



Full length research paper

Predictors of Intention for Institutional Delivery among Pregnant Women in Yirgacheffie Town, Gedeo Zone, Southern Ethiopia: A Community Based Cross-Sectional Study

Mohammed Feyisso^{1*}, Yohannes Addisu¹, Dagnachew Kebede ² Yetayal Birhanu³

¹School of Public Health, College of Health Sciences and Medicine, Dilla University, Dilla, Ethiopia

² Department of Midwifery, College of Health Sciences and Medicine, Dilla University, Dilla, Ethiopia

³Department of Psychiatry, College of Health Sciences and Medicine, Dilla University, Dilla, Ethiopia

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Abstract

Most maternal deaths occur because of delays in obtaining adequate medical care. The use of traditional birth attendants and home delivery were preferred by most of the community members. Major causes of maternal deaths in Ethiopia which include infection, hemorrhage, obstructed labor, abortion and hypertension in pregnancy are easily preventable by skilled birth attending. A community based cross-sectional study was conducted among 252 pregnant women in Yirgacheffie Town, Gedio Zone, South Ethiopia from September-October 2015. After establishing the sampling frames of the respondents, systematic random sampling technique was used to identify the study unit to be included in the study. Data collection instruments were developed according to the standard guideline of theory of planned behavior. The data were analyzed using SPSS.21.0. Multiple linear regressions were used to identify predictors of intention. Mean score of intention was found to be 10.95 (SD=2.5) (Range of possible score=3 -15). Direct attitude ($\beta=0.27$, 95%CI: 0.19-0.35), belief-based attitude ($\beta=0.08$, 95%CI: 0.01 -0.16), subjective norm direct ($\beta=0.16$, 95%CI: 0.07-0.26), control belief ($\beta=0.18$, 95%CI: 0.13 -0.24) and educational status ($\beta=0.32$, 95%CI: -0.15 -0.22) were positively predicted institutional delivery intention. However, age, occupation and perceived behavioral control were not significantly associated with delivery care seeking intention ($p>0.05$). The women participated in the study has good (above average) intention toward institutional delivery and direct attitude, blief based attitude, subjective norm, control belief and educational status were significantly associated with intention.

Keywords: Intention, Institutional delivery, Knowledge, Perception, Planned Behavior

* Corresponding author Email: mamfys8@gmail.com

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List of Abbreviations**SD-** Standard Deviation**CI-** Confidence Interval**WHO-** World Health Organization**UNICEF-** United Nations Children Fund**UNFPA-** United Nations Population Fund**SSA-** Sub-Saharan Africa**AOR-** Adjusted Odds Ratio**TPB-** Theory of Planned Behavior**SN-** Subjective Norm**PBC-** Perceived Behavioral Control**BSc-** Bachelor of Science**SPSS-** Statistical Package for Social Science**Introduction**

Large number of women dies in the developing countries in the world where the life time risk of death as a result of maternal health problems in developing countries is at least 100 times lower than that in poorer parts of the world. Finding from analysis of trends in maternal mortality for 183 countries in the world estimated 303,000 maternal deaths in 2015 though it shows a decreament from 342,900 in 2008. Developing regions account for approximately 99% of the estimated global maternal deaths in 2015, with sub-Saharan Africa alone accounting for roughly 66% followed by Southern Asia 22%. Ten countries account for nearly 59% of global maternal deaths in 2015 (Nigeria, India, Democratic Republic of Congo, Ethiopia, Pakistan, United Republic of Tanzania, Kenya, Indonesia, Uganda and Bangladesh) (WHO, 2008).

Ethiopia is one of the countries with high maternal mortality. As the estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division of 2015 the maternal mortality rate in Ethiopia is 353 (WHO *et al.*, 2015). As stated by study on maternal mortality trend in Ethiopia, infection, hemorrhage, obstructed labor; abortion and hypertension in pregnancy are among the major causes of maternal deaths in Ethiopia (Ahmed, 2009). The most efficient and effective strategy to minimize the rate of maternal mortality for deveoping countries including Ethiopia is enhancing institutional delivery. Most maternal deaths occur because of delay in the decision to seek care or delay in arrival at a health facility or delay in the provision of adequate care (Danforth *et al.*, 2009; Koblinsky *et al.*, 2006; UN, 2008). Raising

awareness of pregnant women on the danger signs would improve early detection of problems and reduces the delay in deciding to seek obstetric care (Thaddeus *et al.*, 2014).

Giving birth at home is deep-rooted cultural belief and traditional birth attendants were preferable than skilled attendants for some community members (Wahed, 2009). Delivery costs at health institutions were perceived unaffordable and services of trained birth attendants during childbirth or an institutional delivery were perceived important by some community members only during obstetric complications (Central Statistical Agency *et al.*, 2006). Despite significant improvement in accessibility and availability of health instituions in Ethiopia, ininstitutional delivery remained low (Central Statistical Agency *et al.*, 2012; Center for National Health Services, 2007) and the level of skilled birth attendance is much below other Sub-Saharan countries (Alemayehu *et al.*, 2012).

According to evidences from different literatures multiple factors including perceptions that their most recent labor and delivery could have endangered their own or their baby's health, fear for pregnancy complications, perceived susceptibility to birth complication, perceived benefit of delivering at health institutions, and perceived barriers to use safe delivery services (Julia, 2003; WHO, 2008; Teguh, 2007; Babar, Juanita, 2004) influence the choice of place of delivery. In addition unfavorable cultural beliefs and perceptions (Wahed, 2006), intention about place of delivery (Hinsermu *et al.*, 2015) were identified to be among the leading causes of poor utilization of primary health care services including institutional delivery. Hence, this study

was conducted to assess predictors of institutional delivery intention among pregnant women in Yirgacheffie town, Gedeo Zone, South Ethiopia.

Methods

Study settings and design

A community based cross-sectional study design complemented with qualitative study was conducted among pregnant women in Yirgacheffie Town, Gedio Zone; South Ethiopia. Yirgacheffie town is located 395 kilometer distance on the south from Addis Ababa. The total area covered by the town is 505 hectare or 2022 km². The study was conducted from September 08– October 10, 2015 among pregnant women residing in the study area.

Sampling

The sample size was calculated using single population proportion formula, $n = \frac{Z_{1-\alpha/2}^2 p (1-p)}{d^2}$, using $P = 18.2\%$, proportion of women who have intended to deliver in the health institution among women in Debre Birhan town (Hinsermu *et al.*, 2015) from the study conducted on magnitude & factors affecting safe delivery service utilization among pregnant women in Bule wereda, Gedeo Zone, SNNPR. Other assumptions made were 5% marginal error (d) and confidence interval of 95%. Based on these assumptions and considering 10% non-response rate the final sample size was 252. For identifying the study subjects' households residing in all kebeles of Yirgacheffie town were surveyed to recruit all pregnant women for establishing sampling frame for quantitative study. After establishing the sampling frames of respondents, we have used simple random sampling technique to identify the study unit to be included to the survey.

For the qualitative part of the study participants were selected using purposive sampling technique till we reached to a point of redundancy of information. Accordingly, three focus group discussions were conducted among pregnant women in the study area and 5 key informant interview was conducted with key

actors of maternal service delivery points like midwives heading delivery room at each facilities in the study area, head of health centers and ANC clinic service providers.

Measurements

Research instruments were developed according to the guideline of the TPB. First, open-ended elicitation interviews were conducted among 15 respondents to identify salient belief underlying attitude, subjective norm and perceived behavioral control. Then, the data were analyzed and used to develop quantitative questionnaires. Accordingly, 9 items on behavioral belief, 12 items on normative beliefs and 8 items on control beliefs were obtained. These questionnaires were translated into Amharic and pre-tested. Regarding reliability, Cronbach's alphas ranged from 0.76 to 0.92.

Measurement of variables

a) Intention to seek treatment (I): Intention to seek treatment is the outcome variable in this study. It is the motivation in the sense of one's conscious plan to perform a given behavior (10). Three items were presented to describe respondents' level of agreement in a five scale response format ranging from "strongly disagree" to "strongly agree". Then, these items were summed up to produce intention score and the score used in regression analysis.

b) Attitude towards institutional delivery: Attitude was measured in two ways-by asking the respondents' direct degree of favor or disfavor through four items presented in five-point semantic differential scales. Items of behavioral beliefs [four items] and outcome evaluation [four items] were used to compose the attitude scale where each behavioral beliefs item scores were multiplied by its corresponding outcome evaluation item scores and then summed up to compose the belief based attitude scale.

c) Subjective norm towards institutional delivery (SN): Subjective norm was measured in two ways. Three items were used to measure the

subjective norm directly; the respondents rated their level of agreement or disagreement with five category likert scale measures. Items of normative beliefs [four items] and motivation to comply [four items] were used to compose the subjective norm scale where the score of each normative belief item was multiplied by its corresponding motivation to comply item, and summed up to compose the belief based subjective norm scale.

d) **Perceived behavioral controls to institutional delivery (PBC):** Likewise, the PBC was measured in two ways; directly with four items on five point Likert scale category. Indirectly, items of control beliefs [four items] and power of control [four items] were used to compose the belief based perceived behavioral control. Distal variables included socio-demographic characteristics and knowledge about institutional delivery was assessed. Knowledge was measured using eight items scored as "1" for correct answer, and "0" for incorrect answer. Then, the items were summed up to produce composite measure index which was used for regression analysis.

Data collection methods

A total of four data collectors were participated in the actual data collection; they were diploma Nurses & three supervisors who were BSc nurse were supervised the overall data collection process. The investigators gave one day training to data collectors and supervisors before data collection. The training was include briefing on the general objectives of the study, discussing the contents of the questionnaires one by one and the type of information needed to handle any questions arising during data collection time; and discussions on how to maintain confidentiality and privacy then, both principal investigator and supervisors regularly supervise them on daily basis; there by formats was checked for its

completeness, accuracy and consist. Pretesting of the instruments was done in adjacent district to the study area.

Data processing and analysis

Data were analyzed by SPSS.21.0. Descriptive statistics were used to summarize the findings. Pearson correlation was computed to determine the correlation of direct measures of TPB variables with their corresponding indirect measures and intention. Stepwise multiple linear regressions were used to identify variables which independently contributed to the prediction of institutional delivery intention. First, the effect of direct measures of the TPB was examined followed by evaluation of the effect of indirect measures. Secondly, the effects of both direct and indirect measures were examined to determine the predictive power of the TPB. The final regression model was developed based on stepwise regression method with 95% Confidence Interval (CI) and significance level set at less than 0.05. For qualitative study phenomenology techniques of qualitative data analysis with specifically emphasis on content analysis were used.

Results

Socio-demographic characteristics of the participants

A total of 252 pregnant women were participated in the study giving response rate of 100%. The mean age of participants was 28.5 ± 4.6 years. Most of the participant, 246 (97.6 %), were married where as 5(2%) of the respondents were unmarried. Regarding religion, 165(65.5%) were protestant followed by Orthodox which accounts 57(22.6%). In terms of ethnicity, Gedeo constitutes the largest; 162 (64.3%) followed by Ahmara which account 23 (9.1%). A little bit more than half 131(52%) of the respondent were illiterate followed by read & write 59 (23.4%) (Table 1).

Table 1: Socio-demographic and other characteristics of pregnant women at Yirgacheffie Town, Southern Ethiopia, October, 2015.

Socio –demographic (n=252)	Frequency	(%)
Age (years)	252	100%
<25	84	33.3
25-34	157	62.3
≥35	11	4.4
Ethnicity	252	100%
Gedeo	162	64.3
Amhara	23	9.1
Others	67	26.6
Occupation	252	100%
House wife	154	61.1
Private Employee	31	12.3
Government employee	18	7.1
Daily laborer	24	9.5
Others	25	9.9
Monthly family income	252	100%
<400	180	71.4
401-800	41	16.3
>801	31	12.3
Educational status	252	100%
Illiterate	131	52.0
Read and write only	59	23.4
Primary school (1-8)	36	14.3
High school (9-12)	16	6.3
college /Diploma/University degree or higher	10	4.0

Knowledge about pregnancy and its complication: Regarding knowledge about danger signs of pregnancy one hundred sixty six (79%) of the participants knew that vaginal bleeding is obstetric problem that occur during pregnancy and 99(47.1%) knew that pregnancy can cause blurred vision and about 44(21.1%)

believe that severe headache is caused by pregnancy where as the rest 41(19.5%) mentioned that convulsion was a problem during pregnancy. About 74(35.2%) of the participant knew that pregnancy can result in severe abdominal pain (Table 2).

Table 2: Distributions of Pregnant Women at Yirgacheffie town by knowledge about Danger signs pregnancy, October, 2015

Knowledge of pregnancy danger signs (N=252)	Frequency	%
Vaginal bleeding	66	79%
Blurred vision	99	47.1%
Severe Headache	44	21.1%
Convulsion	41	19.5%
severe abdominal pain	74	35.2%

Institutional delivery intention among pregnant women: The mean institutional delivery intention of the respondents was 10.95 \pm 2.5 (range of possible score=3-15), which shows a high intention for institutional delivery. From total participants 158(62.7%) score above the mean value of intention while the remaining 94(37.3%) score below the mean value (Table 3). This result is congruent with qualitative finding

from 40 years female focus group discussant said that “*still I am in the influence of cultural practice. I have given a total of 7 live births but because of this cultural influence my last delivery was at home but I understand the importance of institutional delivery so I am sure for the future I will never give birth at home. I am ready to go to health institution if I got pregnancy again*”.

Table 3: Intention to institutional delivery among pregnant women at Yirgacheffie, Town Southern Ethiopia, October, 2015

Items (Intention)	Agree	Disagree	Not sure
	No %	No %	No %
I expect pregnant women should deliver at modern health care facility.	167 (66.3%)	41(16.3%)	44(17.5%)
I want pregnant women should deliver at modern health care facility.	176 (69.9%)	37(14.7%)	39(15.5%)
I intend to deliver at modern health care facility.	163(64.7%)	51 (19.9%)	39(15.5%)

Correlation of direct measures of TPB variables with institutional delivery intention: Attitude, subjective norm & perceived behavioral control were measured by direct items. Accordingly, the mean score to direct measures of TPB variables were 14.3 \pm 2.9 for attitude (range of possible score=4-20), 12.7 \pm 2.3 (range of possible score=4-20) for subjective norm & 12.57 \pm 3.1 (range of possible score=4-20) for perceived behavioral control. This implies that the majority of the respondents had supportive attitude towards institutional delivery. Moreover a

mean value for subjective norm showed us a relatively low influence from the referent groups towards institutional delivery & the mean score to perceive behavioral control scale perhaps implies with the existing resources & opportunities is possible to undertake institutional delivery. Pearson correlation analysis indicated that all of the direct measures were significantly correlated with institutional delivery: attitude ($r=0.712$, $p=0.001$), subjective norm ($r=0.583$, $p=0.001$) & PBC ($r=0.618$, $p=0.001$) (Table 4).

Table 4: Predicting institutional delivery intention among direct measures of TPB variables, at Yirgacheffie Town, Southern Ethiopia October, 2015.

TPB direct measures	Beta	Significance	95% CI for B
Attitude	.494	.000	.349-.513
Subjective norm	.236	.000	.151-.372
Perceived control	.203	.000	.079-.252

Predicting institutional delivery intention from indirect Measures of TPB variables:

The correlation from weighted behavioral beliefs, weighted normative beliefs & weighted control belief were regress with delivery intention accordingly, weighted behavioral beliefs ($r=0.729$, $p=0.001$), Subjective norm ($r=0.587$, $p=0.001$) and PBC ($r=.795$, $p=0.001$) were significantly independently contributed for prediction of institutional delivery intention. The

influence of norm of the community is align with qualitative finding (Table 5). A *midwife interviewed as a key informant from certain health center in the study area said that “We handover the role of TBA to modern health care system but, since the culture pass from generation to generation and deep rooted for century, significant number of community member prefer TBA to health professional.”*

Table 5: Predicting institutional delivery intention among indirect measures of TPB variables, at Yirgacheffie Town South Ethiopia, October, 2015

TPB direct measures	Beta	Significance	95% CI for B
weighted behavioral belief	.155	.042	.349-.513
Weighted normative belief	.061	.256	.151-.372
weighted control beliefs	.621	.000	.079-.252

Relationship between distal variables & institutional delivery intention

Variables other than TPB were entered into a regression model to examine its effect on institutional delivery intention. Variables that were significantly and independently predict institutional delivery intention were age

($\beta=0.123$, $P=0.034$), ethnicity ($-.127$, $P=.032$), educational status ($\beta=.504$, $P=0.001$) and occupation ($\beta= -.139$, $P=.016$). All distal variables come together and explained 23.3% which indicated that 23.3% of institutional delivery intention was explained by age, ethnicity, educational status and occupation (Table 6).

Table 6: Predicting institutional delivery intention by distal variables among pregnant women, at Yirgacheffie Town, South Ethiopia, October, 2015

Distal variables	Beta	Significance	95% CI for B
Age	.123	.034	.005-.129
Ethnicity	-.127	.032	-.294-0.-013
Educational status	.504	.000	.730-1.502
Occupation	-.139	.016	-.113.-0-2.416

TPB and Distal variables to predict institutional delivery intention

Respondents’ age, ethnicity, educational status and occupation were first entered into regressed upon intention and found an $R^2 = .233$ ($p<0.001$), indicates 23.3% of institutional delivery intention was explained by age, ethnicity, educational status & occupation. Then attitude was regressed

upon intention resulted in an R^2 of 0.52 ($p<0.001$), which is 0.287 change, referring that attitude had an additional 28.7 % explanation in institutional delivery intention. Next, subjective norm was added to the regression model resulted in an R^2 of 0.597($P<0.001$), with a 7.7% difference explained by subjective norm, where as an R^2 of 0.619 with a difference of 2.2 %

institutional delivery intention was explained by perceived behavioral control.

The influence of subjective norm in quantitative study was supported by focus group discussion. A 32 years mother said that "a mother in this community are not open to communicate about delivery even they don't tell for their husband usually they give a false reason like headache and the like therefore most of the mothers in this

community give birth at home. In this regard the community's norm has a great influence".

Weighted behavioral belief was regresses with intention and gave R^2 of 0.689 and result in 0.07 change & implies that 7% of the regression analysis was explained by Weighted behavioral belief and finally weighted control beliefs was added to the regression model resulted in an R^2 of 0.738($P < 0.00$) with a 0.049 difference that means 4.9% of the variability was explained by weighted control beliefs (Table 7).

Table 7: Predictors of institutional delivery intention by both TPB & Distal variables among pregnant women in Yirgacheffie town, South Ethiopia, October, 2015

Predictor Variables	Unstandardized Coefficients		Standardized Coefficients	Sig.	95% Confidence Interval for B	
	B	Std. Error				
Age	-.029	.019	-.053	.121	-.067	.008
Ethnicity	-.047	.042	-.038	.265	-.129	.036
Educational status	.032	.097	.014	.740	-.159	.224
Occupation	-.057	.015	-.124	.000	-.087	-.027
Attitude	.276	.040	.316	.000	.197	.355
Subjective norm	.167	.047	.151	.000	.074	.260
Perceived behavioral control.	-.106	.046	-.130	.024	-.197	-.014
Attitude indirect	.089	.036	.171	.014	.018	.160
PBC indirect	.187	.027	.473	.000	.133	.241

Discussion

The present study attempted to identify predictors of institutional delivery intention among pregnant women. The study showed that distal variables explained 23.3% institutional delivery intention; whereas the constructs of TPB together explained 50.5% of the variance. In general, 73.8% of the variability in institutional delivery intention was explained by the conceptual framework as a whole. In this study, distal variables including age, ethnicity, educational status and occupation were significant predictors of institutional delivery intention which is also documented in some previous studies (Wahed, 2006; Alemayehu et al., 2012).

Of the TPB constructs, attitude plays a key role to determining institutional delivery intention as it explained the largest variability which was also reported in previous studies (Hinsermu et al. 2015; Rhodes and Courneya, 2003; Eri, 2004). In addition, the established attitude-intention relationship in the current study reflected the underlying assumption of the theory of planned behaviors which states that the more favorable the attitude towards the behavior, the stronger should be the individual's intention to perform it (Rhodes and Courneya, 2003). Similarly, subjective norm has a positive and significant effect on institutional delivery intention, and explained 2.2 % of the variability. However, literatures have shown mixed results regarding subjective norm as a predictor of intention. While

some studies have shown no significant relationship between subjective norm and intention (Matheson, 1991), other studies have revealed significant relationship (Eri, 2004; Teguh, 2007). This could be due to the fact that respondents are different in terms of socio-cultural factors and sources of social pressures. In addition, the salient belief measures due to nature of TPB, which is local and culture sensitive, might also contributed to the difference between the findings. Moreover, the inconsistencies of the findings may be due to the measurement method: many authors use single item measures as opposed to more reliable multi-item scales. Studies have also shown that perceived behavioral control accounted for considerable variance in intention and behavior. As a result, there is a positive relationship between perceived behavioral control and intention (Rhodes and Courneya, 2003; Eri, 2004). Thus, with the given resources, the higher the confidence in individual's ability, the more likely she give birth at health care facilities.

The current study revealed that there was statistically significant relation between perceived behavioral control & institutional delivery intention. This implies that institutional delivery is not under volitional control of the individuals in this study and perceived behavioral control exert influence on intention-behavior relationships. Thus, the implementation of an intention into action in this case is more likely to be determined by environmental barriers. Matheson also argues that the magnitude of the perceived behavioral control–intention relationship is dependent upon the type of behavior and the nature of the situation (Matheson, 1991).

Conclusion

The present study revealed that there was a high intention to institutional delivery among Yirgacheffie pregnant women. Constructs of the TPB explained more variance in institutional delivery intention. It suggested that TPB variables are important and should be taken into account in behavioral change communication. Variables that

influence attitude on institutional delivery are very high. Thus, Health professional especially at a grass root level should focus on changing negative attitude, lessening the impact of social pressures and improving the possible barrier that could tackle the actualization of intention of institutional delivery into real practices.

Declarations

Ethics approval and consent to participate

Ethical clearance was obtained from Dilla University College of Health Science and School of Medicine ethical review Committee. Letter of permission was obtained from Authorities in the study area and consent to participate in the study was also obtained from the study respondents for the collected data during the interview.

Competing interest

The authors declare that they have no competing interests. All of the financial and material support of study was entirely covered by Dilla University. There is no any role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

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