

**PATTERN OF ANTENATAL CARE SERVICES UTILIZATION IN A MISSION HOSPITAL
IN OGBOMOSO SOUTH-WEST NIGERIA.**

ABSTRACT

Aim: To examine the pattern of antenatal care services (ANC) utilization in Baptist Medical Centre, Ogbomoso, a mission hospital with a focus on individual, family, religious and socio-economic factors affecting ANC utilisation.

Study Design: The study was a cross-sectional prospective study

Place and duration of the study: The study was conducted among antenatal care seekers who attended antenatal care at the Baptist Medical Centre, Ogbomoso (now Bowen University Teaching Hospital) between August 1, 2002 and May 31, 2003.

Methodology: The pretested questionnaire was used to obtain the following information: sociodemographic characteristics, family type, parity and booking gestational age in weeks. Analysis was done using SPSS 16. Proportions were determined and statistics presented in tables. Chi-square test was done to determine the association between variables

Results: A total of 442 pregnant women were recruited for the study. The age range of attendees was 13 – 48 years with a mean age of 29.2±5.3. Maternity service use was associated significantly with ANC attendance. Other factors associated with antenatal care attendance included: University educational status ($p < .001$), civil servant ($p < .001$) christianity ($p = 0.006$), residing in Ogbomoso ($p < .001$), class 1 social status ($p < .001$) and being told by doctor ($p = 0.033$).

Conclusion: The study unveiled educational status, occupation, social status, place of domicile, religion and need for maternity service use as factors positively associated with ANC utilization in the Baptist Medical Centre Ogbomoso.

Keywords- Antenatal Care Services, Utilization, Mission Hospital, Ogbomoso, Nigeria.

INTRODUCTION

Antenatal care is accepted as an important component of primary health care and is defined as every aspect of care from screening to intensive life support provided to any woman while pregnant and up to delivery (1,2). The need to supervise obstetric patients throughout pregnancy rather than only when ill or in labour cannot be over-emphasized (3). As a result of careful evaluation of the pregnant patient at frequent intervals throughout the period of gestation, abnormalities can be detected and addressed before difficulties arise (3). All too often, a woman might book for antenatal care but fail to keep follow-up appointments thereafter, when next seen by the physician, the woman might be in the throes of an eclamptic fit or suffering severe chills and high fever from malaria or pyelonephritis, or worse still, trying to expel a large but dead foetus. Appropriate antenatal care has proven to be of great value in the prevention of such catastrophes.

The adequacy of antenatal care involves both adequacy of utilization of the services and adequacy of content (4). Lack of access to antenatal care or skilled attendants at delivery are associated strongly with high maternal or fetal mortality and morbidity indices (5). At least 40% of women in developing countries receive no antenatal care during pregnancy

50 and only about 31% deliver with the assistance of a skilled attendant (5). Many women do
51 not have access to these life saving services, not only in areas where they are non- existent,
52 but even in areas where they exist because availability does not necessarily guarantee
53 utilization (6). A number of socio-economic, socio-demographic, cultural and religious
54 factors influence it positively and negatively (7).

55 These factor include limited financial means(8), husband's decision(9), lack of transport or
56 distance to a health facility, lack of satisfaction with the quality of care(10), high user
57 changes(11) affiliation with a certain religious group(6), maternal age, educational level(12)
58 and presence of morbid conditions in pregnancy.

59 It is therefore important that in any intervention strategy that aims to improve antenatal care
60 utilization, these factors are considered and incorporated into the planning processes.

61 Utilization of maternal health services is associated with improved maternal and neonatal
62 health outcomes(13). Considering global and national interests in the Sustainable
63 Development Goals and Nigeria's high level of maternal mortality, understanding the factors
64 affecting antenatal care use is crucial. Studies on the use of antenatal care services have
65 largely overlooked contextual factors. However, examining barriers and facilitating factors in
66 utilisation of antenatal care services is an important first step towards identifying appropriate
67 interventions to introduce in a study area to increase use of skilled delivery(8)

68 This study examined the pattern of antenatal care services utilization in Baptist Medical
69 Centre, Ogbomoso, a mission hospital with a focus on individual, family, religious and socio-
70 economic factors affecting ANC utilisation. It is hoped that the findings will be helpful in
71 designing appropriate reproductive health programs and services to improve both antenatal
72 and maternity care use in the hospital.

73 **Study area**

74 Ogbomoso is an ancient city in Oyo State, Southwestern Nigeria, founded in the mid 17th
75 century. It has a population of estimated at around 1,200,000 in 2005. Majority of the people
76 are of the Yoruba ethnic group who are involved in trading and farming.

77 Ogbomoso has two degree-awarding institutions of higher learning, Ladoke Akintola
78 University and the Nigerian Baptist Theological Seminary. It is predominantly a Christian
79 dominated town with several churches most of which are of the Baptist denomination. Other
80 religious groups are made up of Muslims and traditional religion adherents.

81 The town boasts of two tertiary health institutions, Bowen University Teaching Hospital and
82 Ladoke Akintola University Teaching Hospital. It has a secondary level Government State
83 Hospital, several private health facilities, primary health centres, mission delivery homes and
84 traditional birth attendant centres.

85 Ogbomoso area is made up of five local government areas (LGA) with two of these located
86 within the city itself; namely Ogbomoso North and Ogbomoso South Local Government
87 Areas.

88 **METHODOLOGY**

89 The study was a cross-sectional prospective study conducted among antenatal care
90 seekers who attended antenatal care at the Baptist Medical Centre, Ogbomoso (now Bowen
91 University Teaching Hospital) between August 1, 2002 and May 31, 2003. The hospital is a
92 200-bed mission hospital which renders primary, secondary and some tertiary health care
93 services. It is a referral centre for other hospitals in Ogbomoso and environs. The study
94 involved consecutive recruitment of pregnant women that came for antenatal care at Baptist
95 Medical Centre, Ogbomoso.

96 Inclusion criteria include pregnant women who presented with amenorrhoea and were
97 confirmed pregnant by clinical examination, pregnancy test or ultrasound. Abdominopelvic
98 ultrasonography was also used to confirm date due to disparity in gestational age (GA) and
99 uterine size.

100 The pretested questionnaire was used to obtain the following information: sociodemographic
 101 characteristics, family type whether they were from monogamous, polygamous or single
 102 parent family; place of abode whether within or outside Ogbomoso; parity whether they were
 103 nullipara, primipara, multipara or grandmultipara; religion whether Christian, moslem or
 104 traditional religion; booking gestational age in weeks, women who booked before or at the
 105 16th were regarded as early bookers, others were late bookers; reason for booking; number
 106 of antenatal care visits whether <4 or > or = 4 was extracted from the antenatal records of
 107 the women. Those who made fewer than 4 visits were regarded as poor attenders while
 108 those who made 4 or more visits were regarded as good attenders; and maternity care use
 109 by each attendee was determined. The standard occupational classification system
 110 designed by the Office of population Census and Surveys, London (OPCS 1991)(14) and
 111 modified for Nigeria(15, 16) was used to classify respondents into socio-economic classes
 112 1 to 3 as follows: Class 1 = Skilled worker e.g. professionals and managerial officers and
 113 retirees of this cadre; Class 2 = Unskilled workers e.g. Artisans and traders; Class 3 =
 114 Dependants. e.g. Retirees of class 2, those not on pensions, house wives of class 2 cadre,
 115 students.

116 Analysis was done using SPSS 16. Proportions were determined and statistics presented in
 117 tables. Chi-square test was done to determine the association between variables and a p-
 118 value of < 0.05 was set as the level of statistical significance

119 RESULTS

120 A total of 442 pregnant women were recruited for the study. Of these, only 262 (59.3%)
 121 made use of maternity services. The mean age of attendees was 29.2 ± 5.3. The age range
 122 of attendees was 13 – 48 years; with majority (359, 81.2%) falling within the age range 20 –
 123 34 years. Only 11(2.5%) of the women were adolescents.

124 An inverse proportion between parity and number of attendees was displayed in a steep
 125 decline from nulliparity to parity of 5 and above. Primipara constituted the highest frequency,
 126 130(29.4%) of the attendees.

127 An overwhelming majority of the pregnant women, 363(82.1%) were of monogamous family
 128 type. Of the attendees, 419(94.7%) had formal education with the highest percentage
 129 (34.4%) being secondary school leavers.

130 Traders followed by civil servants formed the highest number of attendees 187(42.3%) and
 131 121(27.4%) respectively. A large proportion of the attendees were Christians 357(80.8%),
 132 eighty five (19.2%) were Muslim and there were no traditional religion adherents. Most of the
 133 attendees 331(74.9%) were domiciled within Ogbomoso town, however, 111(25.1%)
 134 attended from outside the town. The results revealed that 394(89.1%) of the attendees
 135 booked late for antenatal care while only 48(10.9%) were early bookers. The commonest
 136 reason given by attendees for booking at the time they did was “just right to book.”
 137 352(79.6%). Other reasons were: “had booked elsewhere but desires to continue ANC here”,
 138 27(6.1%); “advised by a doctor to book,” 23(5.2%).

139 Tabulation of social class indicated that 431(97.5%) of the attendees belonged to social
 140 classes 1 and 2.

141 Almost half of the attendees 210(47.5%) had good attendance though most of them 292
 142 (66.1%) booked in the second trimester. A very small number 32(7.2%) booked in the first
 143 trimester. Of the 442 ANC attendees, 262(59.3%) made use of the hospital’s maternity
 144 services while 180(40.7%) delivered elsewhere with unknown pregnancy outcome. (Table 1)

145 **Table 1: Sociodemographic Characteristics**

VARIABLES	FREQUENCY (%)
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Age group

<20	11 (2.5)
20 – 34	359 (81.2)
≥35	72 (16.3)

Mean Age = 29.18 ± 5.31**Educational Status**

No Formal Education	23(5.0)
Primary	87(19.7)
Secondary	157(34.4)
Post Secondary lower than university	112(25.3)
University	68(15.4)

Marital Status

Single	19(2.3)
Married	432(97.7)

Domicile

Ogbomoso	331(74.9)
Outside Ogbomoso	111(25.1)

Family Type

Monogamous	363(82.1)
Polygamous	69(15.6)
Single Parent	10(2.3)

Religion

Christianity	357(80.8)
Islam	85(19.2)

Occupation

Artisan	55(12.4)
Trading	187(42.3)
Civil servant	121(27.4)
Student	30(6.8)
Farming	24(5.4)
Unemployed	25(5.7)

Booking Gestational Age

1 st Trimester	32(7.2)
2 nd Trimester	292(66.1)
3 rd Trimester	118(26.7)

Social Class

Class 1	186(42.1)
Class 2	245(55.4)
Class 3	11(2.5)

ANC Attendance Status

Good Attendance	210(47.5)
Poor Attendance	232(52.5)

Booking Status

Early bookers	48(10.9)
Late bookers	394(89.1)

Maternity Use

Delivered in BMC	262(59.3)
Delivered Outside	180(40.7)

Parity

0	130(29.4)
1	101(22.9)
2	87(19.7)
3	69(15.6)
4	36(8.1)
5	13(2.9)
6	6(1.4)
Reasons for booking	
Told by doctor	23 (5.2)
Told by husband	12(2.7)
Told by others	20(4.5)
To continue ANC	27(6.1)
No money until now	8(1.8)
Just right to book	352(79.6)

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The attendees who had university education had the highest proportion of attendees (73, 65.2%) who had good ANC attendance while the attendees with no formal education had the highest proportion of attendees (20, 87.0%) who had poor ANC attendance ($p < .001$). The attendees who were Christians had the highest proportion of attendees (181, 50.7%) who had good ANC attendance while the Muslims (56, 65.9%) had poor ANC attendance ($p=0.006$). Civil servants had the highest proportion of subjects (84, 69.4%) who had good ANC attendance while farmers had the highest proportion of subjects (20, 83.3%) with poor ANC attendance. Attendees from Ogbomoso had highest proportion of attendees (175, 52.9%) who had good ANC attendance while attendees from outside ogbomoso had highest proportion of subject (76, 68.5%) who had poor attendance ($p < .001$). The attendees who belonged to social class 1 had the highest proportion of attendees (117, 62.9%) who had good ANC attendance while those who belonged to social class 2 (158, 64.5%) had poor ANC attendance. The association between the marital status, family type, parity, age group, booking gestational age and ANC attendance were not statistically significant. (Table 2)

Table 2: Association between sociodemographic characteristics and ANC attendance

VARIABLES value	ANC ATTENDANCE		p- value
	Poor Attendance N(%)	Good Attendance N(%)	
Marital Status			
Single	4(40.0)	6(60.0)	0.640
Married	228(52.8)	204(47.2)	
Educational Status			
No Formal Education	20(87.0)	3(13.0)	< .001
Primary	56(64.4)	31(35.6)	
Secondary		94(61.8)	
Post Secondary lower than university	39(34.8)	73(65.2)	

University	23(33.8)	45(66.2)	
Family Type			
Monogamous	177(48.8)	186(51.2)	
Polygamous		51(73.9)	18(26.1)
0.66			
Single Parent	4(40.0)	6(60.0)	
Religion			
Christianity		176(49.3)	181(50.7)
0.006			
Islam	56(65.9)	29(34.1)	
Occupation			
Artisan	30(54.5)	25(45.5)	
Trading	120(64.2)	67(35.8)	
Civil servant	37(30.6)	84(69.4)	0.03
Student	13(43.3)	17(56.7)	
Farming	20(83.3)	4(16.7)	
Unemployed	12(48.0)	13(52.0)	
Parity			
Nullipara	67(51.5)	63(48.5)	
Primipara		47(46.5)	54(53.5)
0.40			
Multipara	106(55.2)	86(44.8)	
Grandmultip	12(63.2)	7(36.8)	
Age group			
≤20	7(63.6)	4(36.4)	
20 – 34		192(53.5)	167(46.5)
0.374			
≥ 31	33(45.8)	39(54.2)	
Domicile			
Ogbomoso		156(47.1)	175(52.9)
< .001			
Outside Ogbomoso	76(68.5)	35(31.5)	
Booking Status			
Early bookers	24(50.0)	24(50.0)	0.175
Late bookers	208(52.8)	186(47.2)	
Social Class			
Class 1	69(37.1)	117(62.9)	
Class 2	158(64.5)	87(35.5)	< .001
Class 3	5(45.5)	6(54.5)	
Booking Gestational Age			
1 st Trimester	15(46.9)	17(53.1)	
2 nd Trimester	144(49.3)	148(50.7)	0.057
3 rd Trimester	73(61.9)	45(38.1)	
Reasons for booking			
Told by doctor	11(47.8)	12(52.2)	
Told by husband	9(69.2)	4(30.8)	
Told by others	11(55.0)	9(45.0)	0.05
To continue ANC	20(74.1)	7(25.9)	
No money until now	6(85.7)	1(14.3)	
Just right to book	175(49.7)	177(50.3)	

Maternity Use			
Delivered in BMC	52(19.8)	210(80.2)	< .001
Delivered outside	180(100.0)	0(0.0)	

It was also noted that marital status, educational status, family type, religion, occupation, parity, age group, domicile, social class and maternity use did not have any statistically significant association with booking pattern of the subjects. (Table 3)

Table 3: Association between sociodemographic characteristics and booking pattern

VARIABLES	BOOKING PATTERN		p-value
	Early Bookers N(%)	Late Bookers N(%)	
Marital Status			
Single	1(10.0)	9(90.0)	0.930
Married	47(10.9)	385(89.1)	
Educational Status			
No Formal Education	1(4.3)	22(95.7)	0.384
Primary	9(10.3)	78(89.7)	
Secondary	13(8.6)	139(9.4)	
Post Secondary lower than university	14(12.5)	98(87.5)	
University	11(16.2)	57(83.8)	
Family Type			
Monogamous	40(11.0)	323(89.0)	62(89.9)
Polygamous		7(10.1)	
Religion			
Christianity		40(11.2)	317(88.8)
Occupation			
Artisan	4(7.3)	51(92.7)	106(87.6)
Trading	20(10.7)	167(89.3)	
Civil servant		15(12.4)	
Parity			
Nullipara	17(13.1)	113(86.9)	89(88.1)
Primipara		12(11.9)	
Age group			
≤20	2(18.2)	9(81.8)	319(88.9)
20 – 34		40(11.1)	

0.374			
≥ 31	6(8.3)	66(91.7)	
Domicile			
Ogbomoso	34(10.3)	297(89.7)	0.493
Outside Ogbomoso	14(12.6)	97(87.4)	
Social Class			
Class 1	20(10.8)	166(89.2)	
Class 2	27(11.0)	218(89.0)	0.44
Class 3	1(9.1)	10(2.3)	
Booking Gestational Age			
1 st Trimester	32(100.0)	0(0.0)	
2 nd Trimester	16(5.5)	276(94.5)	< .001
3 rd Trimester	0(0.0)	118(100.0)	
Reasons for booking			
Told by doctor	6(26.1)	17(73.9)	
Told by husband	0(0.0)	13(100.0)	
Told by others	4(20.0)	16(80.0)	0.032
To continue ANC	0(0.0)	27(100.0)	
No money until now	1(14.3)	6(85.7)	
Just right to book	37(10.5)	315(89.5)	
Maternity Use			
Delivered in BMC	24(9.2)	238(90.8)	0.166
Delivered outside	24(13.3)	156(86.7)	

173 DISCUSSION

174 Antenatal care finds justification in the opportunity it affords in ensuring good maternal and
 175 fetal outcome of pregnancy (2). Women at risk of pregnancy-related complications are in
 176 need of both early recognition and continuing attention throughout the period of pregnancy.
 177 Thus factors related to antenatal care attendance status whether poor or good and time of
 178 initiation of antenatal care whether early or late need close scrutiny.

179
 180 The mean age of ANC attendees was 29.2±5.3 years and most of the women fell within the
 181 acceptable age range of 20 – 34 years. The low proportion of women in both extremes of
 182 reproductive life in this study is significant because of the high risk features associated with
 183 these groups. A previous study observed similar findings (17). There was no significant
 184 relationship between attendance status and maternal age.

185
 186 Information on parity showed that the women who came to book were predominantly
 187 nulliparous. This is similar to previous findings (18-20). The relatively high frequency of the
 188 nulliparous 130 (29.4%) possibly reflects the importance accorded first pregnancies in this
 189 community. Such women are told to book early and are actually accompanied to the hospital
 190 by an older female. Subsequent pregnancies usually attract less attention. However, there
 191 was no significant association between attendance status or time of initiation of antenatal
 192 care with parity.

193 The married constituted 97.7% of the population and most them, 82.2% were in
 194 monogamous relationship. The observed trend could suggest that monogamy affords a
 195 woman more attention, care and security compared to polygamy.

196 Educational status of attendees is a factor observed to influence attendance significantly.
 197 Several studies (21-25) reported a positive relationship between degree of utilization of
 198 antenatal care and maternal education. This highlights the fact that female education is very

199 important in reproductive healthcare. Women with minimal or no formal education are still
200 within the grip of harmful cultural practices and beliefs. These in turn exert a strong influence
201 on a woman's perception of pregnancy and its care.

202 There was a statistical relationship between attendance and occupation. The largest
203 proportion of attendees was traders 187(42.3%). This may not be unconnected with the fact
204 that trading is one of the commonest occupations in the study area being a semi-urban
205 locality. Also, trading may allow a woman take time off work and also afford financial support
206 for payment of needed services.

207 In the same vein, the social class of attendees was significantly related to their attendance
208 status. Rowe et al reported similar findings(26). The lower the socio-economic level, the
209 more likely a woman is to receive inadequate antenatal care. With an increasing cost of
210 healthcare and rate of unemployment, the future looks bleak for the low social class
211 individuals. Thus, this makes a case for expansion of the National Health Insurance Scheme
212 to cover the informal sector at the grassroot.

213 Religion was also found to be a significant factor guiding utilization of antenatal care in this
214 study. Dairo et al in Ibadan reported, however, that belonging to certain religions group
215 proved to be the strongest explanatory factor for not attending ANC facility(6).The finding in
216 this present study, however, may be due to the fact that religious bodies and organizations
217 could be a strong factor in mobilizing and sensitizing their members on the usefulness of
218 orthodox healthcare services. It is also interesting that there were no traditional religion
219 adherents in the study group. Furthermore, though the hospital is a Christian institution,
220 Muslim pregnant women, 85 (19.1%) also utilized its services.

221 The place of domicile of the pregnant women was also statistically related to their
222 attendance status. Distance from health facility could be a factor limiting its utilization as
223 shown by Mwaniki(10) in his study in Kenya. Most of the attendees in the present study, 333
224 (75%) lived within Ogbomoso and this may have been responsible for the good attendance.

225 Considering the relationship between the reason for the commencement of antenatal care
226 and attendance status, it was shown that having a reason for booking was not statistically
227 related to attendance status. It is worth observing that majority of the women, 352 (79.6%)
228 Just felt it was the right time to book. This indicates a large gap in health education given to
229 women on antenatal care. Women could introduce wrong judgment in determining the right
230 time to book. In Gharoro's study in Benin, Nigeria(9), 41.5% of the patients came when they
231 felt it was the right time to book.

232 Maternity care use was found to be significantly related to attendance status. Some of the
233 women actually came to book in order to access maternity service in the hospital. An
234 examination of the distribution of maternity care use by attendees showed that 40.7%
235 defaulted. The remaining 59.3% made use of the maternity services in the hospital and had
236 known pregnancy outcomes. Etuk in Calabar found a close default rate of 43.5% (27).
237 Although the present study did not investigate the place of delivery of women who defaulted,
238 the possible places may include personal homes, mission houses, traditional birth attendant
239 homes or some other hospitals.

240 The maternal and perinatal outcomes of pregnancies that are booked for antenatal care but
241 delivered under the supervision of untrained attendants have been found to be significantly
242 worse than those delivered in orthodox health facilities(27).

243 The study revealed that age of attendees, parity and marital status did not have any
244 significant relationship with attendance status and time of initiation of antenatal care. Non-
245 randomization of the subjects and the hospital-based nature of the study placed limitations
246 on the results.

247 **CONCLUSION**

248 This study has unveiled educational status, occupation, social status, place of domicile,
249 religion and need for maternity service use as factors associated with ANC utilization in the
250 Baptist Medical Centre Ogbomoso. There is a need to improve maternity service utilization
251 by improving early and adequate uptake of antenatal care services through provision of
252 appropriate information in the community on antenatal care and its benefits. Furthermore,
253 with the increasing cost of healthcare and rise in unemployment rate, the future is bleak for
254 the low social class antenatal care seekers. There is thus, a need for expansion in the
255 coverage of National Health Insurance Scheme to Ogbomoso community level. Effective
256 interventions to improve ANC utilization will in turn influence maternity care use. This will
257 eventually lead to a reduction in the high maternal and child health indices characteristic of
258 developing nations.

259

260 **CONFLICT OF INTEREST**

261 There was no conflict of interest

262

263 **CONSENT**

264 We declare that 'written informed consent was obtained from the patients for publication of
265 this study. A copy of the written consent is available for review by the Editorial office/Chief
266 Editor/Editorial Board members of this journal.

267

268 **ETHICAL APPROVAL**

269 We hereby declare that the study has been examined and approved by the appropriate
270 ethics committee and have therefore been performed in accordance with the ethical
271 standards laid down in the 1964 Declaration of Helsinki.

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273 **REFERENCES**

274 1. Bruun Nielsen B, Hedegaard M, Haraksingh Thilsted S, Joseph A, Liljestrand J. Does
275 antenatal care influence postpartum health behaviour? Evidence from a community based
276 crosssectional study in rural Tamil Nadu, South India. *BJOG: An International Journal of*
277 *Obstetrics & Gynaecology*. 1998;105(7):697-703.

278 2. Carroli G, Rooney C, Villar J. How effective is antenatal care in preventing maternal
279 mortality and serious morbidity? An overview of the evidence. *Paediatric and perinatal*
280 *Epidemiology*. 2001;15(s1):1-42.

281 3. Ekabua J, Ekabua K, Njoku C. Proposed framework for making focused antenatal
282 care services accessible: a review of the Nigerian setting. *ISRN obstetrics and gynecology*.
283 2011;2011.

284 4. Nigenda G, Langer A, Kuchaisit C, Romero M, Rojas G, Al-Osimy M, et al. Womens'
285 opinions on antenatal care in developing countries: results of a study in Cuba, Thailand,
286 Saudi Arabia and Argentina. *BMC Public health*. 2003;3(1):17.

287 5. Munjanja SP, Lindmark G, Nyström L. Randomised controlled trial of a reduced-visits
288 programme of antenatal care in Harare, Zimbabwe. *The Lancet*. 1996;348(9024):364-9.

289 6. Dairo M, Owoyokun K. Factors affecting the utilization of antenatal care services in
290 Ibadan, Nigeria. *Benin Journal of Postgraduate Medicine*. 2010;12(1).

291 7. Tshimanga M, Makunike B, Wellington M. Does time of initiation of antenatal care
292 influence content and adequacy of antenatal care or foetal outcome in low obstetric risk
293 women in harare, zimbabwe? *Central african journal of medicine*. 1998;44(3):55-60.

294 8. Simkhada B, Teijlingen ERv, Porter M, Simkhada P. Factors affecting the utilization
295 of antenatal care in developing countries: systematic review of the literature. *Journal of*
296 *advanced nursing*. 2008;61(3):244-60.

- 297 9. Gharoro EP, Igbafe A. Antenatal care: some characteristics of the booking visit in a
298 major teaching hospital in the developing world. *Medical Science Monitor*. 2000;6(3):519-22.
- 299 10. Mwaniki P, Kabiru E, Mbugua G. Utilisation of antenatal and maternity services by
300 mothers seeking child welfare services in Mbeere District, Eastern Province, Kenya. *East
301 African Medical Journal*. 2002;79(4):184-7.
- 302 11. Högberg U, Larsson N. User charges for antenatal care and ultrasound-an
303 unwillingness to pay. *Acta obstetrica et gynecologica Scandinavica*. 1999;78(5):398-402.
- 304 12. Babalola S, Fatusi A. Determinants of use of maternal health services in Nigeria-
305 looking beyond individual and household factors. *BMC Pregnancy and childbirth*.
306 2009;9(1):43.
- 307 13. Brown CA, Sohani SB, Khan K, Lilford R, Mukhwana W. Antenatal care and perinatal
308 outcomes in Kwale district, Kenya. *BMC pregnancy and childbirth*. 2008;8(1):2.
- 309 14. The Office for National Statistics. Standard occupational classification 2010, Vol. 3:
310 the national statistics socio-economic classification. Hampshire, UK: Palgrave Macmillan;
311 2010.
- 312 15. Akinboboye BO, Shaba OP, Akeredolu PA, Oderinu OH. Sociodemographic
313 determinants of usage of complete dentures in a Nigerian teaching hospital: A pilot study.
314 *European Journal of Prosthodontics*. 2013;1(2):37.
- 315 16. Ibiyemi O, Taiwo JO. Some socio-demographic attributes as covariates in tooth wear
316 among males in a rural community in Nigeria. *Ethiopian journal of health sciences*.
317 2012;22(3).
- 318 17. Raatikainen K, Heiskanen N, Heinonen S. Under-attending free antenatal care is
319 associated with adverse pregnancy outcomes. *BMC public health*. 2007;7(1):268.
- 320 18. Okunlola M, Ayinde O, Owonikoko K, Omigbodun A. Factors influencing gestational
321 age at antenatal booking at the University College Hospital, Ibadan, Nigeria. *Journal of
322 Obstetrics & Gynecology*. 2006;26(3):195-7.
- 323 19. Kupek E, Petrou S, Vause S, Maresh M. Clinical, provider and sociodemographic
324 predictors of late initiation of antenatal care in England and Wales. *BJOG: An International
325 Journal of Obstetrics & Gynaecology*. 2002;109(3):265-73.
- 326 20. Alderliesten M, Vrijkotte T, Van Der Wal M, Bonsel G. Late start of antenatal care
327 among ethnic minorities in a large cohort of pregnant women. *BJOG: An International
328 Journal of Obstetrics & Gynaecology*. 2007;114(10):1232-9.
- 329 21. Kabir M, Ilyyasu Z, Abubakar I, Sani A. Determinants of utilization of antenatal care
330 services in Kumbotso village, Northern Nigeria. *Tropical doctor*. 2005;35(2):110-.
- 331 22. Furuta M, Salway S. Women's position within the household as a determinant of
332 maternal health care use in Nepal. *International family planning perspectives*. 2006:17-27.
- 333 23. Navaneetham K, Dharmalingam A. Utilization of maternal health care services in
334 Southern India. *Social science & medicine*. 2002;55(10):1849-69.
- 335 24. Matsumura M, Gubhaju B. Women's Status, Household Structure and the Utilization
336 of Maternal Health Services in Nepal: Even primary-level education can significantly
337 increase the chances of a woman using maternal health care from a modern health facility.
338 *Asia-Pacific Population Journal*. 2001;16(1):23-44.
- 339 25. Magadi MA, Madise NJ, Rodrigues RN. Frequency and timing of antenatal care in
340 Kenya: explaining the variations between women of different communities. *Social science &
341 medicine*. 2000;51(4):551-61.
- 342 26. Rowe RE, Garcia J. Social class, ethnicity and attendance for antenatal care in the
343 United Kingdom: a systematic review. *Journal of Public Health*. 2003;25(2):113-9.
- 344 27. Etuk SJ, Ekanem AD. Socio-demographic and reproductive characteristics of women
345 who default from orthodox obstetric care in Calabar, Nigeria. *International Journal of
346 Gynecology & Obstetrics*. 2001;73(1):57-60.

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