



Pregnancy Outcomes in Women of Advanced Maternal Age: A Retrospective Cohort Study from Imo State University Teaching Hospital, Orlu

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Original Research Article

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ABSTRACT

The study dealt on pregnancy outcomes in women of advanced maternal age in Imo State University Teaching Hospital Orlu, Imo state. The study adopted a descriptive survey research design. The researchers developed three research questions with one formulated hypothesis to guide the study. From a target population of 520, a sample of 200 respondents formed the representative sample for the study and this sample was obtained using a simple random sampling technique. However, a well developed four point Likert scale structured questionnaire was validated by experts in measurement and evaluation and the supervisor who is also a research method expert. The records collected from the hospital was used to answer research question one, while the data collected from the questionnaire was analyzed using the mean score statistic, and the Pearson Product moment correlation method was employed to answer the null hypothesis. Results obtained from the analysis revealed that advanced maternal age pregnancy is one that concerns women of age 35 years and above, that many women postpone child bearing to pursue higher educational and other goals and hence become advanced in age by the time they get married and fecundity decreases at that advanced age of 40 years, and so on. Some recommendations were

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proffered, some of which are: women are advised to engaged in early childbearing at least from the age of 20 through 30 years to run away from fecundity decrease; as caesarean section is too costly, many young ladies should try to carry out early childbirth and later pursue their higher and professional careers; advanced age women who have stopped child bearing should be well informed through community programs of the dangers of mistaken pregnancies at advanced age and train them on the importance of using contraceptives.

Keywords: Pregnancy outcomes; women; advanced maternal age.

1. INTRODUCTION

Maternal reproductive age has been put at between 15-45 years but 20-35 years is regarded as the safest in the age group of childbearing. This means that pregnancy or child birth below or above the age bracket may have an adverse effect on the mother, the pregnancy delivery or the child [1].

Pregnancy though a physiologic process also comes with its complications. This has been found to be related to factors associated with the mother and fetus. Many women increasingly delay pregnancy and childbirth into their fourth decade of life because of different reasons, such as delay in marriage, educational and professional reasons. Some of them experience pregnancy unwillingly because of inappropriate use of contraceptive methods [2].

Age as a factor with other factors corrected for, can influence obstetric performance of women. Women at extremes of reproductive life have increased fetomaternal risks, hence pregnancies in these women are considered high risk [3].

Advanced maternal age has been regarded as a risk factor for complications in pregnancy. The association between advanced maternal age and increased risk of chromosomal abnormalities and spontaneous abortion has been well documented in studies [2].

Pregnancy is usually a happy time for women and their families. But for some women, pregnancy ends unhappily. Some women lose their baby during pregnancy (Spontaneous abortion or miscarriage) or during late pregnancy (Still birth). Others have their baby earlier than expected (Preterm birth) or have a baby with low birth weight. The burden of adverse pregnancy outcomes (Low birth weight, preterm birth, still birth and spontaneous abortion) is substantial across the world but is particularly high in resource limited settings. More than 60% of all preterm births take place in Asia and Sub-Saharan African and in India alone nearly 13

million babies (47% of all births) had a low birth weight in 2010. Many risk factors for adverse pregnancy outcomes have been identified, including infection, diabetes, poor antenatal care and other socio-economic factors, but a clear causal mechanism for adverse pregnancy outcomes has not been established [4].

The aim of the study was to identify the pregnancy outcomes in women of advanced maternal age in Imo State University Teaching Hospital, Orlu (IMSUTH) from January, 2018 to December, 2020.

2. RESEARCH METHODOLOGY

2.1 Design of the Study

The study design used by the researcher is the descriptive survey research design and aimed at describing the pregnancy outcomes in women of advanced maternal age in IMSUTH, Orlu L.G.A Imo State.

2.2 Setting of the Study

The setting of this study is the Imo state Teaching Hospital, Orlu.

2.3 Target Population

The population of the study is restricted to women aged 35 years and above with registered birth in IMSUTH, Orlu L.G.A. Imo State between 2018-2020. The target population was 520 patients.

2.4 Sample Size

Sample size is 200 clients of the total number of women of advanced maternal aged 35 and above that registered in IMSUTH Orlu L.G.A. Imo State between January, 2018 to December 2020.

2.5 Sampling Technique

Simple random sampling technique was used to sample respondents from the target population.

Simple random technique gives everybody equal chance of being included in the study of sample. Data was picked at random.

2.6 Instrument for Data Collection

The data for the study was collected from past obstetrical records in consideration of age of women under study. The records collected from the records section and the questionnaire were the instruments for data collection.

2.7 Validity of Study

Validity is the ability of an instrument to measure what it is supposed to measure. The data collected from the hospital records was validated by the nurse in charge and reviewed by the researcher’s supervisor. Moreover the supervisor who is an expert in research and two other experts in measurements and evaluation further validated the other instrument used to answer the other two research questions.

2.8 Methods of Data Collection

A letter of identification from Head of Department of Nursing Science and was presented to Imo State Teaching Hospital, Orlu for permission to carry on with the research. Data records were collected direct by the researcher from the institution plus other persons in the institution who responded to the questionnaire. An approval was received which aided the commencement of the research.

2.9 Method of Analysis

The data collected in this study were arranged, analyzed in frequency table and percentages for the record of research question one and mean score statistics for the other research questions. The hypothesis was answered using Correlational analysis method of Pearson product moment correlation method.

3. RESULTS

Table 1. Distribution of the respondents by age

Age (years)	Frequently
18-25	21
25-32	69
32-39	47
39-46	38
46 and above	25
Total	200

This histogram chart1 shows respondents distribution by age. Those who are between 18-25 were 21 in number, between 25-32 were 69 in number, those between 32-39 were 47 in number, between 39-46 were 38 in number and those 46 years and above were 25 in number. This implies that respondents who are between 25-32 and between 32-39 formed the actual population for the study.

Table 2. Distribution of respondents by occupation

Occupation	Frequently
House wife	17
Students	53
Civil servants	78
Traders	37
Farmers	15
Total	200

The bar Chart 2 shows that respondents who are housewives were 17 in number, those who are students were 53 in number, those who are civil servants were 78 in number those who traders were 37 in number while those who are farmers were 15 in number. This implies that those who are civil servants formed the actual population for the study.

Table 3. Distribution of respondents by marital status

Marital status	Frequency
Single	62
Married	104
Widowed	25
Separated/Divorced	7
Total	200

The pie Chart 3 depicts respondents by marital status. Those who are single were 62 in number, those who are married were 104 in number, those who are widowed were 25 in number and those who are separated/divorced were 7 in number. This implies that respondents who are married formed the actual population for the study.

Table 4. Distribution of respondents by number of children

No. of Children	Frequency
None	62
1-3	53
4-6	71
7 and above	14
Total	200

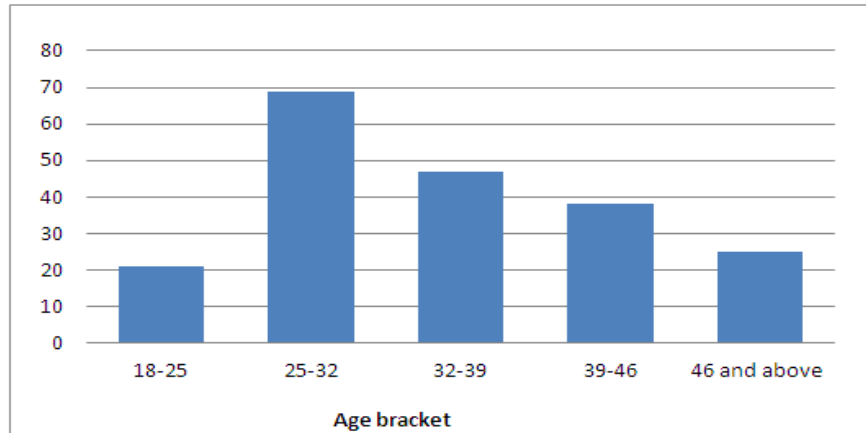


Chart 1.

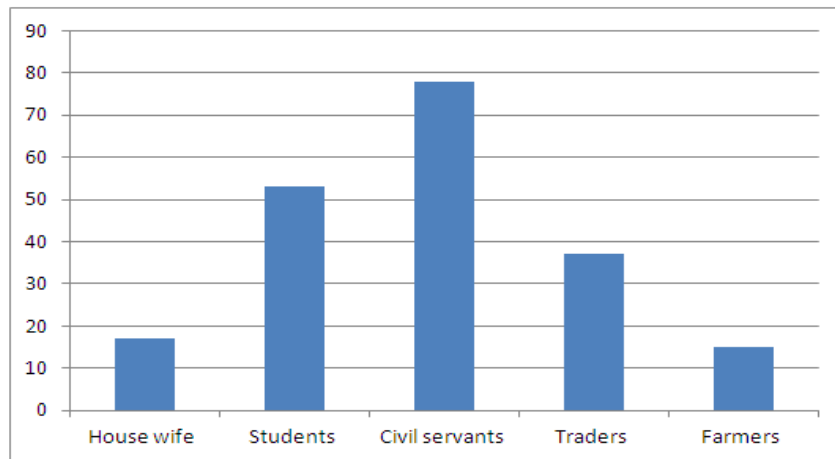


Chart 2.

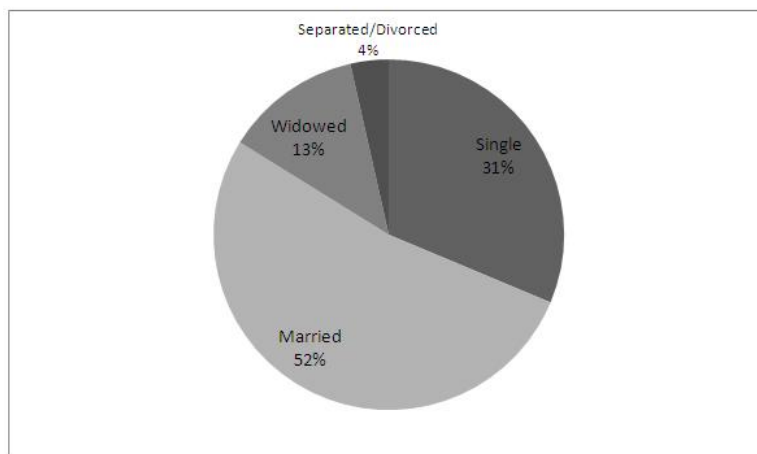


Chart 3.

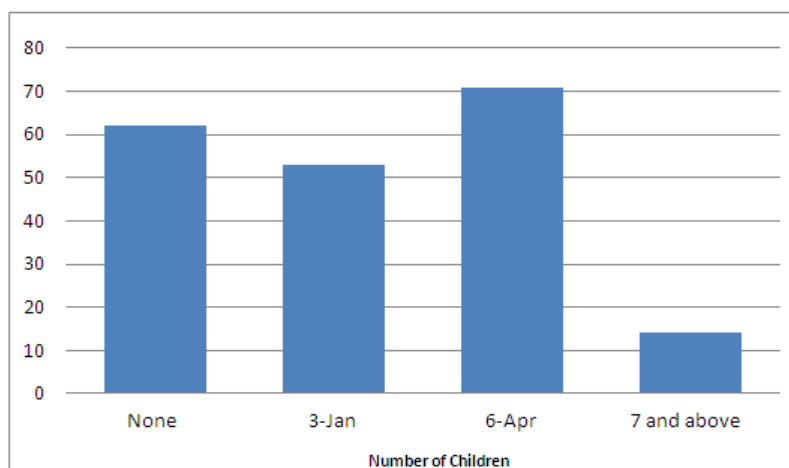


Chart 4.

The bar Chart 4 above shows that respondents who have no child yet were 62 in number, those who have 1-3 children were 53 in number, those who have 4-6 children were 71 in number while those who have 7 and above were 14 in number. This implies that respondents who have between 4-6 children formed the actual population for the study.

Table 5. Distribution of respondents by religion

Religion	Frequency
Christianity	157
Islam	31
Traditional Religion	8
Others	4
Total	200

The pie chart Table 5 above shows that respondents who are Christians were 157 in number, Islam members were 31 in member, those who were of traditional religion were 8 while other religions were 4 in number. This implies that respondents who were Christians formed the actual population for the study.

The Table 6 shows the record analysis of the number of pregnant women of advanced maternal age that attended IMSUTH Orlu between January 2018 to December, 2020. The record shows series of pregnancy cases associated with advanced maternal age that were treated or handled by health care providers in the institution under study. The record reveals that within the period under review, 45 patients underwent the caesarean section, there were 27 successful. Virginal delivery, premature rupture of the membrane were 7 in number, 2 people

suffered macrosomia, there were 9 cases of post maturity of post maturity and 10 cases of induced labour.

Furthermore, the hospital handled 6 cases of pre-eclampsia, 2 cases of Eclampsia and 6 cases of intra-uterine fetal death. Also, 2 cases of diabetes mellitus, 2 cases of preterm, 4 oligohydraminous cases, 5 placenta preavia and 4 malaria cases were handled by this institution under study. Going further ahead, the institution handled 6 cases of malpresentation, 1 cases of retained placenta, 4 high bloodpressure cases, faetal distress 2, ante-partum haemorrhage 2, obstructed labour 2. Nevertheless, the institution experienced 1 maternal death and handled 1 case of uterine rupture. All the above delivery cases enumerated above in the table are associated pregnancy cases enumerated above in the table are associated pregnancy cases of advanced maternal age.

Table 7 above shows the mean response of respondents on factors associated with advanced maternal pregnancy in Imo State University Teaching Hospital, Orlu.

In item No. 1 the mean score response was 2.9 which is above the reference point of 2.5. This implies that majority of the respondents agreed that age is often a barrier in pregnancy. In item No. 2, the mean response score was 3.1 which implies that respondents agreed to the fact that advancement in age exposes mother to enormous adverse outcomes during pregnancy. However, majority of the respondents also obliged to the item NO. 3 which says that women who are money conscious find it hard to settle

down, marry and go for childbearing with the response mean score of 2.7. coming to item No. 4, a mean score of 2.7 also was obtained to imply that women who pursue higher education at the age of 30 years and above are often at the risk of not getting/being pregnant easily. The mean score response score in items No. 5 is 3.0 and implies that respondents agreed that women who postponed marriage and childbearing and go to seek for better jobs and career advancement before marriage usually becomes advanced and face pregnancy problems. Similarly same to item No. 6 which says that fertility in women starts to decline at early thirties, with a mean response score of 2.9 depicts agreement/acceptance by many respondents. Lastly, with a mean score of 2.6, many respondents agreed to the fact that greater awareness of healthcares services by adolescent age women is a risk factor in advanced maternal pregnancy as seen in item No. 7 of the above table.

The above table 8 shows the mean score responses on the effects and outcomes of advance maternal age in pregnancy. A mean score responses of 3.1 was seen in item No. 8 which is greater than the reference mean of 2.5 indicating that respondents agreed that women of advanced maternal age usually have a relatively low tendency to achieve pregnancy in a single menstrual cycle because of fecundity decrease in that age group. In time No. 10, a mean score of 3.0 was obtained and this implies that majority of the respondents accepted that birth weight of the new born baby and gestational age are most of the pregnancy outcomes of the age group. Coming to items No. 9 a means score of 3.2 was obtained indicating respondents acceptance that pregnancy complications increase drastically after 40 years of age.

Furthermore, majority of the respondent obliged that advanced parental age is associated with autism disorder. This is indicated with a mean score of 3.3 in item No. 11. However, in item No. 12 a mean score of 3.2 was obtained and this implies that majority of the respondents agreed to the statement therein. For items No. 13 and 14 with their mean scores 3.1 and 2.9 respectively, majority of the responses accepted the statements made in the table as they among the pregnancy outcomes of advanced maternal age.

Table 9 above shows an average mean score of 569.0 for factors associated with advanced

maternal age and 619.6 for pregnancy outcomes (effects) of that age group. The analysis result therefore shows a correlation index of 0.71 which indicates a strong positive relationship.

4. DISCUSSION

Findings from the analyzed records collected from the delivery section of this institution (see Appendix C pg... of this document) shows that within the period under review, a total of 45 caesarean section cases were handled, 27 successful virginal delivery, 7 premature rupture of membrane cases, 2 macrosomia and 9 post maturity cases were also handled. Other delivery cases handled were 10 induced labour, 2 Eclampsia, 6 pre-Eclampsia, 6 intra-uterine fetal death, 2 diabetes milletus, 2 preterm, 4 oligohydraminous and 5 placenta preavia cases. Furthermore, the institution was able to handle other cases like 4 malaria, 6 malpresentation, 1 retained labour, 4 high blood pressure cases, 2 foetal distress and 2 ante partum haemorrhage cases more from that record also confirmed that 2 obstructed labour cases uterine rupture and 1 maternal death were also handled by the institution. This brought to a total of 150 delivery cases of advanced maternal age in the period under review handled by IMSUTH, Orlu. The above results seems to confirm the positions of Ornguze *et al.* [3] who opined that women at extremes of reproductive life have increase fetomaternal risks, and that of Ates *et al.* [2] who posited that advanced maternal age has been regarded as a risk factor for complications in pregnancy.

Findings from the analysis of this research proves that with a mean score response of 2.9 agreed that age poses a barrier to pregnancy which goes to be in line with Ornguze, *et al.* [3] when they stated that age as a factor with other factors corrected for, can influence obstetric performance of women. In a like manner, a mean score of 3.1 responses agreed that advancement in age predisposes mothers to enormous adverse outcomes during pregnancy. Furthermore, mean scores of 2.7, 2.7, 2.0, 2.9 and 2.6 respectively accepted the facts stated in Table 7. above. The cumulative mean score of 2.8 shows respondents agreement to the following factors: Women who are money conscious often find it hard to settle down and marry early, and subsequently go for child bearing; those who pursue higher education at the age of 30 years and above are always at the risk of not being pregnant easily; those who

Table 6. Record of analysis showing the number of pregnant women of advanced maternal age that attended IMSUTH 2018-2020

S/N	Delivery record of women of advanced maternal age	Jan 2018-Dec 2018	Jan- Dec. 2019	Jan –Dec 2020	Total
	Delivery cases				
1.	Caesarean Section	40	-	5	45
2.	Successful virginal delivery	27	-	-	27
3.	Premature rupture of membrane	4	3	-	7
4.	Macrosomia	1	1	-	2
5.	Post maturity	6	3	-	9
6.	Induction of labour	6	4	-	10
7.	Eclamsia	1	1	-	2
8.	Pre-eclampsia	1	3	2	6
9.	Intra-uterine fetal death	3	3	-	6
10.	Diabetes mellitus	1	1	-	2
11.	Preterm	2	-	-	2
12.	Oligohydraminous	1	3	-	4
13.	Placenta preavia	3	2	-	5
14.	Malaria	2	2	-	4
15.	Malpresentation	2	3	1	6
16.	Retained placenta	1	-	-	1
17.	High blood pressure	4	-	-	4
18.	Foetal distress	2	-	-	2
19.	Ante-Partum haemorrhage	1	1	-	2
20.	Obstructed labour	-	2	-	2
21.	Maternal death	-	1	-	1
22.	Uterine rupture	-	1	-	1
	G. total	108	34	8	150

Table 7. Mean response analysis on the factors that are associated with advanced maternal pregnancy in IMSUTH, Orlu

S/N	Items Factors	Responses					Total	X	Decision
		SA	A	D	SD				
1.	Age often poses a barrier to pregnancy	66	71	34	29	574	2.9	Agreed	
2.	Advancement in age predisposes mothers to enormous adverse outcomes during pregnancy	72	93	20	15	622	3.1	Agreed	
3.	Women who are money conscious find it hard to settle down, marry and go for	288	279	40	15	540	2.7	Agreed	
		50	66	58	26				

S/N	Items Factors	Responses				Total	X	Decision
		SA	A	D	SD			
4.	child-bearing Women who pursue higher education at the age of 30yrs and above are at the risk of not being pregnant easily	200 56	198 66	116 47	25 31	547	2.7	Agreed
5.	Women who postpone marriage and childbearing at the expense of seeking for good jobs and career advancement before marriage usually become advanced and face pregnancy problems.	70 280	75 225	32 64	23 23	602	3.0	Agreed
6.	Fertility in women starts to decline in the early thirties	69 276	76 228	28 56	28 28	586	2.9	Agreed
7.	Greater awareness of health care services in adolescent aged women is a risk factor in advanced maternal pregnancy.	47 188	55 165	61 122	37 37	512	2.6	Agreed
	Cumulative mean	3,983					2.8	Agreed

Table 8. Mean response analysis on the effects of advanced maternal age on pregnancy in IMSUTH

S/N	Items Factors	Responses				Total	X	Decision
		SA	A	D	SD			
8.	women of advanced maternal age usually have a relatively low tendency to achieve pregnancy in a single menstrual cycle because of fecundity is decreased in these age groups.	71 284	93 279	22 44	14 14	621	3.1	Agreed
9.	Pregnancy complications increases drastically after 40 years of age.	80 320	87 261	21 42	12 12	635	3.2	Agree
10.	Birth weight of the new born babies and gestational age are most often the pregnancy outcomes of advanced maternal age as well as macrosomia.	67 268	79 237	30 60	24 24	589	3.0	Agree
11.	Advanced parental age is associated with autism disorder	81 324	96 288	14 28	9 9	649	3.3	Agree
12.	Advanced aged mothers are almost four times more likely to have premature babies than adolescent mothers.	76 304	101 303	18 36	5 5	648	3.2	Agree
13.	Impacting of systemic vascular adaptations and cardiac functions in pregnancy, uterine artery remodeling and reactivity are other problems associated with advanced maternal age pregnancy.	71 284	93 239	22 44	14 14	621	3.1	Agree
14.	Women of advanced maternal age often undergo prenatal-chromosomal determination evaluation using amniocentesis.	66 264	71 213	34 68	29 29	574	2.9	Agree
	Cumulative mean	4,337					3.1	Agree

Table 9. Correlational analysis of significant relationship between factors associated with advanced maternal age and pregnancy outcomes (effects) of the age group

S/N	Variable	Total score	X	R	Remarks
1	Factors	3,983	569.0		Strong +ve
2	Effects	4,337	619.6	0.71	Relationship

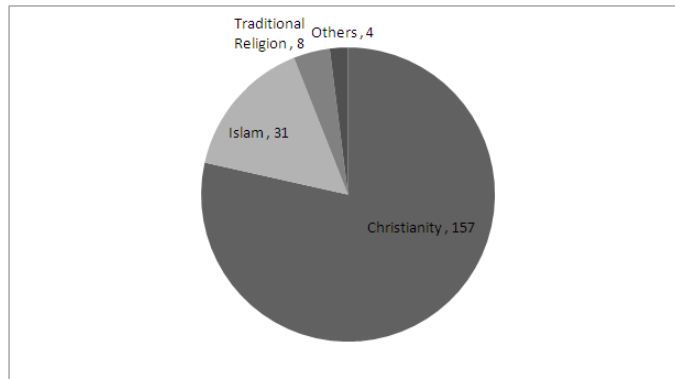


Chart 5.

post-pone marriage and childbearing at the expense of seeking of good jobs and career advancement before marriages usually become advanced without knowing it that fertility in women starts to decline in their early thirties and greater awareness of health care services is another factor in advanced maternal age. These factors outlined above seem to support the positions of Anozie *et al.* [5] who opined that in recent time, there has been an increasing trend among women to pursue higher education, seek good jobs and desire for career advancement before settling down for marriage and child bearing that consequently these women by omission or commission postpone childbearing and in effect get advanced in age by their first pregnancy.

Finding from the analysis reveals that women of advanced maternal age usually have a relatively low tendency to achieve pregnancy in a single menstrual cycle because fecundity is decreased in the age group. This is indicated with a mean score of 3.1. also a mean score of 3.2 shows that respondents agree that pregnancy complications in women increases drastically after 40 years of age, and birth weight of new born babies and gestational age are most often the pregnancy outcomes of advanced maternal age, macrosomia inclusive, as indicated with mean score of 3.0. Furthermore, a mean score responses of 3.3 strongly agreed that advanced parental age is often associated with autism

disorders. Also, a mean score response of 3.2 agreed that advanced age mothers are almost four items more likely to have premature babies than adolescent mothers. A mean score of 2.9 shows that respondents agreed that women of advanced maternal age often undergo prenatal chromosomal determination evaluations using amniocentesis and lastly a mean response score of 3.1 agreed that impacting of systemic vascular adaptations and cardiac functions in pregnancy, uterine artery remodeling and reactivity are other problems associated with advanced maternal age pregnancy.

The above stated outcomes summarily supported the statements of Cooke and Davidge [6] who posited that the risk of pregnancy complications (both maternal and fetal) increases drastically after 40 years old and thus it is a continuum of increasing age that impacts on overall pregnancy outcomes. This means that pregnancy outcomes are relatively determined by series of risk factors enlisted in the study [7-14].

5. CONCLUSION

This study carefully surveyed pregnancy outcomes in women of advanced maternal age that attended Imo State University Teaching Hospital, Orlu between January 2018 to January 2020. It has been observed advanced maternal age has been generally agreed to be any age

above 35 years and this period is marked with series of complications during pregnancy, findings also has it that some women increasingly delay marriage pregnancy and childbirth into their fourth decade of life because of different reasons ranging from delay in marriage, educational and professional reasons. Some of them accept advanced age pregnancy unwillingly because of inappropriate use of contraceptive methods. However, pregnancies in those women are considered high risk. Records from the health institution give a vivid evidence of the incidence of advanced maternal pregnancy in women around the area under study. It is known fact that incidence of delay marriage and advanced maternal pregnancy occurs more in developed nations than the developing nations. Despite many women being aware of the risk of delaying child birth, their decision, often born of personal, economical and educational reasons has important clinical ramifications. Consequently, advanced maternal age is associated with increased pregnancy complications, gestational diabetes mellitus, eclampsia, pre-eclampsia, placenta previa and caesarean delivery which in-turn leads to maternal and perinatal morbidity and mortality.

CONSENT

As per international standard or university standard, patients' written consent has been collected and preserved by the authors.

ETHICAL APPROVAL

A letter was written through the head of department of nursing science IMSUTH and presented to the matron –in-charge of the post-natal ward. The researcher took into consideration all the ethics of research during the study which include.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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