major concern in Uganda and Ministry of Health.

A number of interventions have been implemented to increase the use of PNC through establishment of health facilities, removal of user fees, recruitment

of health personnel and provision of incentives. However there has been no proportionate increase in the utilization of PNC. This is associated with the nature of birth attendance and the risk of maternal death is higher amongst those attended by unskilled birth attendants, which occur in home settings(Prata et al., 2005). Such births are associated with the inability to handle complications, unhygienic conditions and the use of unsterilized instruments which expose mothers and babies to infections(MOH, 2010). This situation is further worsened by the poor access and low utilization rates hence a study is needed to enable the District health management team to understand what prevents utilization of PNC given improvement in coverage, design comprehensive policies and interventions towards improvement of service utilization.

The death of a mother has serious health, demographic, economic and social consequences. The welfare of children and family is heavily compromised when a mother dies. The family and society lose the immense social and economic contributions of young and productive women. This study therefore intends to explore the key factors determining the utilization of PNC in Kapchorwa District, Eastern Uganda. For this analysis, Anderson model will be used. By finding the determinants of PNC utilization, this study can provide some insights for developing community health education.

Ⅱ. LITERATURE REVIEW

1. Andersen's Model

Andersen's behavioral model of health service utilization(1968) proposes that the use of health care services is a function of three sets of individual characteristics: 1) predisposing characteristics(e.g., age, household size, education, number of previous pregnancies, health related attitudes); 2) enabling characteristics(e.g., income, characteristics of health care system, accessibility and availability of health facilities); 3) need characteristics(e.g.,. characteristics of illness, perceived health status and expected benefit from treatments).

Andersen believed that individuals with different demographic and social structural characteristics have different patterns of use of health services and individuals believing in efficacy of medical care are more likely to seek medical care than those who do not. Enabling factors reflect individual's ability to use health services and depends on both family (income, place of residence) and community (availability of health care facilities including personnel) resources. If there are sufficient family and community resources to enable the individual use health services, then the individual will be more likely to use them. Need factor is the basic and direct stimulus for the use of health services when the appropriate levels of predisposing and enabling characteristics exist(Aday & Andersen, 1974). The need factor reflects the individual's perceived need to use health services as indicated by the severity of the morbidity conditions or the number of morbidities. Need for health care can be measured in a variety of ways(e.g., self-perceived health status, number of morbidity systems or duration and severity of disability) (Fielder, 1981; Fosu, 1994).

2. Predisposing factors and utilization of postnatal care services

According to the past studies(Elo, 1992; Fosu, 1994), mother's current age is an important determinant of the utilization of medical services. Mother's

age could be used as a proxy for the women′s accumulated knowledge of health care services, which may have a positive influence on the use of health services. A number of studies support the view that older women are more likely to seek maternal health care services than younger women (Addai, 2000; Chakraborty et al., 2003; Mekonnen & Mekonnen, 2003).

Marital status was also found as a factor which determinants utilization of MHCs. In Ethiopia, it was found that married women were 40% more likely to receive MHCs from a health professional than unmarried women(Mekonnen et al., 2002).

Family size is yet another factor for maternal health care utilization. It′s argued that women from large families tend to underutilize various maternal health care services because of too many demands on their time. Larger families also cause resource constraints which have a negative effect on health care utilization(Wong et al., 1987). In Tunisia and Morocco, Obermeyer(1993) found that greater number of children increases the non-use of maternal health care services.

Religious beliefs and practices are other factors identified in the empirical literature as having significant influence on the utilization of maternal health services(Nwakoby, 1991; Nhindiri et al., 1995). Religion as a community factor can facilitate or hinder health seeking behavior of members of the community. It may work through what Andersen & Newman(1973) refer to as the perception of need in that religious beliefs may moderate women′s perceptions of need and seriousness of morbidity conditions and therefore the desire to seek care remedies.

The mother′s level of education has an important impact on the use of maternal health care services.

Education is said to enhance female autonomy so that women develop greater confidence and capabilities to make decisions regarding their own health (Raghupathy, 1996). It is argued that better educated women are more aware of health problems, know more about the availability of health care services, and use this information more effectively to maintain or achieve good health status. A number of studies have shown a positive relationship between women′s level of education and utilization of maternal health care services (Celik & Hotchkiss, 2000; Addai, 2000; Mekonnen & Mekonnen, 2003; Chakraborty et al., 2003).

3. Enabling factors and utilization of postnatal care services

Higher levels of family income are associated with increased utilization of modern health care services(Elo, 1992; Fosu, 1994). Gage(2007) showed that household poverty and personal problems were negatively related to the use of maternal health care. In a study on the determinants of maternal health services in the rural India, it was found that, there is a correlation between household income and utilization of maternity care services among married adolescents in rural India(Singh et al., 2012).

Place of residence(rural or urban) is another variable that may affect the utilization of maternal health services. In most developing countries, urban dwellers may be relatively closer to health care facilities than their rural counterparts, increasing the distance from home to a health facility for rural dwellers as compared to those living in urban centers. Place of residence was found by Navaneetham & Dharmalingam(2002) to be an

important variable for utilization in that, women living in urban areas were found to be dominant in urban culture, with more pressure to behave in ways perceived to be "modern."

Geographic access can be measured in terms of distance, travel time, means of transportation and any other physical barriers that could keep the client from receiving PNC services. Long travel distances and time to health services have been cited in several studies as a reason why women deliver at home rather than at a health facility (Amooti & Nuwaha 2000; Parkhurst & Ssengooba, 2005).

The size of social communities is also instrumental in determining the utilization of PNC. According to Gage(2007), social networks may provide women with access to contacts and information on safe motherhood and reduce uncertainty about formal health systems.

4. Need factors and utilization of postnatal care services

According to Chakraborty et al.(2003), in their study in Bangladesh, women who have had a life-threatening condition are 2.2 times more likely to seek care from a doctor or nurse to treat their maternal morbidities. The influence of severity of disease condition in explaining the utilization of maternal health care was found to be significant.

Karkee et al.(2014) in their study in Nepal found that women who made more than four antenatal care visits were five times more likely to deliver at a health facility compared to those who paid no visit. The study found out that perceived need as expressed by frequency of antenatal visits and birth preparedness activities plays an important role in institutional delivery service utilization for Nepali women.

Ⅲ. Methodology

1. Research Model

The study was based on the model illustrated below in analyzing the determinants of maternal health care service utilization. The independent variables of this study are classified into three dimensions: 1) predisposing factors; 2) enabling factors; 3) need factors. The independent variables for each dimensions were selected based on the past studies showing the efficacy for predicting the maternal healthcare use.
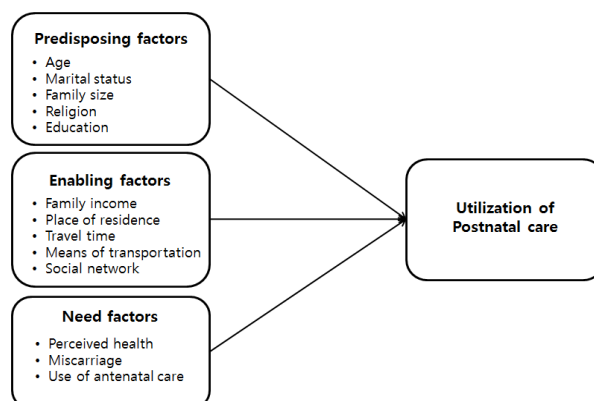
<Figure 1> Research Model

2. Measurement of variables

Predisposing factors include mother's age, marital status, family size, religion, education. Age and family size variables were measured as continuous variables. The others were dummy variables.

Enabling factors include family income, place of residence, travel time to the health facility, means of transportation, and social network. The place of residence has two categories: 1) urban; 2) rural. The transportation variable has two categories: 1) walking; 2) bike/taxi. The other variables were measured as continuous variables. The social network was measured by the number of relatives and friends.

Need factors included perceived health condition, miscarriage experience and use of antenatal care. While the predisposing and enabling factors include the variables commonly used in the past studies, need factors include unique variables for this study. Since this study focused on maternal service use, miscarriage experience was used as another indicator of health. The use of antenatal care measured as dummy variable indicates whether the respondent has ever experienced the use of antenatal care. The respondents were asked to write age, income, and perceived health status at the time of the survey.

The dependent variable of the study is postnatal care use. Mothers were asked whether they visited a health facility for postnatal care.

3. Data collection

The study was conducted in Kapchorwa District located 310 Kilometers away from the capital city of Kampala. Kapchorwa is a rural District situated in Eastern Uganda on the slopes of Mt. Elgon. The study involved a survey sample of women(aged 15-49) who gave birth within one year prior to the survey. Convenience sampling was used in selecting the study sample. 10 communities out of 16 were sampled for the study where 171 women who gave birth during the last one year aged 15-49, sane, willing to participate and residents of study area were surveyed. The 10 communities included Kapchorwa Town Council, Kaptanya, Tegeres, Chema/Munerya, Sipi, Kaserem/ Amukol/Gamogo and Kawowo Sub Counties.

Ⅳ. Results

1. Profiles of respondents

1) Predisposing characteristics

A total of 171 women who gave birth within one year prior to the study were surveyed. Their ages ranged from 14 to 42 with a mean age of 28.2. 78.4% of the respondents were married while 21.6% were either single, divorced/separated or widowed. The number of children ever born by the respondents ranged from 1 to 9 per woman with an average of 2.7 children. A larger number of the respondents were Christians constituting 81% and Moslems 19%. More than half of the women had attained secondary education and above with approximately 57.9%. The other 42.1% had only primary or less education(Table 1).

<Table 1> Characteristics of respondents

(N=171)

Variables		N	(%)
Predisposing Factors			
Age[†]	10~19	17	(9.9)
	20~29	76	(44.4)
	30~39	73	(42.7)
	40 or above	5	(2.9)
Marital Status	Married	134	(78.4)
	Not Married	37	(21.6)
Family Size[†]	1	51	(29.8)
	2	44	(25.7)
	3	33	(19.3)
	4 or above	43	(25.1)
Religion	Christian	135	(78.9)
	Others & none	36	(21.1)
Education	Primary or less	72	(42.1)
	Secondary & above	99	(57.9)
Enabling Factor			
Income[†]	5,000~90,000	67	(39.4)
	100,000~190,000	26	(15.3)
	200,000 or above	78	(45.6)
Place of residence	Urban	26	(15.2)
	Rural	145	(84.8)
Travel time[†]	10 minutes or less	42	(24.6)
	11~20minutes	72	(42.1)
	21 minutes or above	57	(33.3)
Means of	Walking	119	(69.9)
Transportation	Bike/Taxi	52	(30.1)
Social network[†]	1~5	37	(21.6)
	6~10	61	(35.7)
	11~15	37	(21.6)
	16 or above	36	(21.1)

Variables		N	(%)
Need Factor			
Perceived health	Poor	44	(25.7)
	Good	127	(74.3)
Miscarriage	Yes	38	(22.2)
	No	133	(77.8)
Use of antenatal care	Yes	135	(78.9)
	No	36	(21.1)

[+] Grouped for displaying frequency

2) Enabling characteristics

Most households had a monthly median income of Ushs(Uganda Shilling) 120,000 which is equivalent to US $46 which translates into $1.5 a day meaning most households fall below the poverty line. A higher percentage of the respondents(84.8%) resided in rural areas. The average time taken to reach the nearest health facility was 21.3 minutes. Walking was reported as the main means of transportation used by 69.9% of the women while 30.1% used other means including bike and taxi.

3) Need characteristics

On perceived health, 74.3% of the respondents reported good health condition while 25.7% reported poor health condition. 22.2% had ever had a miscarriage and 77.8% had not. In terms of antenatal care, large number of respondents(78.9%) had ever visited a health facility for antenatal care services.

2. Determinants of utilization of postnatal care services

Respondents were asked if they visited a health facility for postnatal care. 55% reported having visited a health facility for postnatal care services and 45% did not visit the health facility. Logistic regression analysis was used to find out the factors influencing the use of postnatal care. <Table 2> shows the odds of using postnatal care.

Age was found to be a determinant for use of postnatal care. In all the three models, results from logistic regression showed that age was significantly associated with use of postnatal care services. Travel time was also found to be significant in negatively influencing use of postnatal care in model 2(p<0.01) and model 3(p<0.01). Women residing far away from the health facility were less likely to utilize the postnatal care services as compared to their counterparts who lived closer to the health facility.

Social network was found positively associated with use of postnatal care services. Women with more social network had increased use of postnatal care services than those with low social network (p<0.001). In model 3 social networks was still found significantly associated with use of postnatal care services(p<0.05). Family size showed negative influence on use of PNC. Women with more children were less likely to use postnatal care services than those who had few children(p<0.05).

Women with good perceived health were more

likely to use postnatal care services than those with poor perceived health(p<0.05). Women who had used antenatal care were more likely to use postnatal care compared to those who did not use antenatal care(p<0.001). The previous exposure to antenatal care seems to trigger the subsequent use of postnatal care. Marital status, religion, education, place of residence, means of transportation and miscarriage were not found significant in explaining use of PNC(Table 2).

<Table 2> Logistic regression model for use of postnatal care

Independent variables	Model 1	Model 2	Model 3
Predisposing factors			
Age	2.212**	2.490*	3.109**
Marital status(Married=1)	1.341	1.217	1.202
Family size	0.819	0.718	0.609*
Religion(Christian=1)	1.501	1.449	1.531
Education(Secondary=1)	1.087	0.944	0.727
Enabling factors			
Income		1.472	1.307
Residence(Urban=1)		0.841	0.697
Travel time		0.554*	0.487**
Transportation(Walking=1)		1.370	1.332
Social network		1.821***	1.542*
Need factors			
Perceived health(Good=1)			2.467*
Miscarriage(Yes=1)			0.929
Use of antenatal care(Yes=1)			6.435***
Model X^2	10.192	34.279***	54.088***

* p<0.05, ** p<0.01, *** p<0.001

Ⅴ. Discussion

The major objective of the study was to examine the key determinants that significantly shape the use of maternal health care services in Kapchorwa District. The study has identified several factors that have important influence on utilization of PNC's in Kapchorwa district.

The use of PNC was found to be influenced by age of the mother, family size, travel time to health facility, social networks, perceived health and use of antenatal care. This could be because older mothers fear risks of complications associated with late pregnancy. Women who had to walk long hours to seek PNC services after delivery were less likely to utilize the service. This is

similar to findings from other studies carried out in other parts of Uganda(Amooti-Kaguna & Nawaha, 2000; Ikamari, 2005) and contrary to findings by other scholars(Parkhust & Ssengooba, 2005). This could be associated to the state of the mothers(physical weakness) after delivery and lack of comfortable transport coupled with poor road network and difficult terrain in the study area. The cultural beliefs in seclusion of the mother and child after delivery for a certain period of time say a month also contribute to low use of PNC services. On the other hand, those with the means cannot be limited by distance; they can travel far for better services.

The larger the family size, the less use of PNC services. This could be a result of having no one to take care of younger siblings at home and low level of male involvement in taking care of the young siblings. This is consistent with findings in previous studies(Wong et al., 1987; Charaborty et al., 2003; UDHS, 2006; Obermeye, 1993). Social network of the mother was found more influential in the use of PNC services similar to observations reported by Gage(2007). This could be from peer pressure to use PNC services to avoid risks of complications associated with after delivery. Also flexibility of nurses, midwives to offer the service at home increased the use of the service. Increased use of PNC as a result of increase in the use of antenatal care services could be a consequence of the health education acquired during antenatal care which leads to increased use of skilled birth attendance and consequently increased use of PNC. These findings are in contrast with findings from a study in Ethiopia where only residence and education had significant influence in the use of PNC(Mekonnen & Mekonnen,

2002).

The effect of age and family size changed in model 3 after controlling the need factors. In the correlation analysis, these two variables showed significant relationship with miscarriage which did not influence the use of postnatal care. Hence miscarriage seems to have suppressing effect on these two variables.

Ⅵ. Conclusion

In this study, only half (55%) of the women received PNC services after delivery. This figure reflects non-achievement of the target of 131 deaths per 100,000 live births by 2015 in Uganda to meet the MDG 5 of reducing maternal mortality. The results show a high level of association between certain predisposing, enabling and need factors in the use of PNC services. The study showed that the major factors influencing the use of PNC services in Kapchorwa District are demographic and socio-cultural in nature. The factors identified including mother's age, family size, travel time, social network and perceived health which are similar to those documented in many settings throughout Africa and other developing countries. Age, social network and perceived health were significantly associated with use of PNC positively while travel time and family size were found to influence use of PNC negatively. Contrary to the expectation, marital status, religion, education, place of residence, means of transportation and miscarriage were found not to be statistically significant in explaining the utilization of maternal health care services.

In order to increase the utilization rate of PNC services in the District and achieve the Millennium Development Goal 5 of improving maternal health by 2015, I recommend the following solutions.

There is need to build the social capital of the women by empowering them socially, economically and politically. This should be done through health education and training, provision of social resources and encourage formation of women groups at community level to improve their social network. Besides, early marriages should be discouraged in the district through promotion of girls' health education which can delay marriage. This can solve the problem of mothers producing so many children and lack of knowledge to utilize maternal health care services.

The District should provide an enabling environment that includes access to a well-structured community referral system. This can be done by up scaling the ambulance services in the district to facilitate easy referral for mothers. There is also need to build the capacity of the health personnel in handling rural mother through training on customer service quality. Community outreaches should also be intensified by the health personnel.

Family planning services should be also improved in the District to enable mothers' access contraceptives to control births. This could help reduce the risks associated with many births which increase the chances of the mothers dying due to pregnancy related complications.

There is need to intensify and strengthen community sensitization campaigns and health education on the importance of maternal health care services through involvement of local leaders at village level. The issue of male involvement in the use of maternal health care services should also be emphasized during sensitization. The district leadership should improve on the monitoring of health personnel and ensure strict enforcement of the existing laws and policies related to the use of the maternal health care services.

Several strengths of the study deserve mention: the relatively big sample size, primary data collection and willingness of the respondents to participate in the study. This provided detailed information about maternal health care services in the study area. However the study suffered from a number of limitations that must be noted.

First, the study did not collect information on satisfaction/perception on the quality of maternal health care services which could be an important determinant of maternity care. Second, this study was also limited by the type of sampling technique used in selecting the study sample which was non-random by nature. This limited the chances of some respondents and communities from being included in the study sample. Further studies should therefore be undertaken to validate the findings including investigation of quality factors; perceptions/satisfaction levels of the maternal health care services provided in the District. There is also need for future studies to examine the effect of social network and travel time as contingency factors influencing the utilization of maternal health care services.

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