**Contributing factors to tardiness in attending and poor adherence to ANC in Mwembeladu Hospital Zanzibar 2024**

**Abstract**

**Background**
Antenatal care (ANC) is vital for maternal and infant health, yet women in Zanzibar frequently delay their first ANC visit and struggle with adherence to visits to ANC. This study investigates the socio-demographic factors contributing to these delays. It will describe pregnancy characteristics and assess the timing of the first ANC consultations.

**Methodology**
The research employed a descriptive cross-sectional design at Mwembeladu Hospital, targeting pregnant women receiving ANC. Simple random sampling was used to gather data from 260 participants, with analysis focusing on socio-demographic factors and their impact on ANC attendance.

**Results**

Most participants were multigravida (75.8%), and many attended their first ANC visit during the second trimester (54.2%). Significant findings indicated that while education level was high among participants, it did not correlate with timely ANC attendance. Marital status and partner support did not significantly influence the timing of ANC visits. The study aligns with other research showing high rates of late ANC attendance across various regions, emphasizing the importance of early detection and intervention in pregnancy.

**Conclusion**
This study highlights that many women in Zanzibar experience delays in ANC attendance and a poor number of visits to ANC mainly due to the influence of multigravidity.
According to WHO recommendations, future interventions should focus on community education, addressing socio-cultural barriers, and enhancing healthcare access to improve early attendance at ANC and increase the number of visits to those clinics among pregnant women in Zanzibar.

Keywords: Pregnancy, Antenatal clinic, Mwembeladu Hospital, Zanzibar

**Introduction**

Antenatal care (ANC) ensures mothers' and infants' health. Antenatal care (ANC) attendance is generally high, with models like group ANC improving attendance and satisfaction. Group ANC, such as Centering Pregnancy, has shown positive outcomes, particularly for marginalized populations, by enhancing women’s experiences and health results [1], but the use of ANC services remains low in low- and middle-income countries (LMICs) and its quality poor [2]

In Zanzibar, late attendance to ANC and poor adherence to iron-folic acid supplementation (IFAS) remain significant public health challenges. Despite the World Health Organization's recommendation for at least four ANC visits, many women in Tanzania, including Zanzibar, initiate care late, often after the first trimester.

Factors contributing to this delay include socio-cultural beliefs, lack of education, and misconceptions about pregnancy. Additionally, logistical barriers, such as distance to health facilities and inadequate healthcare resources, further exacerbate the situation. Understanding these factors is essential for developing targeted interventions to improve maternal health outcomes in Zanzibar, where the prevalence of anaemia among pregnant women is alarmingly high [3][4].

The main socio-cultural beliefs that contribute to late ANC attendance among pregnant women in Zanzibar Main socio-cultural beliefs contributing to late antenatal care (ANC) attendance among pregnant women in Zanzibar include [5]:

1. Fear of Witchcraft: Many women believe that announcing their pregnancy early may expose them to witchcraft or sorcery, leading to delays in seeking care until the later stages of pregnancy.

 2. Perceptions of Risk: There is a common belief that complications are less likely in early pregnancy, causing women to underestimate the need for early ANC visits.

3. Cultural Stigma: Pregnant women, especially adolescents, may hide their pregnancies due to fear of social stigma, leading to late ANC attendance.

4. Past Experiences: Previous negative experiences with healthcare providers can deter women from seeking timely care.

5. Lack of Knowledge: Limited awareness about the importance of early ANC and the recommended timing for first visits contributes significantly to late attendance.

6. Husband's Support: The level of support from husbands can influence women's decisions to seek timely ANC. Women who face disapproval or lack of encouragement from their partners are more likely to delay seeking care

7. Community Expectations: Societal norms often dictate the appropriateness of when to seek ANC, with many women adhering to community expectations that discourage early visits

 In low-income countries, women have significantly fewer antenatal care visits. Many may attend fewer than the recommended four visits during pregnancy. According to the World Health Organization (WHO), in some low-income countries, only about 50% of women receive the minimum recommended four antenatal visits. Barriers include limited access to healthcare facilities, cultural beliefs, financial constraints, and lack of education. Women in high-income countries typically have access to more comprehensive antenatal care, often attending 8 to 10 visits or more throughout their pregnancy. In high-income nations, almost 90% of pregnant women receive adequate antenatal care, including regular check-ups, screenings, and health education. The focus is often on personalized care, with a strong emphasis on preventive measures and managing any pregnancy-related complications [6][7]

**Broad Objectives**

To determine the contributing factors responsible for the late attendance and poor adherence to ANC visits.

**Specific Objectives**

1. To describe the characteristics of pregnancy.

2. To determine the timing of the first consultation at the antenatal clinic and the number of consultations attended.

3. To identify the factors related to attending the first consultation to clinical prenatal care.

**Methodology**
The Study Area was the Maternity care for expectant mothers at low risk offered by Mwembeladu Maternity Hospital, which is situated in Zanzibar. The Antenatal Care patients at Mwembeladu Hospital are expectant mothers.

 The examined population included pregnant patients receiving antenatal care at Mwembeladu Hospital, which was part of the study.

Research Plan

This study employed a descriptive cross-sectional design to ascertain the percentage of pregnant women at ANC who did not adhere to antenatal visits.

Method of Sampling

Pregnant women attending ANC were chosen by simple random sampling (SRS).

**Determining the Sample Size**

The sample size was calculated using the formula N = Z^2 \times P \times q / E^2, where Z = 1.96 for a 95% confidence range, P = 0.203 from earlier research, and E = 0.05. To account for non-response, 5% of the samples were added to the total sample size of 260.

Criteria for Inclusion
- All expectant patients at Mwembeladu Hospital are eligible.
Criteria for exclusion:
- Mentally sick pregnant ladies.
- Women who were not interested in participating

The study's dependent variables include the time before starting ANC and the number of visits to the ANC.

- Independent variables: Age, education level, marital status, employment position, and other social demographics; obstetric and health-related factors (gravidity)

Ethical Approval

The Zanzibar Health Research Institute, ZAHREC, approved the ethical clearance for conducting health research with REF NO: ZAHREC/05/MARCH/2023/39. The collected data were kept entirely confidential and used only for this research. Written informed consent was obtained from the study participants, and personal identifiers were excluded during the data collection to ensure confidentiality.

Results

**Table 1: Pregnancy Characteristics and Antenatal Care Attendance**

|  |  |  |
| --- | --- | --- |
| **Obstetric and health facility-related data** | **Frequency**  | **Percentages (%)** |
| **Gravidity**  |  |  |
| Primigravid | 63 | 24.2 |
| Multigravida | 197 | 75.8 |
| **TOTAL**  | **260** | **100** |
| **Gestational age (months)** |  |
| 1-3 | 41 | 15.8 |
| 4-7 | 131 | 50.4 |
| 8-9 |  88 | 33.8 |
| **TOTAL**  | **260** | **100** |
| **TOTAL**  | **260** | **100** |
| **Time attended ANC** |  |
| Less than 4 | 129 | 49.6 |
| Greater than 4 | 131 | 50.4 |
| **TOTAL**  | **260** | **100** |

 **Table 2 First visit to antenatal clinic and socio-demographic characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
| ITEM | FIRST ANTINATAL VISIT | TOTAL | CHI SQUQRE |
| AGE YEARS | first trimester # % | second trimester# % | third trimester# % | **First ANC visit (trimester )** |  Chs 4.866p=0.561LK R=4.673p=0.586 |
| 13-22 | 9 (3.4) | 5 ( 1.92 ) | 1 (0.4) |  14 (5.72) |
| 23-32 | 50 (19.2)  | 72 (27.7) | 13 (5) |  135(59.9)  |
| 33-42 | 30 (11.5) | 55 (21.1) | 8 (3.07) |  93(35.67)  |
| 43-50 | 5 (1.92) | 8 (3.07) | 2 (0.76) | 15 (5.76) |
| MARITAL STATUS |  |  |  |  |  |
| SINGLE | 12 (4.61) | 11 (4.2) | 0 (0) | 23 ((8.8) | Chs=6.11p=0.411LR= 8.713p=0.190 |
| MARRIED | 73 (28.1) | 114 (43.8) | 23 ( 8.8) | 210 (80.7) |
| WIDOWED | 7 (2.7) | 10 (3.84) | 1 (0.4) | 18 (6.92) |
| DIVORCED | 2 (0.7) | 5 (1.92) | 0 (0) | 7 (2.7) |
| **Education level** |  |  |  |  | Chs=10.27p= 0.114LR=15.28p=0.018 |
| PRIMARY | 24 (9.2) | 23 (8.8) | 7 (2.7) | 54 (20.7) |
| SECONDARY | 49 (18.8) | 83 (31.9) | 17 ( 6.5) | 149 (57.3) |
| UNIVERSITY | 17 (6.5) | 26 (10) | 0 (0)  | 43 (16.4) |
| NEVER GO TO SCHOOL | 4 (1.5) | 8 (3.1) | 0 (0)  | 12 (4.6) |
| OCCUPATION |  |  |  |  |  |
| HOUSE WIFE | 48 (18.5) | 74 (28.5) | 16 (6.1) | 138 (53.0) | Chs=3.302ap=0.509LR=3.70p=0.448 |
| DAILY LABOUR | 31 (11.9) | 49 (18.8) | 7 (2.7) | 87 (33.4) |
| GOVERNMENT EMPLOYED | 15 (5,8) | 17 (6.5) | 1 (0.38) | 33 (12.6) |
| FAMILY SIZE |  |  |  |  |  |
| 1-3 | 48 (18.4) | 74 (28.4) | 17 (6.5) | 139 (53.4) | Chs=6.36p= 0.174LR=7.31p=0.120 |
| 4-6 | 37 (14.2) | 51 ( 19.6) | 3 (1.2) | 91 (35) |
| 7-10 | 9 (3.4) | 15 ( 5.7) | 4 (1.5) | 28 (10.6) |
| HUSBAND EDUCATION |  |  |  |  |  |
| PRIMARY | 19 (7.3) | 20 (7.7) | 6 (2.3) | 45 (17.3) | Chs=11.26p=0.81LR=11.30p=0.80 |
| SECONDARY | 48 (18.4) | 95 (36.5) | 10 (3.8) | 153 (58.8) |
| UNIVERSITY | 21 (8.1) | 22 (8.4) | 6 (2.3) | 49 (18.8) |
| NEVER GO TO SCHOOL | 6 ( 2.3) | 3 (1.2) | 2 (0.7) | 11 (4.2) |
| TIME RECEIVED |  |  |  |  |  |
| Primigravida | 21 (8.07) | 29 (11.1) | 12 (4.61) | 62 (23.8) | Chs=14.191p= 0. 028LR= 13.37p= 0.038 |
| multigravida | 74 (28.4) | 112 (43.07) | 12 (4.61) | 198 (76.2) |

Fig 1: First Visit to Antenatal clinic among pregnant women in Mwembeladu Hospital

**Pregnancy Characteristics and Antenatal Care Attendance**

In this study, 75.8% of the women were multigravida, while 24.0% were primigravida. Among those who responded to the questionnaire, the majority were in the second trimester of pregnancy (50.4%), followed by the third trimester (33.8%), and the first trimester (15.8%).

Regarding the timing of their first visit to the antenatal care (ANC) clinic, most women attended in the second trimester (54.2%), followed by the first trimester (36.5%) and the third trimester (9.2%).

Regarding the number of ANC consultations attended, 50.4% of the women had more than four consultations, while 49.6% attended fewer than four ANC consultations.

**First visit to antenatal clinic and socio-demographic characteristics**

The most significant number of pregnant women (89.4%) belonged to the age group of 22 to 42 years, with 51.9% specifically between 23 and 32 years old. Among these age groups, only 5.65% attended their first ANC consultation in the second trimester. Women under 22 were also noted; however, the age groups had no significant differences. Table 2

Eighty percent (80.7%) of the pregnant women were married, and it was predominantly among this group that women attended their first ANC consultation in the second trimester. Again, there were no significant differences based on marital status.

Regarding occupation, most women were housewives (53%), followed by those engaged in daily labour (33.4%), while only 12.6% were employed by the government. This occupational factor also did not show significant differences in the timing of the first ANC visit.

Small families of 1 to 3 members predominated (53.4%), followed by families with 4 to 6 members (35%), and families with 6 to 10 members made up 10.6%. Family size did not appear to be related to the timing of the first ANC visit.

Regarding the husband's education, 58.8% had completed secondary education, and this group predominantly attended the clinic for the first time in the second trimester. Additionally, 18.8% of husbands had a university education, 17.3% had primary education, and only 4.2% had never attended school. Overall, there was a good educational level among the husbands; however, this did not influence their wives' decision to attend ANC in the first trimester of pregnancy.

Regarding the time of conception, the majority of pregnant women were multigravida (76.2%). Still, despite their experience, only 28.4% attended their first ANC consultation in the first trimester, while 43.07% did so in the second and 4.61% in the third. Primigravida women accounted for 23.8%. This difference was significant, with a Chi-square value of 0.028, indicating that multigravida status was associated with a higher risk of late attendance to ANC.

**Discussion**

**Pregnancy Characteristics and Antenatal Care Attendance**

This study found that 75.8% of pregnant women who attended the ANC were multigravid. This is consistent with findings by Gebrekidan and Gebremichael in Ethiopia [8] and Mulondo in Limpopo, South Africa [9]. Concerning the first visit for pregnancy assistance, some workers found that more than half of the pregnant women attended ANC late [10][11]. Similarly, Palamuleni in Malawi found that most first visits to ANC occurred after the first trimester of pregnancy [12].

Only about a third (36.5%) of pregnant women attended ANC early, similar to those in Uganda (36.1%) [13], which aligns with studies in Ethiopia [14]. In Afghanistan, Samiah found that 66.9% of women came late to ANC [15]. Cameroon also has a high percentage of delays in attending the first visit to ANC, which is related to a low perception of the importance of early pregnancy detection[16].

Early detection of pregnancy is a practice that helps identify complications promptly and optimizes interventions to address them. This is when women receive essential information on nutrition, hygiene, and preventive measures, including advice on proper diet, iron and folic acid supplements, and vaccinations. Starting these interventions early can positively impact maternal and fetal health. Women also receive education about pregnancy, childbirth, and postpartum care. Risk factors such as diabetes mellitus, arterial hypertension, infections, anaemia, low weight, or obesity can be detected during this time. Therefore, it is essential to attend ANC on time.

Sociodemographic Factors Influencing Initial Visits to ANC Prenatal Clinics

This study examined the sociodemographic factors influencing the first visit to the antenatal care (ANC) clinic. The age group most significantly impacted attendance was between 23 and 32 years, aligning with women's expected reproductive age. Notably, a small percentage of pregnancies were in women under 22. Most of these pregnant women attended the ANC during the second trimester of their pregnancies. The findings were consistent with other workers who studied over 45,000 women [17][18].

Furthermore, more than 70% of the participants were married, with many identified as housewives, mirroring the results found in Nigeria [19]. Our study demonstrated that while over half of the respondents had attained education at the secondary level or higher (3rd quartile), this did not improve ANC attendance. The likelihood ratio was significant at 15.28 (p = 0.018). This finding is, however, in contrast with a multicenter study in Nigeria, which reported that 45.2% of the 21,447 pregnant women studied had not received an education, correlating this lack of education with inadequate continuous maternal care (p < 0.000) [20]

Regarding occupation, more than half (53%) of the participants were housewives, and small families predominated (53.4%). However, neither factor significantly influenced the timing of the first visit to the ANC, which is consistent with findings reported by workers in Ethiopia [21]. The study also indicated that the husbands of the pregnant women generally had a good educational background, with only 4.2% being illiterate. However, this did not correlate with their partners attending the first ANC visit during the first trimester, which aligns with the reports by Olayinka in Nigeria [19].

Additionally, more than two-thirds (76.2%) of the women had multiple pregnancies, a factor associated with delayed attendance at the first ANC consultation. This is consistent with a systematic review of 37 fragile and conflict-affected situations [22] and the reports of workers in Yemen and Kigombani, Dar es Salaam [23][24].

Conclusion

In this study, most of the pregnant women surveyed were multigravida, with more than two-thirds in the second and third trimesters of pregnancy at the time of the survey. A significant number attended their first antenatal care (ANC) consultation late, and nearly half attended fewer than four consultations. Among the factors associated with the timing of the first visit to the ANC, multigravid women tended to participate later. Furthermore, an adequate education level was not associated with improved attendance at antenatal consultations.

**Recommendations**

According to WHO recommendations, future interventions should focus on community education, addressing socio-cultural barriers, and enhancing healthcare access to improve early attendance at ANC and increase the number of visits to those clinics among pregnant women in Zanzibar.

Limitations of the study

This study was conducted in a small Hospital in the urban area of the Unguja Island Zanzibar. It does not represent the entire population.

References

[1] F. Sadiku *et al.*, “Maternal satisfaction with group care: a systematic review.,” *AJOG Glob. Reports*, vol. 4, no. 1, p. 100301, Feb. 2024, doi: 10.1016/j.xagr.2023.100301.

[2] J. Sharma, M. O’Connor, and R. Rima Jolivet, “Group antenatal care models in low- and middle-income countries: A systematic evidence synthesis,” *Reprod. Health*, vol. 15, no. 1, 2018, doi: 10.1186/s12978-018-0476-9.

[3] W. B. Lyoba, J. D. Mwakatoga, C. Festo, J. Mrema, and E. Elisaria, “Adherence to Iron-Folic Acid Supplementation and Associated Factors among Pregnant Women in Kasulu Communities in North-Western Tanzania.,” *Int. J. Reprod. Med.*, vol. 2020, p. 3127245, 2020, doi: 10.1155/2020/3127245.

[4] C. J. Okafor *et al.*, “Prevalence and Factors Associated with Non-Adherence to Iron and Folic Acid Supplementation among Women for Antenatal Care at Mwembeladu Hospital, Zanzibar,” *J. Pharm. Res. Int.*, vol. 36, no. 8, pp. 187–196, 2024, doi: 10.9734/jpri/2024/v36i87569.

[5] S. Mgata and S. O. Maluka, “Factors for late initiation of antenatal care in Dar es Salaam, Tanzania: A qualitative study.,” *BMC Pregnancy Childbirth*, vol. 19, no. 1, p. 415, Nov. 2019, doi: 10.1186/s12884-019-2576-0.

[6] J. Qiao *et al.*, “A <em>Lancet</em> Commission on 70 years of women’s reproductive, maternal, newborn, child, and adolescent health in China,” *Lancet*, vol. 397, no. 10293, pp. 2497–2536, Jun. 2021, doi: 10.1016/S0140-6736(20)32708-2.

[7] M. A. Lateef, D. Kuupiel, G. G. Mchunu, and J. D. Pillay, “Utilization of Antenatal Care and Skilled Birth Delivery Services in Sub-Saharan Africa: A Systematic Scoping Review,” *International Journal of Environmental Research and Public Health*, vol. 21, no. 4. 2024. doi: 10.3390/ijerph21040440.

[8] T. G. Gebremichael and T. G. Welesamuel, “Adherence to iron-folic acid supplement and associated factors among antenatal care attending pregnant mothers in governmental health institutions of Adwa town, Tigray, Ethiopia: Cross-sectional study.,” *PLoS One*, vol. 15, no. 1, p. e0227090, 2020, doi: 10.1371/journal.pone.0227090.

[9] M. Seani, “Factors associated with underutilisation of antenatal care services in Limpopo, South Africa,” *Br. J. Midwifery*, vol. 28, pp. 788–795, Nov. 2020, doi: 10.12968/bjom.2020.28.11.788.

[10] A. Mekonnen, W. Alemnew, Z. Abebe, and G. D. Demissie, “Adherence to Iron with Folic Acid Supplementation Among Pregnant Women Attending Antenatal Care in Public Health Centers in Simada District, Northwest Ethiopia: Using Health Belief Model Perspective.,” *Patient Prefer. Adherence*, vol. 15, pp. 843–851, 2021, doi: 10.2147/PPA.S299294.

[11] N. Ali, I. Elbarazi, S. Alabboud, F. Al-Maskari, T. Loney, and L. Ahmed, “Antenatal Care Initiation Among Pregnant Women in the United Arab Emirates: The Mutaba’ah Study,” *Front. Public Heal.*, vol. 8, Jun. 2020, doi: 10.3389/fpubh.2020.00211.

[12] M. E. Palamuleni, “Factors Associated with Late Antenatal Initiation among Women in Malawi.,” *Int. J. Environ. Res. Public Health*, vol. 21, no. 2, Jan. 2024, doi: 10.3390/ijerph21020143.

[13] W. Acup *et al.*, “Factors associated with first antenatal care (ANC) attendance within 12 weeks of pregnancy among women in Lira City, Northern Uganda: a facility-based cross-sectional study,” *BMJ Open*, vol. 13, no. 7, p. e071165, Jul. 2023, doi: 10.1136/bmjopen-2022-071165.

[14] A. Adere and S. Tilahun, *Magnitude of late initiation of antenatal care and its associated factors among pregnant women attending antenatal care in Woldia Public Health Institution, North Wollo, Ethiopia.* 2020. doi: 10.21203/rs.3.rs-61704/v1.

[15] S. Samiah, M. H. Stanikzai, A. W. Wasiq, and H. Sayam, “Factors associated with late antenatal care initiation among pregnant women attending a comprehensive healthcare facility in Kandahar Province, Afghanistan.,” *Indian J. Public Health*, vol. 65, no. 3, pp. 298–301, 2021, doi: 10.4103/ijph.IJPH\_62\_21.

[16] M. A. Venyuy *et al.*, “Determinants to late antenatal clinic start among pregnant women: the case of Saint Elizabeth General Hospital, Shisong, Cameroon.,” *Pan Afr. Med. J.*, vol. 35, p. 112, 2020, doi: 10.11604/pamj.2020.35.112.18712.

[17] A.-A. Seidu, “A multinomial regression analysis of factors associated with antenatal care attendance among women in Papua New Guinea.,” *Public Heal. Pract. (Oxford, England)*, vol. 2, p. 100161, Nov. 2021, doi: 10.1016/j.puhip.2021.100161.

[18] A. F. Fagbamigbe, B. Mashabe, L. Lepetu, and C. Abel, “Are the timings and risk factors changing? Survival analysis of timing of first antenatal care visit among pregnant women in Nigeria (2003-2013).,” *Int. J. Womens. Health*, vol. 9, pp. 807–819, 2017, doi: 10.2147/IJWH.S138329.

[19] T. Olufemi Olayinka, I. Sebutu Bello, T. Oluwafemi Olajubu, O. Oloyede Oyegbade, A. Omobolanle Olajubu, and I. Tamunotonye Ezeoma, “Factors Influencing the Booking Gestational Age Among Antenatal Clinic Attendees at Primary Health Centers in South West, Nigeria: A Cross-Sectional Study.,” *SAGE open Nurs.*, vol. 8, p. 23779608221139080, 2022, doi: 10.1177/23779608221139078.

[20] O. K. Oyedele, A. F. Fagbamigbe, O. J. Akinyemi, and A. S. Adebowale, “Coverage-level and predictors of maternity continuum of care in Nigeria: implications for maternal, newborn and child health programming.,” *BMC Pregnancy Childbirth*, vol. 23, no. 1, p. 36, Jan. 2023, doi: 10.1186/s12884-023-05372-4.

[21] A. Edessa, N. Dida, and E. Teferi, “Early initiation of antenatal care and its associated factors among antenatal care followers at public health facilities in Ambo town administration, Central Ethiopia.,” *J. Fam. Med. Prim. care*, vol. 12, no. 1, pp. 67–75, Jan. 2023, doi: 10.4103/jfmpc.jfmpc\_725\_22.

[22] K. M. Alibhai, B. R. Ziegler, L. Meddings, E. Batung, and I. Luginaah, “Factors impacting antenatal care utilization: a systematic review of 37 fragile and conflict-affected situations.,” *Confl. Health*, vol. 16, no. 1, p. 33, Jun. 2022, doi: 10.1186/s13031-022-00459-9.

[23] S. Othman, T. Almahbashi, A. Al-abed, and A. Abdulwahed, “Factors affecting utilization of antenatal care services in Sana’a city, Yemen,” *Malaysian J. Public Heal. Med.*, vol. 17, pp. 1–14, Dec. 2017, doi: 10.37268/mjphm/vol.17/no.3/art.230.

[24] A. Ndomba, M. Ntabaye, I. Semali, T. Kabalimu, G. Ndossi, and Y. Mashalla, “Prevalence of late antenatal care booking among pregnant women attending public health facilities of Kigamboni Municipality in Dar es Salaam region, Tanzania,” *Afr. Health Sci.*, vol. 23, pp. 623–631, Jul. 2023, doi: 10.4314/ahs.v23i2.72.