

Pattern and Determinants of Antenatal Booking at Abakaliki Southeast Nigeria

Dear Editor,

We would like to appreciate the study titled “Pattern and determinants of antenatal booking at Abakaliki Southeast Nigeria” by Onoh *et al.*^[1] and mention that it was informative. While reading the article, we came through certain doubts in the results part of the study.

As per the results, 344 was the total number of respondents in the study; but in Table 1, the total number of respondents for “Religion religion” and “parity” were given as 343 and 402, respectively, which is not as per the total number of respondents. In page no. 171, the 3rd paragraph of the results section mentioned 92.9% were married (13/14), but in Table 1 the percentage mentioned for marital status was 91.9% (316/344).

It is concluded that the socio-demographic factors did not influence the antenatal booking pattern which was analyzed using Chi-square test. This conclusion cannot be drawn with Chi-square test, as in most of the cells the expected value was less than 5.

According to Table 2, the analysis for “events of previous pregnancy and its influences on the booking pattern” was done for 233 respondents. But “chronic illness diagnosed in previous pregnancy” included 344 respondents in total. It is not clear whether this part is done for all the respondents or only to those participants with an event of previous pregnancy. It is also given that the influence of counseling in previous pregnancy on the booking pattern had a *P*-value of -0.601 . This may be wrong as the probability value lies between 0 and 1.

In page no. 172, the 6th paragraph briefing about the complications such as preterm delivery, difficult labor, cesarean section, fetal deaths, and miscarriage in the previous pregnancies (1/2, 2/5, 6/21, 2/8, and 1/12) did not have impact on the booking pattern (*P*-value 0.587); this conclusion cannot be derived using Chi-square test, without having sufficient cell value.

The study concluded by stating that misconception and financial constraints were the significant promoters of late antenatal booking. First of all, the study has not defined the term “misconception.” Secondly, in the text or in the table,

the data regarding misconception are not shown. Regarding financial constraint, the authors cannot conclude this as a significant promoter for two reasons: one reason is that one of the cell values is zero (early booking = 0 and late booking = 19) and the other is that among the total participants, only 5.5% have financial constraints, which cannot be considered as one of the important factors.

Though the study has successfully met one of the objectives, i.e. identifying booking patterns, the second objective of finding determinants could not be achieved since the statistical tool (Chi-square) used was inappropriate. Chi-square used in Tables 1, 2 and 4 misleads the study conclusion and other future research. We would like to point out that this kind of incorrect use of statistical methods leads to fallacious conclusion than providing benefits.

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1. Onoh R, Umeora O, Agwu U, Ezegwui H, Ezeonu P, Onyebuchi A. Pattern and determinants of Antenatal Booking at Abakaliki Southeast Nigeria. *Ann Med Health Sci Res* 2012;2:169-75.

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402 will be 344, if para³⁵ is corrected from 78 (5.8), 2 (15.2), and 17 (85) to the actual values of 20 (5.8), 3 (15), and 17 (85) for the total, early, and late booking, respectively. In page no. 171, the correct value for marital status is 91.9% (316/344) which should replace 92.9 (13/14). In line 13–15, Chi-square could still be used for such conclusions if the value taken is the likelihood-ratio Chi-square with Yate's correction using Williams' criterion when any of the cell values is less than

5. This was done in this study. In line 16–22, Table 2, which showed, "Events of previous pregnancy and its influences on the booking pattern" which was done for 233 respondents? Chronic illness should be for 233, but was wrongly generated by the Epi-info during analysis. So, 327 (95.1%), 54 (16.5), and 273 (83.5%) should be replaced by 216 (92.7), 35 (16.2), and 181 (83.8) for total, early, and late booking, respectively. Also, the total for those who had previous chronic illness

Table 1: Socio demographic characteristic and booking pattern

Variables	n=344 %=(100)	Early	Late	χ^2 P value
Age (years)				
<19	14 (4.1)	1 (7.1)	13 (92.9)	5.88(0.317)
20 – 24	60 (17.4)	15 (25.0)	45 (75.0)	
25 – 29	140 (40.7)	19 (13.6)	121 (86.4)	
30 – 34	94 (27.3)	18 (19.2)	76 (80.8)	
35 – 39	33 (9.6)	5 (33.3)	28 (84.8)	
> 40	3 (0.9)	0 (66.7)	3 (100)	
Marital status				
Engaged	13 (3.8)	5 (38.5)	8 (61.5)	5.053 (0.282)
Not married	12 (3.59)	2 (16.7)	10 (83.3)	
Widowed	2 (0.6)	0 (0)	2 (100)	
Separated	1 (0.3)	0 (0)	1 (100)	
Married	316 (91.9)	51 (16.1)	265 (83.9)	
Family setting				
Monogamy	311 (90.4)	51 (16.4)	260 (83.6)	0.352 (0.553)
Polygamy	18 (5.2)	2 (11.1)	16 (88.9)	
N/A	15 (4.4)	5 (33.3)	10 (66.7)	
Religion				
Moslem	4 (1.2)	2 (50)	2 (50)	6.649 (0.355)
Pentecostal	130 (37.5)	20 (15.4)	110 (84.6)	
Protestants	41 (11.9)	4 (9.8)	37 (90.2)	
Roman catholic	164 (47.7)	32 (19.5)	132 (80.5)	
Traditional	1 (0.3)	0 (0)	1 (80.5)	
Pagans	1 (0.3)	0 (0)	1 (100)	
Jehovah witness	3 (0.99)	0 (0)	3 (100)	
Educational status				
No. formal education	5 (1.5)	0 (0)	5 (100)	2.158 (0.540)
Primary	29 (8.4)	7 (24.1)	22 (75.9)	
Secondary	148 (43.0)	24 (16.2)	124 (83.8)	
Tertiary	162 (47.1)	27 (16.7)	135 (83.3)	
Socio-economic status of women				
House wife	38 (11.1)	4 (12.5)	34 (87.5)	10.500 (0.486)
Farmer	10 (2.9)	1 (10)	9 (90)	
Petty trader	30 (8.8)	6 (20)	24 (80)	
Seamstress	12 (8.5)	0 (0)	12 (100)	
Artisan/fashion/ design	10 (2.9)	3 (30)	7 (70)	
Civil servant	112 (32.7)	24 (21.4)	88 (78.6)	
Professional	8 (2.3)	1 (12.5)	7 (87.5)	
Business woman	49 (14.3)	9 (18.4)	40 (81.6)	
Pastor	2 (2.6)	1 (50)	1 (50)	
Student	67 (19.6)	9 (13.4)	58 (86.6)	
Corpers	4 (1.2)	0 (0)	4 (100)	
Politicians	2 (0.6)	0 (0)	2 (100)	
Parity				
0	111 (32.3)	19 (17.1)	92 (82.9)	5.197 (0.392)
1	79 (23.0)	19 (24.1)	60 (75.9)	
2	60 (17.4)	09 (15.0)	51 (85)	
3	41 (11.9)	05 (12.2)	36 (87.8)	
4	33 (9.6)	03 (9.1)	30 (90.9)	
≥5	20 (5.8)	03 (15.0)	17 (85.0)	

Table 2: Events of previous pregnancy and its influences on booking pattern

Variables	Total	Early	Late	χ^2 (P value)
Complication in previous pregnancy				
Yes	60 (25.9)	12 (20)	4.8 (80)	0.617
No	173 (74.1)	27 (15.6)	14.6 (84.4)	(0.432)
Complication in Previous was reason for booking now				
Yes	33 (55)	7 (21.2)	26 (78.8)	0.067
No	27 (45)	5 (18.5)	22 (81.5)	(0.795)
Counseling on early booking in previous pregnancy				
Yes	159 (68.2)	28 (17.6)	131 (82.4)	0.273
No	74 (31.8)	11 (14.9)	63 (85.1)	(0.601)
Booking status in previous pregnancy				
Booked	228 (62.3)	38 (16.7)	190 (83.3)	0.996
Un-booked	5 (1.5)	0 (0)	5 (100)	(0.318)
Chronic illness diagnosed in previous pregnancy				
Yes	17 (7.3)	4 (23.5)	13 (76.5)	0.195
No	216 (92.7)	35 (16.2)	181 (83.8)	(0.659)

should be 17 (7.3%) instead of 17 (4.9). The Chi-square and *P*-value should read as 0.195 and 0.659, respectively, instead of 0.567 (0.451). The *P*-value for influence on counseling in previous pregnancy on booking should be 0.601 instead of -0.601. It was a typographical error. In line 23–27, with reference to Chi-square testing in cell values less than 5, Chi-square could still be used for such conclusions if the value taken is the likelihood-ratio Chi-square with Yate's correction using Williams' criterion when any of the cell values is less than 5.^[1-4] This was done in this study.

The conclusion about misconception was derived from Tables 3 to 5. In table 3 the respondents suggested that the ideal gestational date for antenatal booking was in second trimester [128 (37.2%)] and third trimester [33 (9.6%)]. Table 4 also shows misconception in the row for ideal period for booking, where 29 (85.3) respondents felt that the ideal period is not in the first trimester. This is also shown in Table 5. The reasons given for not supporting early antenatal booking were that nothing is done by the doctor, pregnancy is still too early, makes one reveal her pregnancy too early, and makes one visit too frequently. These are all misconceptions. Regarding the financial constraints, it was statistically significant in the analysis, and Chi-square could still be used for such conclusions if the value taken is the likelihood-ratio Chi-square with Yate's correction using Williams' criterion when any of the cell values is less than 5. Finally, even though Fischer's exact test could be used in place of Chi-square when any cell value is less than 5,

the use of likelihood Chi-square with Yate's correction using Williams' criterion takes care of the error margin.

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