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Factors Influencing the Utilization of Eight Antenatal Care Model among Pregnant Mothers Receiving Antenatal Care at Kampala International University-Teaching Hospital

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ABSTRACT

Eight Antenatal Care (ANC8+) contact refers to antenatal care model where a mother is recommended to have at least eight contacts to antenatal care provider as follows: one contact in the first trimester, two contacts in the second trimester and five contacts in the third trimester. A cross-sectional quantitative study conducted among 44 pregnant mothers at Kampala International University-Teaching Hospital and were chosen by convenient sampling method. Data were entered and cleaned using SPSS version 22.0 and analysed and presented in figures, chart and table as frequency and percentages. Out of the 44 participants, 21(47.7%) aged 25 to 34 years, 24(54.5%) had secondary education, 23(52.3%), had 1-3 children, 28(63.6%) were rural dwellers, 32(72.7%) married, 21(48.6%) had less than 50,000=, 24(54.5%) said ANC be attended only 4 times during pregnancy, 38(86.4%) had no ANC insurance coverage, 36(81.8%) had a planned pregnancy, 23(52.3%) were not sure about WHO ANC 8+ contacts, 25(56.8%) started ANC after 12 weeks of gestation, 37(84.1%) had husband's support, 28(63.6%) complained of high cost ANC 30(68.2%) resided within 2 km from health facility, 29(65.9%) said the staffs are always available to work on them, 22(50.0%) mentioned ANC caregiver's attitude was fair. Conclusively, above average of total mothers 63.6% were rural dwellers with 48.6% had an average monthly income of less than fifty thousand shillings only of which 86.4% had no ANC insurance coverage hence 63.6% complaining of high-cost ANC and this hinder their ANC utilization. Poor utilization was also due to most 54.5% mothers were not aware about the WHO ANC 8+ contacts hence majority reporting only 4 times ANC be attended during pregnancy and late first ANC initiation 56.8% hence limiting their 8+ ANC.

Keywords: Influential Factors; Antenatal Care; Pregnant Mother; Antenatal Care.

INTRODUCTION

Eight Antenatal Care (ANC8+) contact refers to antenatal care model where a mother is recommended to have at least eight contacts to antenatal care provider as follows: one contact in the first trimester, two contacts in the second trimester and five contacts in the third trimester [1, 2] Annually, 210 million pregnancies occur worldwide out of which an estimated 810 women died from causes related to pregnancy daily [3]. An estimated 2.0 million stillbirths occur globally. Of the all maternal deaths and stillbirths, 99% and 98% respectively occurred in Low Middle Income Countries (LMICs)[3]. 1in 37 neonates in sub–Saharan Africa (SSA) died. This indicates an urgent need to tackle the root causes of still births and maternal and neonatal death in LMICs.

Antenatal care (ANC) is the care provided to pregnant mothers by healthcare professionals to prevent pregnancy complications, provide labor counselling, and provide emergency preparedness to improve the health of both mother and newborns throughout pregnancy.[4]. According to World Health Organization recommended that every pregnant mother to have at least WHO ANC 8+ contacts to her ANC provider during pregnancy as follows: first trimester: contact 1, up to 12 weeks. Second trimester: contact 2 at 20 weeks; contact 3 at 26 weeks[6, 7]. Third trimester: Contact 4 at 30 weeks; contact 5 at 34 weeks; contact 6 at 36 weeks; contact 7 at 38 weeks; and c0ntact 8 at 40 weeks. The mother is supposed to return at 41 weeks for delivery if not delivered. In Africa, WHO ANC8+ contacts remains low where only 16.4% of pregnant mothers visited the ANC care giver 8 times [8]. In sub Saharan Africa, it is estimated that only 10 in 100 mothers had ANC contacts up to 8 times [9]. In East African countries, Kenya reported about 50% and less than 5% WHO ANC8+ contacts completion was also reported in Burundi and South Sudan respectively [1]. Increasing uptake of ANC had the key priority of the millennium development goal (MDG). During the MDG, ANC use increased from 25% to nearly 50%, but this was not enough [10]. This strategy was designed for better pregnancy outcomes and to

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reduce maternal complications that arises from pregnancy related risks[11]. Noncompliance to this strategy by mothers predisposes them to maternal mobility, mortality, neonatal death and still births [12]. This can be attributed to finances, distance to the facility, facility staffing and their behavior among others and health education were found to affect WHO ANC8+ contacts completion [13].

In Uganda, 8% of rural women received ANC from a doctor.[14]. However, less than 10% of women comply with current WHO ANC8+ model [13, 15]. At KIU-TH, Health Management Information System (HMIS) of September 2023) record of 33 term trimester mothers that came to ANC revealed that only 2(6.06%) had made WHO ANC8+ contacts. No similar study has been carried out at KIU-TH to ascertain what influences the up uptake of WHO ANC8+ contacts in this area. Hence to the need for this study.

METHODOLOGY

Study design and rationale

The study design was a descriptive cross-sectional study which found out the factors influencing the utilization of eight antenatal care model among pregnant mothers receiving antenatal care at Kampala International University-Teaching Hospital and employed quantitative methods of data collection. This design was chosen because it helped the researcher to collect the data at the same time in point.

Study setting and rationale

The study was carried out from Kampala International University-Teaching Hospital (KIU-TH) ANC clinic, Bushenyi District. A private not for profit hospital located in Ishaka municipality, Bushenyi district. It is located immediately opposite Ishaka industry area along Mbarara Ishaka road on right direction from Mbarara. It is approximately 69 km by road from Mbarara, and 360 Km from Kampala by road. The hospital has a capacity of 400 beds receiving both inpatient and outpatients for care including maternal and child health where contraceptive services fall. The hospital is used to enhance learning of nursing and medical students, with major departments within the hospital like Gynecology and Obstetrics ward, pediatrics, surgical ward and the medical ward. Outpatient services at the health facility include daily immunization, HIV care, Family planning and immunization among others.

Kampala International University Teaching Hospital was chosen because of records that showed small percentage of mothers that attended ANC 8 times during pregnancy despite 8 times contact with ANC health care provider the minimum requirement by WHO.

Study population and rationale

The study included all pregnant mothers attending ANC at Kampala International University-Teaching Hospital during data collection period. This was because they were the immediate source of information regarding what influences their completion to WHO ANC8+ contacts during pregnancy.

Sample size determination

Sample size for pregnant mothers was determined by using Yamane formula [16] for calculating the sample size.

$$n = \frac{N}{1+N(e)^2}$$

Where n= sample size

e= margin error, N= total Population of the target population

N= 50 Average pregnant mothers that attend ANC in two clinic days in 2 days according to the data ANC register records), e= 5 % level of precision at 95% confidence interval= 0.05

$$n = \frac{50}{1 + 50 * (0.05)^2}$$

n=44.4

Therefore, a total of 44 pregnant mothers were enrolled for this research study.

Sampling procedure and rationale

Convenient sampling method was used for quantitative data collection where the researcher collected the data from pregnant mothers who were available and willing to participate. This helped the researcher to save time since pregnant mothers' number were not bulky.

Inclusion criteria

The study included all pregnant mothers attending ANC at KIU-TH and who consented to participate in the study.

Exclusion criteria

Those who were not willing to consent at the time of data collection were excluded from the study, those who were not feeling well and those who were mentally incapacitated and not able to give a valid information.

Dependent variable

Utilization of WHO ANC8+ contacts among pregnant mothers

Independent variables

Social demographic factors influencing the utilization of WHO ANC8+ contacts among pregnant mothers

Clients related factors influencing the utilization of WHO ANC8+ contacts among pregnant mothers

Health facility related factors influencing the utilization of WHO ANC8+ contacts among pregnant mothers

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Research instrument

Data were collected by using a self-developed semi-structured questionnaire with closed and open-ended questions and it was a researcher-administered questionnaire to assess pregnant mothers. The questionnaire were subdivided into 3 sub sections where section A was used to assess demographic factors, Section B included; clients related factors and Section C was used to assess facility related factors that affect completion to WHO ANC8+ contacts.

Pretesting of instrument

Five Questionnaires were pre-tested on 5 mothers at Ishaka Adventist Hospital to ensure relevancy of questions and for the purpose of easing understanding and appropriateness of questions before the questionnaire were used for actual data collection. This helped the researcher to ensure accuracy, validity and reliability of the tools.

Data collection procedure

The researcher got an introductory letter from the Research Ethical Committee of Kampala International University School of Nursing which helped to introduce the researcher to the Chief Executive Officer (CEO) of KIU-TH to seek permission of carrying out research. Before interviewing respondents, each respondent were given an explanation on the objectives of the study and were requested to make an informed consent before any information collected from them. Data were collected by the researcher from those consented pregnant mothers who visited ANC on clinic day and met the selection criteria. Data were collected through researcher administered questionnaire which were interpreted in a local language to ensure through explanation of questions to mothers. The researcher entered their responses appropriately. This helped to eliminate possibility of misinterpretation of questions and leaving some questions unanswered

Data management

This involved manual checking for errors and omissions in the filled questionnaire to ensure consistency, completeness, relevancy and accuracy of the data collected and this was done on every questionnaire during data collection. The collected data were kept safely in a lock cupboard to avoid manipulation by third party other than the researcher. After entering the collected data into the computer, a strong password was set to avoid its accessed by the non-researcher. Another softcopy was stored in the phone and the researcher email as a back-up.

Data Analysis

Data were analyzed using SPSS version 22.0. It involved allocating codes for each question and entering the data codes in data sheet which was then analyzed to produce quantifiable results. The results were presented as frequency and percentages inform of tables, figures and charts to bring clear meaning and easy interpretation.

Ethical consideration

Autonomy: In order to ensure the independence of the conclusions, the researcher only took into account the opinions of the respondents hence assisted in helping to focus on the study objective

Confidentiality: To ensure confidentiality, the respondents had an option to either indicate or not indicate their initial but to use code on questionnaires. This was done to avoid probing into someone's private life and focusing mainly on the objectives of the study.

Informed consent: After approval of the research proposal, an introductory letter was got from Kampala International University School of Nursing Science, any respondent first consented before being engaged in the study. This was done by first signing the consent form.

Right of participants: Participants got assurances that their involvement in the study was entirely voluntary and that their decision to discontinue participation or leave at any time had no cost.

Benefits/Risk: Participants were made aware that this study was solely for academic purposes, therefore there was no potential dangers. You won't directly gain anything from taking part in this study, but when it's over, the findings could help in the fight against intestinal parasite infections.

Study limitations and delimitations

Some participants had less interest of participating in the study but the researcher tried to give thorough explanation to them giving them the purpose and benefits of the research study to get their attention and interest. The study population turn up at the area of study was at times lower than the required sample size; however, the researcher took an extra day(s) until the study sample were fully realized

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RESULTS

Socio-demographic characteristics of the participants

Table 1: Showing the Socio-demographic characteristics of the participants

n=44

Variables	Category	Frequency (N)	Percentage (%)
Age in years	15-24	08	18.2
	25-34	21	47.7
	35 and above	15	34.1
Education status	None formal	01	2.3
	Primary	09	20.4
	Secondary	24	54.5
	Tertiary/vocational	10	22.8
Parity	First pregnancy	15	34.1
	1-3	23	52.3
	4 and above	06	13.6
Residence	Rural	28	63.6
	Urban	16	36.4
Religion	Catholic	13	29.5
	Anglican	10	22.7
	Moslems	20	45.5
	Born again	01	2.3

From the table 1 above, the study found out that most 21(47.7%) of the participants were within the age bracket of 25 to 34 years and the least 8(18.2%) of the participants were within the age bracket of 15 to 24 years. More than a half 24(54.5%) of the participants had attained secondary level of education whereas only 1(2.3%) didn't get any formal form of education. Majority 23(52.3%) of the participants had about 1 to 3 children as compare to only 6(13.6%) who had 4 children and above. More than a half 28(63.6%) of the participants were rural dwellers whereas only 16(36.4%) participants were from urban areas. Out of this, 13(29.5%) were of catholic faith as well as only 1(2.3%) were born again.

Marital status of the participants **n=44**

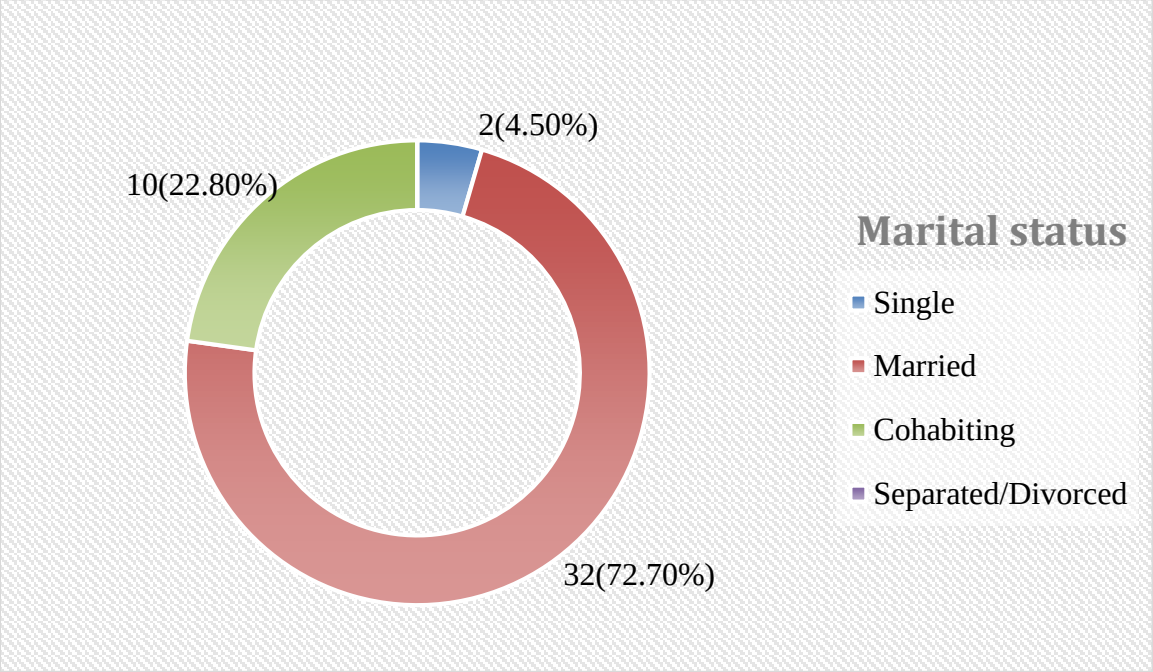

Figure 1: Showing the marital status of the participants

From the figure 1 above, the study found out that majority 32(72.7%) of the study participants were married whereas only 2(4.5%) were still single. However, no participants had a divorced or separation.

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Participant's average monthly income in Uganda Shillings

n=44

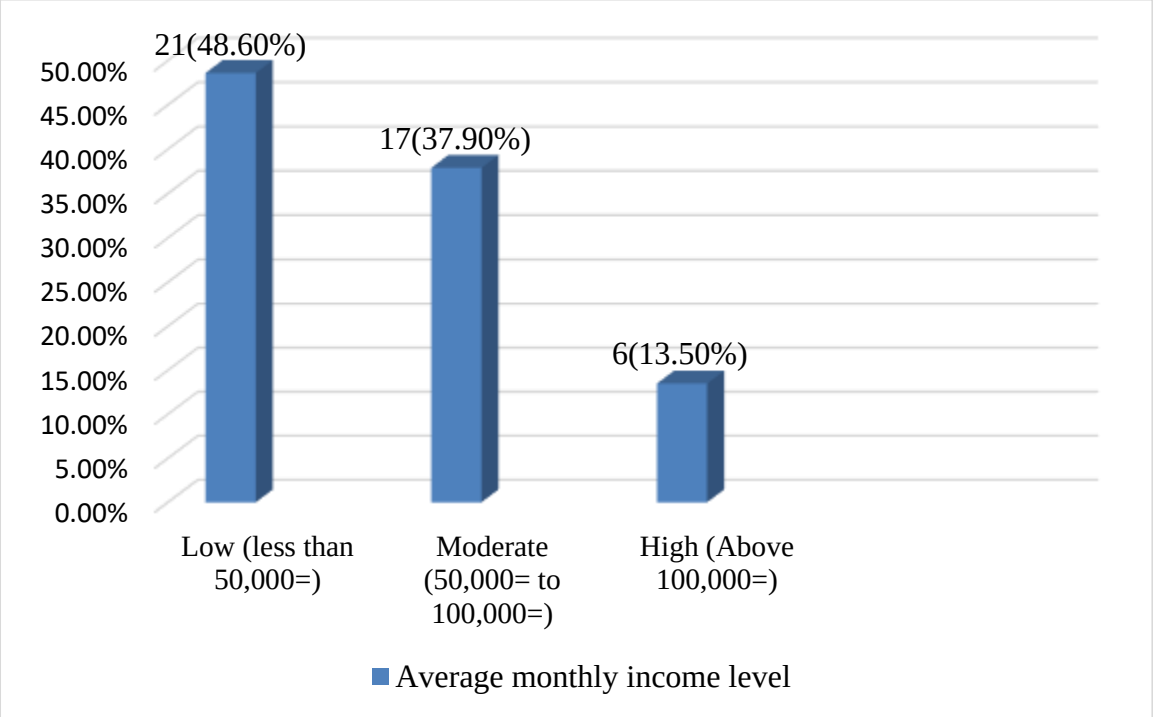

Figure 2: Showing the participant's average monthly income in Uganda Shillings

From the figure above, it was found out that nearly a half 21(48.6%) of the participants had an average monthly income of less than 50,000= hence regarded as low-income earners while only 6(13.5%) of the participants had an average monthly income of 100,000= and above hence classified as high-income earner.

Maternal related factors influencing the utilization of WHO 8+ ANC model

Table 2: Showing the Maternal related factors influencing the utilization of WHO 8+ ANC model

n=44

Variables	Category	Frequency(N)	Percentage (%)
Number of ANC attendance during pregnancy	Less than 4 times	8	18.2
	Only 4 times	24	54.5
	Up to 8 times	12	27.3
Insurance coverage	Yes	06	13.6
	No	38	86.4
Planned pregnancy	Yes	36	81.8
	No	08	18.2
Pregnant mothers require all the WHO ANC 8+ contacts during pregnancy	Yes	18	40.9
	No	03	22.2
	Not sure	23	13.9
ANC first timing during this pregnancy	Within 12 weeks	19	43.2
	Above 12 weeks	25	56.8
Husband support	Yes	37	84.1
	No	7	15.9

From the table 2 above, more than a half of the participants 24(54.5%) said ANC should only be attended 4 times during pregnancy whereas only 8 said it should be attended less than 4 times during pregnancy. Most of the participants 38(86.4%) didn't have the ANC insurance coverage as compare to only 6(13.6%) said they had the ANC insurance coverage. More than three-quarter 36(81.8%) said their pregnancy was planned as compare to the least 8(18.2%) said their pregnancy was abrupt and not planned. Out the total participants 23(52.3%) of them said they were not sure about the need for all the WHO ANC 8+ contacts during pregnancy while only 3(6.8%) said no to the need for all the WHO ANC 8+ contacts during pregnancy. Most 25(56.8%) of the participants started their ANC after 12 weeks of gestation during this current pregnancy while only 19(43.2%) initiated for ANC within the first 12 weeks of gestation. More than three-quarter 37(84.1%) said they always get support from their husband and only 7(15.9%) said they were not getting any support from their husband.

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Health facility related factors influencing maternal utilization of WHO 8+ ANC model

Table 3: Showing the Health facility related factors influencing maternal utilization of WHO 8+ ANC model

n=44

Variables	Category	Frequency(N)	Percentage (%)
ANC services cost	High	28	63.6
	Affordable	10	22.8
	No cost	06	13.6
Counselling and health education about the importance of ANC 8+	Yes	16	36.4
	No	28	63.6
ANC quality	Good	18	40.9
	Fair	23	52.3
	Poor	3	6.8
Distance from the health facility	Less than 2 km	30	68.2
	2 km and above	14	31.8
Enough staffs available on duty	Yes	29	65.9
	No	15	34.1

From the table 3 above, it was found that more than a half 28(63.6%) of the participants complained of the high cost of ANC services as compare to only 6(13.6%) of the participants who said it's of no cost. Most of the participants 23(52.3%) reported that the ANC services are fairer whereas only 3(6.8%) of the participants who reported the poor ANC services. Majority 28(63.6%) said they never received any form of Counselling and health education about the importance of ANC 8+ and the least 16(36.4%) said they have ever received. Most 30(68.2%) of the participants were resided within 2 km from the health facility and the least 14(31.8%) were from a distance of 2 km and above from the health facility. However, out of the total participants who participated majority 29(65.9%) of them said the staffs are always available to work on them, and the least 15(34.1%) were not contented with the available staffs who always work on them.

ANC caregiver's attitudes towards pregnant mothers receiving antenatal care

n=44

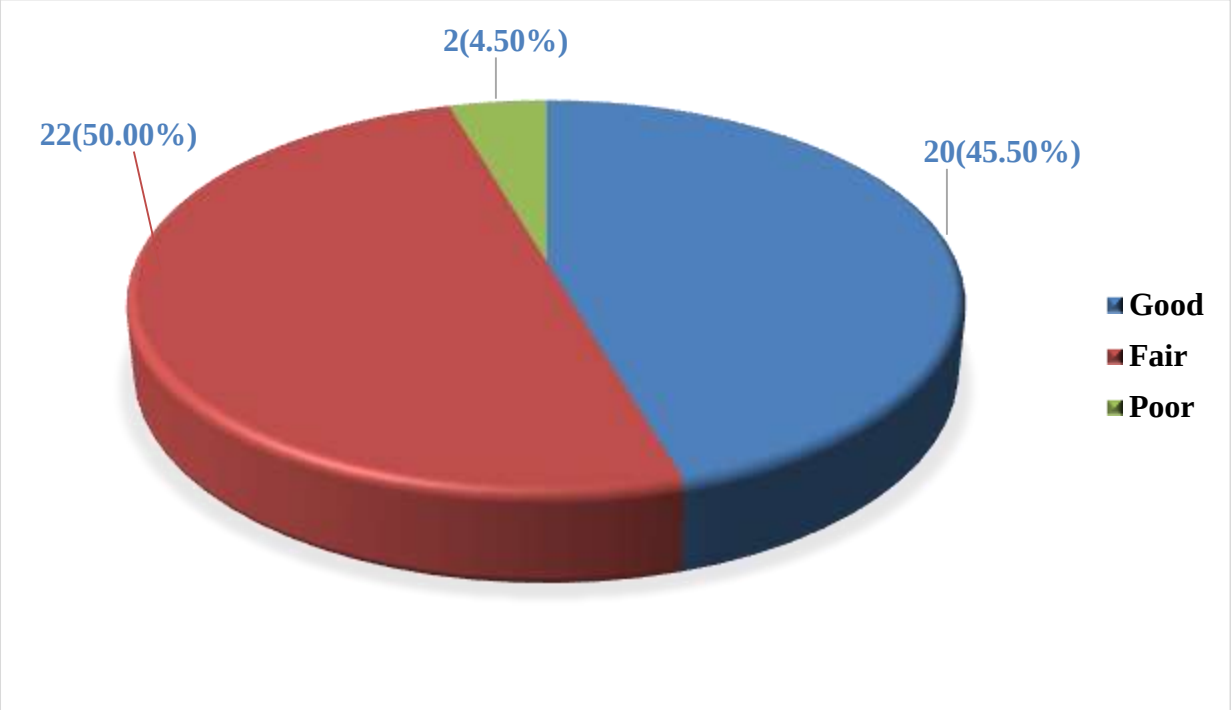

Figure 3: Showing the ANC caregiver's attitudes towards pregnant mothers receiving Antenatal care.

From the figure 3 above, it was found out that a half of the participants 22(50.0%) mentioned that ANC caregiver's attitude towards mothers was fair whereas only 2(4.5%) said the ANC caregivers had poor attitude towards mothers when seeking for ANC services.

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DISCUSSION

According to this study, it was found out that most 21(47.7%) participants were within the age bracket of 25 to 34 years. This was because of the high pregnancy rate among youth. This conform to a finding from a research study by Abuosi et al., [17] in Ghana which found out that 18.7% of young mothers >22 years attended antenatal care to minimum of 8 visits. This study also found out that majority 24(54.5%) of the participants had attained secondary level of education. This could be attributed to a greater awareness of the existence of ANC8+ services and the advantages of using such services since they are more aware of health problems, know more about the availability of health care services to seek ANC8+, and utilize the information more effectively. This correspond to a study by Ali et al. [18] in Bangladesh where they found out that utilization of ANC 8+ model was high among educated women than non-educated women but it contradict a research study by Palamuleni, [19] in Malawi where there was no significant relationship between level of education and ANC8+ and it also doesn't correspond to a research study by Thakkar et al., [20] in India found the biggest contributing factors for full utilization of ANC services to include low education among mothers.

This study also highlighted that many 28(63.6%) participants were rural dwellers. This could be due to the strategic location of the health facility and being a hospital and a referral facility make it easy for more participants to travel and seek for ANC care. However it disagrees with done in rural Haiti which highlighted that pregnant mothers were less likely to utilize ANC8+ model due to personal level factors, and natural hilly terrain with poor infrastructure especially in rural settings [21]. According to this study, it was found out that most 21(48.6%) participants had an average monthly income of less than 50,000= hence regarded as low-income earners. This could be attributed to their social way of life but with increased awareness due to their education status. However it contradict a study done by Ruranginwa et al., [22] which revealed that mothers with low household income less utilized ANC services fully compared to those that had stable income source.

This research study also highlighted that a half 23(52.3%) participants had about 1 to 3 children. This could be due to the high pregnancy rate being recorded among age groups of 25 to 30 years hence majority as having the above children numbers. It doesn't correspond to a finding from a study by Sacks et al. [23] which revealed that lower ANC utilization less than minimum 8 visits among women of higher parity were common but correspond to a finding from a study done by Mandiwa and Namondwe,[24] also studies ANC8+ among pregnant mothers in Malawi where results found mothers with low parity with high ANC8+.

According to this study finding, it was revealed that more than a half of the participants 24(54.5%) said ANC should only be attended 4 times during pregnancy. This could be due to the fact that most mothers still lack knowledge of transition from 4 to 8 visits, and 60.4% of mothers whose attitude towards WHO ANC8+ was reported to be that they felt the visits too many and unnecessary. This is in line with a study in 17 states of Ghana which found that less than 30% mothers that are pregnant received full 8 visit ANC care as recommended by WHO. [25], but contradict a research study by Janani S, (2019) in India where they found out that majority 87% of women that were aware of ANC8+ although they did not attend ANC to the maximum 8 ANC. This study also highlighted that most 38(86.4%) participants didn't have the ANC insurance coverage. This could be due to lack of awareness about the existing ANC insurance coverage. This correspond to a research finding by IIPS [26], in Mumbai which revealed that women that have ANC health insurance coverage are likely to comply with full WHO ANC8+ where as those that have to cover all their costs for ANC or depend on government programs for ANC support do not meet the minimum WHO ANC8+ contacts requirement.

According to this study, it was found out that majority 36(81.8%) participants said their pregnancy was planned. This is because most of them were receiving support from the husband and most of them were married. This is in line with a study findings from Ameyaw, et al [27]in Ghana which revealed that 95% of women that conceived unplanned pregnancies were most non-compliant to WHO ANC8+ contacts, other factors that hindered ANC8+ included older mothers > 35 years who felt that they have expertized pregnancy care. In this study, it was highlighted that a half 23(52.3%) participants said they were not sure about the need for all the WHO ANC 8+ contacts during pregnancy. This could be due to believe that "a real woman" does not seek medical care during pregnancy for very many times because it is not a disease, a woman who seeks medical care is considered a coward. This is in line with a study finding from a study done in Tanzania by Mgata et al [28] which noted the majority attend ANC at least once to have the card to present to clinic in case of an emergency but not all 8 times as has been stated by WHO.

According to this study, it was revealed that most 25(56.8%) participants started their ANC after 12 weeks of gestation during this current pregnancy. This could be due to fact that most pregnant mothers perceived pregnancy to be a normal health condition or to not be a serious issue that required seeking health care. This correspond to a study finding from a research study in Cameroon by Warri and Geodge [29]which found out that majority of the pregnant mothers did not access 8 antenatal visits care made them less motivated to initiate WHO ANC8+ model. This is also in line with a study done in Malawi, by Mandiwa and Namondwe [24] revealed that more than 40% of mothers could not scale up the WHO ANC8+ because they reported to the health facility while they were already in late second trimester or the third trimester of their pregnancy.

According to this study, it was also found out that 37(84.1%) said they always get support from their husband. This is attributed to the fact that majority of them were married. This correspond to a research study in Nepals

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by Sacks et al., [23] which found out that woman whose husbands actively participated in ANC activities fully complied with full ANC schedule and services.

In this study, it was found out that most 28(63.6%) participants complained of the high cost of ANC services. This could be due to their low income and their social status. This is in line with a study carried out by Philbrook et al., [30] in private sectors ANC health care providers revealed that most women could not comply with 8 visits of antenatal care due to high costs charged by facilities every time a mother visited a health facility for antenatal care. It aslo correspond to another research study by Ataguba, [31] which revealed that ANC8+ in sub Saharan Africa has increased due to remitting costs for ANC in most of health care facilities in the region. According to this study, it was also revealed most participants 23(52.3%) reported that the ANC services are fairer. This could be because there was already upgrade from focused antenatal care (FANC) to WHO ANC8+ model and the upgrade in quality of ANC services. This conform a study according to Mchenga et al., [32] in Malawi which found out there was no upgrade in quality of ANC services, hence pregnant mothers felt unsatisfied with quality a factors that derailed the implementation of WHO ANC8+.

This study also found out that most 30(68.2%) participants were resided within 2 km from the health facility. This could be due to their geographical location. Its correspond to another study by Kibret et al.,[33] which revealed that long distance to the health care service provider discouraged utilization of health services, mothers living at distance more than 2 Kilometers have 60% chances of turning up less than necessary 8 times for ANC checkup.

This study also found out that majority 28(63.6%) said they never received any form of Counselling and health education about the importance of ANC 8+. This could be due to increased workload or it's not scheduled. This conform a study by Kumar et al([34] in India which revealed that mothers failed to comply with WHO ANC8+ contacts because they had not received counseling from their reproductive health care regarding the need for the 8 visits of ANC in the time when they are pregnant.

This research study also found out that that a half of the participants 22(50.0%) mentioned that ANC caregiver's attitude towards mothers was fair. This could be due to the fact that it's a private hospital hence more needs for mothers to generate income. This agrees with a study according to Dantas et al. [35] which revealed that poor health care attitudes that involves maltreatments and neglect of pregnant mothers during ANC visits and delivery could hinder success in implementing the WHO ANC8+ contacts model. And also another study by Mchenga et al., [32] in Malawi, which revealed that 84.4% of mothers reported that ANC8+ were friendly to ANC mothers although only 15% of mothers made ANC8+.

CONCLUSION

On conclusion, above average of total mothers 63.6% were rural dwellers with 48.6% had an average monthly income of less than fifty thousand shillings only of which 86.4% had no ANC insurance coverage hence 63.6% complaining of high-cost ANC and this hinder their ANC utilization. Poor utilization was also due to most 54.5% mothers were not aware about the WHO ANC 8+ contacts hence majority reporting only 4 times ANC be attended during pregnancy and late first ANC initiation 56.8% hence limiting their 8+ ANC.

Recommendation of the study

- The Ministry of Health through the government of Uganda should make all the health facilities offering ANC services to mothers to offer it freely or all the mothers to be on insurance coverage.
- We recommend the hospital administrators to lay in strategies to increase the accessibility and availability of healthcare services particularly for communities in rural areas such as investing in outreaches.
- The ANC health care providers should make it a mandate to ensure and strengthen the health promotion programs targeting mothers with no education and this is vital to increase their awareness about the importance of antenatal services.
- All the mothers should be aware that it's always importance to initiate for first ANC within 12 weeks after conception.

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