

SOCIO-DEMOGRAPHIC VARIABLES AS PREDICTORS OF UNDERUTILISATION OF ANTENATAL CARE SERVICES AMONG PREGNANT WOMEN IN SELECTED MATERNITY HOSPITALS IN IBADAN, OYO STATE

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Abstract

Maternal mortality is a preventable crisis essentially of the poor in 21st century and a neglected tragedy of developing countries reflects one of the shameful failures of human development that has led to increased maternal as well as child mortality and morbidity. Several studies have been done in the area of knowledge and attitude towards antenatal care but little research effort has been directed towards the predictors, therefore, this study investigated social variables (poverty, cost of service, employment status, marital status and educational status) and demographic variables (age, birth order, religion and parity) as predictors of antenatal care service utilization among pregnant women in Ibadan, Oyo State. The study was carried out using descriptive survey research design and the data was analysed using descriptive (pie chart) and inferential statistics of regression. 400 respondents selected using purposive and simple random sampling technique were used. Social variable questionnaire $r=0.78$ and antenatal care Service Questionnaire $r=0.73$ were the instrument used for data collection. The study provided answers to two research questions and tested three hypotheses. All the three hypotheses were rejected. The result of the study shows that the linear combination of the social variables on utilization of antenatal care services was significant ($F(5,394) = 37.975, p < 0.005$). Cost of service has the highest contribution of 44.8% ($\beta = .448, t = 10.165, p < 0.005$) followed by poverty with 32.5% ($\beta = .325, t = 6.189, p < 0.005$), then employment status with 12.9% ($\beta = .129, t = 2.639, p < 0.005$), educational status contributed 12.7% ($\beta = .127, t = 2.847, p < 0.005$), and marital status has the lowest contribution of 7.8% ($\beta = .078, t = 1.834, p < 0.05$). Also, the linear combination of the demographic variables on antenatal care service utilization was significant ($F(4, 395) = 23.418, p < 0.005$). Age has the highest contribution of 29.9% ($\beta = .299, t = 6.205, p < 0.005$) followed by parity with 26.5% ($\beta = .265, t = 4.984, p < 0.005$), then birth order with 12.4% ($\beta = -.124, t = -2.444, p < 0.005$), religion has the lowest contribution of 2.3% ($\beta = .023, t = .499, p > 0.005$). The study concluded that there were significant joint and relative contributions of social and demographic variables on antenatal care service utilization among pregnant women in Ibadan, Oyo State. It was therefore recommended that several practical, policy and research issues pertaining to utilization of antenatal services among pregnant women should be raised. Comprehensive health promotion through awareness-raising and appropriate education of healthcare workers could help to improve the uptake of ANC services. Midwives and nurses, as the main ANC providers should be aware of potential barriers to utilization in developing countries, therefore, they should be trained to be sensitive to women's socio-economic situation and their cultural and traditional beliefs.

Key Words: Maternal mortality, Birth order, Parity, Antenatal, Morbidity

Introduction

Maternal mortality, a crisis essentially of the poor in 21st century and a neglected tragedy of developing countries reflects one of the shameful failures of human development. The gap in the risk of maternal deaths between developed and developing countries is considered

the “greatest health divide in the world” (Freedman, Wirth, Waldman, Chowdhury, Rosanfield, 2003). The emphasis on two out of eight critical United Nations Millennium Development Goals, that is, reducing *under-five mortality* by two-thirds between 1990 and 2015; and reducing *maternal mortality ratio* by three quarters between 1990 and 2015 all of which are mirage, epitomise the relevance of these indicators in global efforts towards human development and alleviation of poverty (World Health Organization (WHO) 2010). Socio-demographic factors include women’s education, husband’s education, parity, birth order and age of women at marriage or at pregnancy, marital status, religion, ethnicity and family size. Studies have found that women’s education was the best predictor of ANC visits (Nielsen et al. 2001, Erci 2003). Women with better education were more likely to receive the recommended number of antenatal care (ANC) visits (Erci 2003). Educated women are more likely to start ANC visits early than less educated women (Matthews et al. 2001). In contrast, education did not show any association with utilization of ANC services in Pakistan (Nisar and White 2003). Women’s education emerged as a key factor in a qualitative study leading to an appreciation of the importance of ANC (Mumtaz and Salway 2005). Studies have also indicated that use of ANC increased with husband’s educational level (Magadi, Madise and Rodrigues 2000, Gleit, Goldman and Rodriguez 2003). Husband’s education was a statistically significant predictor in Andhra Pradesh (AP), but not in Karnataka (Navaneetham and Dharmalingam 2002). Husband’s educational level is a stronger predictor than woman’s education in the Philippines (Miles-Doan and Brewster 2008).

Furthermore, Umar (2001) submitted that certain factors are assumed to predict the process of utilizing ANC services once the need for care is perceived, whether because of illness or the treat of it or because of a desire to maintain present level of health. Some demographic variables like age, religion, birth order, level of income, accessibility, husband approval, occupational factors influences pregnant women utilization of ANC services. Studies have found that antenatal care (ANC) use is influenced by accessibility of the services, mainly place of residence, distance and transport to the healthcare facilities (Paredes, Hidalgo, Chedraui, Palma and Eugenio 2005, Sharma 2004). Place of residence was a statistically significant factor identified in many studies. Women in urban areas used ANC more than rural women (Paredes, Hidalgo, Chedraui, Palma and Eugenio 2005, Sharma 2004, Mekonnen & Mekonnen 2003).

Distance was significantly associated with ANC use (Magadi, Madise and Rodrigues 2000, Gleit, Goldman and Rodriguez 2003). An increase in distance or travel time to the nearest healthcare facilities was associated with fewer antenatal visits (Magadi et al 2000), and lower uptake of ANC (Nielsen, Hedegaard, Liljestrand, Thilsted and Joseph 2001). Qualitative studies also showed that the distance to services or physical access were barriers to ANC services utilization (Griffith & Stephenson 2001, Chowdhury, Chakraborty, Islam and Bari 2003, Myer & Harrison 2003). Moreover, qualitative studies found that uncomfortable transport, poor road conditions and difficulties in crossing big rivers were also barriers (Mathole, Lindmark, Majoko and Ahlberg 2004, Mumtaz&Salway 2005). Money, Zwanziger, Phibbs and Schmitt, (2000) stated that increase distance between resident and healthcare providers decrease the utilization of ANC service at PHC and other health centres. Van-Eijket’al (2006) were of the opinion that most pregnant women reported

walking to the ANC is a strong predictor of utilization. They stated further that distance was cited as a barrier to utilization of ANC services.

Studies have revealed a significant relationship between economic factors (cost of services, socio-economic status or income of the household, occupation of woman/husband (Magadi et al. 2000, Matsumura & Gubhaju 2001, Sharma 2004). Household economic status has a positive and significant impact on use of ANC. Women with high economic status was more likely to receive adequate and early ANC than those with low economic status (Sharma 2004). In Pakistan, household income was 1.75 times higher among women receiving ANC than those who received none (Nisar & White 2003). Owning property, a car, or having a flush toilet (Celik & Hotchkiss 2000, Matthews, Mahendra, Kilaru and Ganapathy 2001) and higher standards of living (Obermeyer & Potter 2001) were positively associated with ANC. Women living in communities characterized by frequent migration abroad are more likely to receive ANC than women living in other communities (Glei, Goldman and Rodriguez. 2003). The most frequently mentioned reason for not utilizing ANC is cost of service. Van-Eijket'al (2006) reported that expenses of transportation and the cost of the ANC make pregnant women not to attend ANC at health centres.

Women who were civil servants or white collar workers utilized antenatal care services more than housewives and unemployed (Kabir, Ilyasu, Abubakar and Sani 2005). Those in paid employment tend to start ANC earlier (Navaneetham & Dharmalingam 2002). Employment outside the home during pregnancy was significantly related to ANC (Erci 2003). Woman's relationship to the major wage earner influenced attendance for ANC. In contrast, uptake of ANC through healthcare facilities was higher among non-working women than working women in India. The proportion of women receiving ANC at home was higher among working women although it was not statistically significant (Navaneetham and Dharmalingam, 2002). Women married to jobless men or whose husbands were labourers had inadequate ANC compared with those whose husband had other jobs (Ciceklioglu, Soyer and Ocek 2005), but the sector or field of employment of the household's head was not statistically significant (Obermeyer & Potter 2001). Social support from family members significantly affected use of ANC (Erci 2003). Older women, especially mothers-in-law did not consider ANC essential during pregnancy and often discouraged their daughters-in-law from attending ANC in rural Bangladesh (Chowdhury et al. 2003). Women who felt friends and family to be unsupportive were twice as unlikely to attend ANC as other women (McCaw-Binns, La Grenade and Ashley 2005).

Studies found strong associations between parity and ANC utilization. Higher parity was generally a barrier to adequate use of ANC (Celik and Hotchkiss 2000, Magadi et al. 2000, Erci 2003, Overbosch et al. 2004, Sharma 2004, Paredes et al. 2005), but high parity women tended to use the service more often than primiparous women in Ethiopia (Mekonnen & Mekonnen 2003). Similarly, women's first ANC visit was earlier in higher parity women in India (Matthews et al. 2001). Family size and structure proved significant factors in the use of ANC by pregnant women (Matsumura & Gubhaju 2001). Eric (2012) found that parity of pregnant women influence the use of ANC. Birth order and interval were significantly associated with ANC visits. Higher order births were associated with a late start or inadequate use of ANC (Magadi et al. 2000, Navaneetham & Dharmalingam 2002). Births

occurring after an interval of more than three years received more frequent ANC visits than those where the preceding birth was within two years (Magadi et al. 2000). Furthermore, interpregnancy interval was a statistically significant determinant of ANC use in some studies, women whose pregnancies were 'unwanted' having later starts and less frequent visits (McCaw-Binns et al. 2005, Magadi et al. 2000, Erci 2003, Paredes et al. 2005). Birth order has a strong negative effect on the use of ANC (Digambar and Harihar, 2011).

Married women were more likely to receive ANC and seek earlier than single or unmarried women (Glei et al. 2003). Unmarried women in Kenya, who started childbearing before 20 years of age, had fewer antenatal visits than married women who started at a later age (Magadi et al. 2000). ANC utilization is strongly associated with age of women at marriage and at pregnancy. In rural north India and in Nepal (Sharma 2004) age at marriage was positively associated with access or attendance for ANC. Antenatal check-ups were more likely among women who married at the age of 19 or above, compared with those who married younger. However, age at marriage was not a statistically significant predictor of utilization of ANC in Jordan (Obermeyer & Potter 2001). The majority of women in their thirties attend ANC early and more frequently than teenagers and older women (Bhattia and Cleland 2005, Miles- Doan and Brewster 2008). A qualitative study also showed that women below 35 years preferred frequent clinic visits to be reassured that the baby was growing well and to learn its position, whereas older women who did not experience any problems, were not concerned about having frequent visits (Mathole et al. 2004). However, some of the studies suggested that women's age was not a significant predictor of utilization of ANC (Celik & Hotchkiss 2000, Nisar & White 2003, Kabir et al. 2005). Ethnicity, caste and religion played a significant role in ANC utilization. Women belonging to 'Schedules' castes and tribes generally had lower uptake of ANC in India (Navaneetham & Dharmalingam 2002). Muslims were much more likely to seek routine ANC in India (Bhattia & Cleland 2005) than other religions. In Hausa culture, 'God's Will' was the strongest factor in non-utilization in Nigeria (Adamu and Salihu 2002). Mekonnen and Mekonnen (2003) found significant variation in the uptake of ANC by religion. Women who followed Muslim, Orthodox and Protestant religions were more likely to use ANC in Ethiopia. In contrast, religion was not a statistically significant predictor of antenatal check-ups in India (Navaneetham & Dharmalingam 2002) and in Ghana (Overbosch et al. 2004). Chakrabarti (2009) also opined that Muslim women are less prone to use ANC at PHC centres because of restriction placed on their freedom of movement and overall lower autonomy.

Studies have also showed that ANC was associated with the availability of the service or a healthcare worker and waiting time for services. Women who lived near a village health worker/nurse were more likely to receive adequate and early ANC visits than women without a village health worker (Magadi et al. 2000, Nielsen et al. 2001). In addition, qualitative study suggested that availability of healthcare workers in the local community encouraged women to use ANC services (Griffith and Stephenson 2001) whereas long waiting times were a barrier to ANC use (Chowdhury et al. 2003, Mathole et al. 2004).

Statement of the problem

Utilization of antenatal services is an outcome of social process in which both the social characteristics of an individual such as social class, and structural characteristics, such as the availability and accessibility of health service play a role. The pattern of association between individual (woman)'s socio-demographic characteristics and the utilization of antenatal services, however, depend on the social context of a given society. Of the structural characteristics, distance from the available maternal health services and the costs of these services were often mentioned as obstacles to utilization (Anson 2004).

This study on the socio-demographic predictors of antenatal care utilization is therefore needed for two reasons. Firstly, for like two decades, there have been investments in the public health system in Nigeria with an emphasis on increasing the availability of maternal and child health services and encouraging women to obtain adequate antenatal care. However, the maternal mortality and morbidity rate has not yet dropped appreciably and the strategies so far put forward have not brought the desired results. Presumably, there are socio-demographic factors that do play a role in the utilization of antenatal care services. Secondly, underutilization of antenatal service by pregnant women put them at greatest risk. The utilization requires voluntary participation; however, there are multitude of factors that make women most likely not to utilize health care. It was in the light of the above that this research looked into the socio-demographic predictors of utilization of antenatal care service among pregnant women in selected maternity hospitals in Ibadan, Oyo State.

Research questions

Answers were provided to the following research questions:

1. What is the attitude of pregnant women in Ibadan, Oyo State towards the use of antenatal care services?
2. Do pregnant women have access to antenatal care services in Ibadan?

Hypotheses

The following hypotheses were tested:

1. Socio variables (poverty, cost of service, employment status, educational level and marital status) will not be significant predictors of antenatal care service utilization among pregnant women in Ibadan, Oyo State.
2. Demographic variables (religion, age, birth order and parity) will not be significant predictor of antenatal care service utilization among pregnant women in Ibadan, Oyo State.
3. There will not be significant composite contribution of both social and demographic variables on antenatal care services utilization among pregnant women in Ibadan, Oyo State.

Methodology

Descriptive survey research design was used for this study. This is chosen because of its merit that suit a research of this nature. According to Scott (1998) descriptive survey research design help to reveal current conditions that exist between specific events through

orderly collection of data, interpretation and report of facts and information concerning the situation. Descriptive survey method helps to obtain a first hand or first class information regarding the prevalence, distribution, determinants and interrelationship of variables within a population. It could be used to collect information on people's action, knowledge, awareness, opinions, intention, attitude and values. This was supported by Thomas and Nelson (2001) who stated that descriptive research design helps a researcher in the collection of information, identifying problems, making comparison and carrying out systematic evaluation. The sample for this study was four hundred (400) pregnant women. Purposive sampling technique was used to select government owned hospital with antenatal services. Simple random sampling technique was used to select eight state owned maternity within Ibadan. Purposive sampling technique was used to select 50 respondents from each of the selected maternity, making a total of four hundred respondents. The instrument for this study was a self-developed structured questionnaire designed according to the variables to be tested in the hypotheses. The questionnaire was in three sections A, B and C. Section A focused on the demographic data of the respondents. Section B which was tagged Social Variable Questionnaire (SVQ) was used to elicit information on social variables while section C which is Antenatal Care Service Questionnaire (ANCSQ) was used to seek information on the dependent variable (antenatal service). All the items in the instrument were close ended and were in line with the modified likert type scale, and will be rated as follows: SA -Strongly Agree (4), A -Agree (3), D - Disagree (2) and SD -Strongly Disagree (1).

The test-retest method was used to collect data for the reliability while data collected were subjected to Pearson Product Moment Correlation (PPMC) to obtain the reliability co-efficient. This agrees with Nworgu (2006) that reliability measure the degree of consistency between two set of scores obtained with the same instrument. Social Variable Questionnaire yielded a reliability co-efficient $r = 0.78$ and Antenatal Care Service Utilization Questionnaire $r = 0.73$. Descriptive statistics of frequency count, percentage and pie chart were used to analyse the research questions while inferential statistics regression was used to test the hypotheses at 0.05 alpha level.

Results

Research question one: What is the attitude of pregnant women in Ibadan, Oyo State towards the use of antenatal care services utilization?

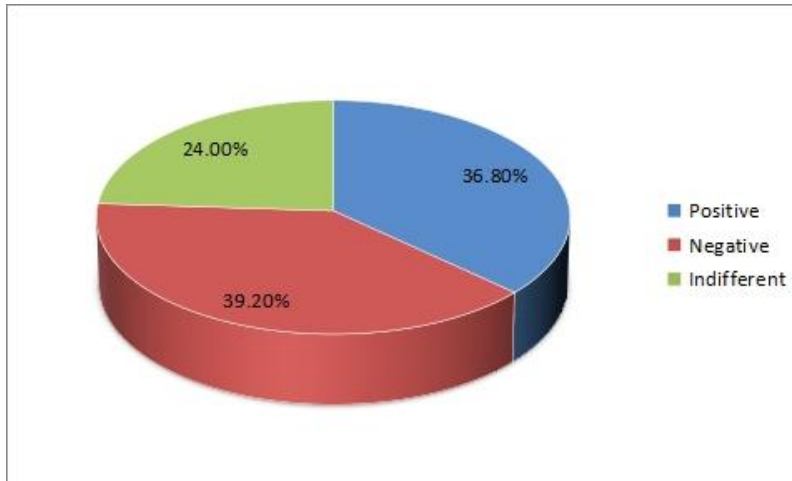


Fig.1.0: Pie chart showing attitude of pregnant women in Ibadan, Oyo State towards the use of antenatal care services utilization

Figure 1.0 above show the attitude of pregnant women in Ibadan, Oyo State towards the use of antenatal care services utilization. The table shows that 147 (36.8%) had positive attitude, 157(39.2%) had negative attitude while 96 (24.0%) were indifferent. This shows that majority of the respondents had negative attitude towards the use of antenatal care services.

Research question two: Do pregnant women have access to antenatal care services in Ibadan?

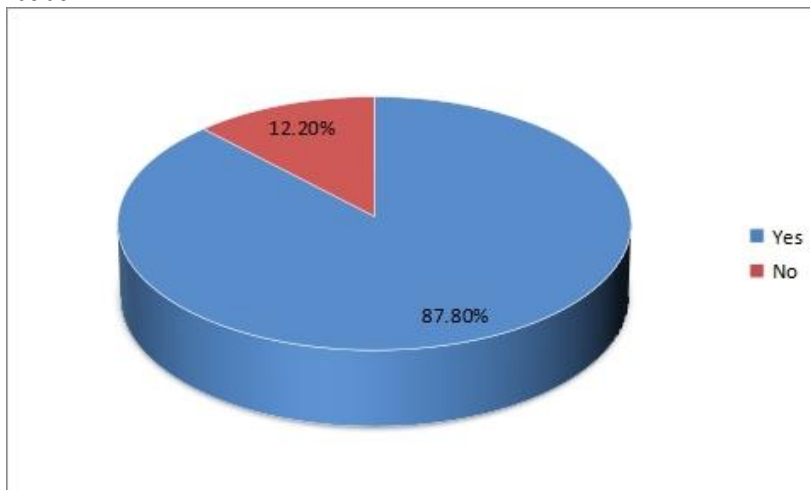


Fig.2.0: Pie chart showing if pregnant women have access to antenatal care services or not

Figure 2.0 above is showing if pregnant women in Ibadan, Oyo State have access to antenatal care services or not. The table shows that 351 (87.8%) agreed that they have access to antenatal care services while 49(12.2%) do not have access to it. This shows that majority of the respondents have access to antenatal care services.

Hypothesis 1:Socio variables (poverty, cost of service, employment status, educational level and marital status) will not be significant predictor of antenatal care service utilization among pregnant women in Ibadan, Oyo State.

Table 1:Composite contribution of the social variables to antenatal care service utilization

R	=	.570			
Multiple R	=	.325			
Multiple R ² adjustment	=	.317			
Standard Error Estimate	=	2.84294			
Analysis of Variance					
Model	Sum of square	Df	Mean square	F	P
Regression	1534.62	5	306.975	37.975	.000
Residual	3184.42	394	8.082		
Total	4719.04	399			

The table above revealed that the linear combination of the effect poverty, cost of service, employment status, educational level and marital status on utilization of antenatal care services was significant ($F(5,394) = 37.975, p < 0.005$). The independent variable also yielded a coefficient of multiple regression (R) of 0.570 and a multiple regression square (R²) of 0.325. This corroborates the view of WHO (2003) when she stated that three crucial factors underlying maternal deaths. Firstly, lack of access and utilization of essential obstetric services. There is a negative association between maternal mortality rates and maternal health care utilization. WHO estimates suggest that 88 to 98 percent of all pregnancy-related deaths are avoidable if all women would have access to effective reproductive health care services (Kunst & Houweling 2001). Secondly is the low social status of women in developing countries. The low status of women can limit their access to economic resources and basic education, the impact is that they have limited ability to make decisions, including a decision related to their health and nutrition. Thirdly, too much physical work together with poor diet also contributes to poor maternal health outcomes.

Table 2: Relative contribution of social variables to antenatal care service utilization

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	17.921	1.263		14.189	.000
Poverty	.407	.066	.325	6.189	.000
Cost of service	.744	.073	.448	10.165	.000
Employment status	.207	.078	.129	2.639	.009
Marital status	.260	.142	.078	1.834	.047
Educational status	.293	.103	.127	2.847	.005

The table above shows for each social variable, the unstandardised regression weight (β), the standardised error of estimate (SE β), the standardized coefficient, the t-ratio and the level at which the t-ratio is significant. As indicated in the table, all the variables are independently significant. Cost of service has the highest contribution of 44.8% ($\beta=.448$, $t=10.165$, $p<0.005$) followed by poverty with 32.5% ($\beta=.325$, $t= 6.189$, $p<0.005$). This is followed by employment status with 12.9% ($\beta=.129$, $t= 2.639$, $p<0.005$), educational status contributed 12.7% ($\beta=.127$, $t= 2.847$, $p<0.005$), and marital status has the lowest contribution of 7.8% ($\beta=.078$, $t=1.834$, $p<0.05$).

Hypothesis 2: Demographic variables (religion, age, birth order and parity) will not be significant predictor of antenatal care service utilization among pregnant women in Ibadan, Oyo State.

Table 3: Composite contribution of demographic variables to antenatal care service utilization

R	= .438				
Multiple R	= .192				
Multiple R ² adjustment	= .184				
Standard Error Estimate	= 3.10755				
Analysis of Variance					
Model	Sum of square	Df	Mean square	F	P
Regression	904.57	4	226.143	23.418	.000
Residual	3814.47	395	9.657		
Total	4719.04	399			

The table above revealed that the linear combination of the effect of religion, age, birth order and parity on antenatal care service utilization among pregnant women in Ibadan, Oyo State

was significant ($F(4, 395) = 23.418, p < 0.005$). The independent variable also yielded a coefficient of multiple regression (R) of 0.438 and a multiple regression square (R^2) of 0.192.

Table 4: Relative contributions of demographic variables to antenatal care service utilization

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
1 (Constant)	15.988	.673		23.757	.000
Age	.980	.158	.299	6.205	.000
Religion	.128	.257	.023	.499	.618
Parity	.908	.182	.265	4.984	.000
Birth order	-.371	.152	-.124	-2.444	.015

Table 10 above shows for each social variable, the unstandardised regression weight (β), the standardised error of estimate ($SE\beta$), the standardized coefficient, the t-ratio and the level at which the t-ratio is significant. As indicated in the table, all the variables are independently significant. Age has the highest contribution of 29.9% ($\beta = .299, t = 6.205, p < 0.005$) followed by parity with 26.5% ($\beta = .265, t = 4.984, p < 0.005$). This is followed by birth order with a negative contribution of -12.4% ($\beta = -.124, t = -2.444, p < 0.005$), religion has the lowest contribution of 2.3% ($\beta = .023, t = .499, p > 0.005$).

Hypothesis 3: There will not be significant composite contribution of both social and demographic variables on antenatal care services utilization among pregnant women in Ibadan, Oyo State

Table 5: Joint contribution of the independent variables (social and demographic) on the dependent variable (utilization of antenatal care service)

R	=	.350			
Multiple R	=	.122			
Multiple R^2 adjustment	=	.118			
Standard Error Estimate	=	3.22977			
Analysis of Variance					
Model	Sum of square	Df	Mean square	F	P
Regression	577.76	2	288.881	27.69	.000
Residual	4141.28	397	10.431		
Total	4719.04	399			

The table above revealed that the linear combination of the effect of social and demographic variables on antenatal care service utilization was significant ($F(2, 397) = 27.69, p < 0.005$).

The independent variable also yielded a coefficient of multiple regression (R) of 0.350 and a multiple regression square (R^2) of 0.122.

Discussion of findings

This result is in agreement with the view of Magadi et al. (2000), Matsumura and Gubhaju (2001); Sharma (2004) who revealed in their studies that there is a significant relationship between economic factors (cost of services, socio-economic status or income of the household, occupation of woman/husband. They concluded that household economic status has a positive and significant impact on use of ANC. Sharma (2004) stated that women with high economic status was more likely to receive adequate and early ANC than those with low economic status. In Pakistan, Nisar and White (2003) discovered that household income was 75 times higher among women receiving ANC than those who received none. Owning property, a car, or having a flush toilet (Celik& Hotchkiss 2000, Matthews, Mahendra, Kilaru and Ganapathy 2001) and higher standards of living (Obermeyer& Potter 2001) were positively associated with ANC. This is also supported by Van-Eijket'al (2006) who concluded that the most frequently mentioned reason for not utilizing ANC is cost of service and reported that expenses of transportation and the cost of the ANC make pregnant women not to attend ANC at health centres.

Kabir, Iliyasu, Abubakar and Sani (2005) also supported the findings of this study when they stated that women who were civil servants or white collar workers utilized antenatal care services more than housewives and unemployed. They stated further that those in paid employment tend to start ANC earlier. Erci (2003) also found that employment outside the home during pregnancy was significantly related to ANC. Woman's relationship to the major wage earner influenced attendance for ANC. In contrast, uptake of ANC through healthcare facilities was higher among non-working women than working women in India. The proportion of women receiving ANC at home was higher among working women although it was not statistically significant (Navaneetham and Dharmalingam, 2002). This finding is also supported by Gleit et al. (2003) who stated that married women were more likely to receive ANC and seek earlier than single or unmarried women. They stated further that unmarried women in Kenya, who started childbearing before 20 years of age, had fewer antenatal visits than married women who started at a later age.

Elo (2002) was also of the view that amongst the maternal social characteristics, education of women has been found to have the strongest association with the use of maternal health care services. He stated further that in Peru for example, formal education of women influences the use of maternal health care services. Results from both the cross-sectional and fixed-effects model, controlling for service availability and the socioeconomic status of the household, confirmed the importance of maternal education on the utilization of both prenatal care and delivery assistance. Similarly, Raghupathy (2006) stated that in Thailand, maternal education exerts a significant influence on the use of maternal health care services; the odds of using prenatal care and formal delivery assistance is much greater for women with primary schooling, compared to women with zero years of schooling.

Schultz (2004), also stated that educated mothers are considered to have a greater awareness of the existence of maternal health care services and benefited in using such

services. He stated further that educated mothers are likely to have better knowledge and information on modern medical treatment and have greater capacity to recognize specific illnesses as education empowers women; they have greater confidence and capability to make decision to use modern health care services for themselves and for the children. Education also enables women to take personal responsibility for their own health and the health of their children. The finding of hypothesis two is supported by Andersen, (2005) who stated that health service use, is a function of three sets of variables: predisposition, enablement and need. Predisposition includes demographic factors such as age, gender, religion, cultural factors, social network, and support. Enabling factors facilitate service use and include individual social functioning, availability of services, and costs. The third set, i.e. the need variables, consists of health related factors. Both objective (type and severity of a health problem), and subjective health indicators (disability and perceived health) belong to the need variables. Also Studies by Idowu, (2006); Diro & Owoyokun, (2010) have identified life-style, cultural or attitudinal factors, age and gender, as key factors affecting differences in the use of health services.

Furthermore, Umar (2001) submitted that certain factors are assumed to predict the process of utilizing ANC services once the need for care is perceived, whether because of illness or the threat of it or because of a desire to maintain present level of health. He stated further that some demographic variables like age, religion, birth order, level of income, accessibility, husband approval, occupational factors influences pregnant women utilization of ANC services. Studies have found that antenatal care (ANC) use is influenced by accessibility of the services, mainly place of residence, distance and transport to the healthcare facilities.

The result on relative contribution of demographic variables corroborated the view of Celik and Hotchkiss (2000), Magadi et al. (2000), Erci (2003), Overbosch et al. (2004), Sharma (2004), Paredes et al. (2005) who stated that studies have also found strong associations between parity and ANC utilization. Higher parity was generally a barrier to adequate use of ANC, but high parity women tended to use the service more often than primiparous women in Ethiopia (Mekonnen & Mekonnen 2003). Similarly, women's first ANC visit was earlier in higher parity women in India (Matthews et al. 2001). Family size and structure proved significant factors in the use of ANC by pregnant women (Matsumura & Gubhaju 2001). Eric (2012) found that parity of pregnant women influence the use of ANC. This study also corroborates the findings of Magadi et al. (2000), Navaneetham and Dharmalingam (2002) who found that birth order and interval were significantly associated with ANC visits. They concluded that higher order births were associated with a late start or inadequate use of ANC. Births occurring after an interval of more than three years received more frequent ANC visits than those where the preceding birth was within two years (Magadi et al. 2000). Digambar and Harihar, (2011) also concluded that birth order has a strong negative effect on the use of ANC.

Sharma (2004), also stated that ANC utilization is strongly associated with age of women at marriage and at pregnancy. In rural north India and in Nepal, age at marriage was positively associated with access or attendance for ANC. Antenatal check-ups were more likely among women who married at the age of 19 or above, compared with those who

married younger. However, age at marriage was not a statistically significant predictor of utilization of ANC in Jordan (Obermeyer & Potter 2001). The majority of women in their thirties attend ANC early and more frequently than teenagers and older women (Bhattia and Cleland 2005, Miles- Doan and Brewster 2008). A qualitative study also showed that women below 35 years preferred frequent clinic visits to be reassured that the baby was growing well and to learn its position, whereas older women who did not experience any problems, were not concerned about having frequent visits (Mathole et al. 2004). However, some of the studies suggested that women's age was not a significant predictor of utilization of ANC (Celik & Hotchkiss 2000, Nisar & White 2003, Kabir et al. 2005).

Ethnicity, caste and religion played a significant role in ANC utilization. Women belonging to 'Schedules' castes and tribes generally had lower uptake of ANC in India (Navaneetham & Dharmalingam 2002). Muslims were much more likely to seek routine ANC in India (Bhattia & Cleland 2005) than other religions. In Hausa culture, 'God's Will' was the strongest factor in non-utilization of antenatal services in Nigeria (Adamu and Salihu 2002).

Mekonnen and Mekonnen (2003) found significant variation in the uptake of ANC by religion. Women who followed Muslim, Orthodox and Protestant religions were more likely to use ANC in Ethiopia. In contrast, religion was not a statistically significant predictor of antenatal check-ups in India (Navaneetham & Dharmalingam 2002) and in Ghana (Overbosch et al. 2004). Chakrabarti (2009) also opined that Muslim women are less prone to use ANC at PHC centres because of restriction placed on their freedom of movement and overall lower autonomy.

The results of hypothesis tallied with the findings of Ajala, Sanni, and Adeyinka (2005) in a study on health seeking behaviour and health service utilization in Nigeria when they asserted that the factors determining the health behaviours may be seen in various contexts: physical, socio-economic, cultural and political. Therefore, they concluded that the utilization of a health care system, public or private, formal or non-formal, may depend on socio demographic factors, social structures, level of education, cultural beliefs and practices, gender discrimination, status of women, economic and political systems, environmental conditions, and the disease pattern as well as health care system itself.

This is also supported by Nielsen et al. (2001), Erci (2003) who concluded that socio-demographic factors like women's education, husband's education, parity, birth order and age of women at marriage or at pregnancy, marital status, religion, ethnicity and family size affects the utilization of ANC services by women.

Conclusion

Social variables are significant predictors of antenatal care service utilization, demographic variables are significant predictors of antenatal care service utilization and social and demographic variables on antenatal care service utilization among pregnant women in Ibadan, Oyo State. Based on the findings of this study, the following recommendations are hereby suggested:

1. Several practical, policy and research issues pertaining to utilization of antenatal services among pregnant women should be raised.

2. Comprehensive health promotion through awareness-raising and appropriate education of healthcare workers could help to improve the uptake of ANC services.
3. Midwives and nurses, as the main ANC providers should be sensitised to be aware of potential barriers to utilization in developing countries. They should be trained to be sensitive to women's socio-economic situation and their cultural and traditional beliefs and their communication skills improved.
4. Women's education, should be encouraged not only as a long term positive effect on ANC utilization, but also improve many other aspects of health and health care in developing countries.
5. ANC and preventive services in general, should be higher on the healthcare agenda. It is also recommended further (qualitative) research into women's perceptions of, and satisfaction with ANC and other maternity services.

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