Afr. J. Med. Med. Sci. (2022) **5**1(3) 167-175

Assessment of watching childbirth video on anxiety and obstetric outcomes among first time mothers in Nigeria: a randomized controlled trial

IO Morhason-Bello[1,3], E Achime[1], J Abdulmalik[2], T Mumuni[3] and OA Ojengbede[1,3]

Departments of Obstetrics and Gynaecology[1], Psychiatry[2] and Centre for Population and Reproductive Health[3], College of Medicine, University of Ibadan, Ibadan, Nigeria.

Abstract

Objective: To determine the association of childbirth audiovisuals on anxiety and obstetric outcome among first time mothers.

Method: A randomized controlled trial was conducted at the University College Hospital Ibadan, Nigeria among first time mothers (primigravid). The experimental group watched a documentary video of childbirth process during the antenatal period, while the controls did not. The primary outcome was mean anxiety level while secondary outcomes were some selected obstetric parameters. Descriptive analysis, and the student t test was used to compare means for continuous outcomes; while the chi-square test was used to compare trends of categorical outcomes. The level of statistical significance was set at 5%.

Results: A total of 120 pregnant women were recruited, with 115 participants followed up till birth and included in the analysis based on the intention to treat (ITT) analysis. Randomization was balanced with no significant differences in the background characteristics between experimental and control groups. Women in the control group had slightly higher anxiety levels during pregnancy (33.2 vs 30.3 at recruitment, 33.7 vs 30.4 at 34 weeks and 33.9 vs 30.8 at 37 weeks) while those in the experimental group had higher anxiety levels at birth (32.3 vs 31.1) but these differences were not statistically significant.

Conclusion: Exposure to childbirth audiovisuals did not result in a significant reduction in anxiety levels and it may possibly have some negative effect on first time mothers. Use of audiovisual materials as a tool to reassure first time mothers may require further evaluations before it is adopted locally into routine obstetric service.

Keywords: *Childbirth video, anxiety, labour, primigravida, childbirth audiovisual*

Résumé

Objectif : Déterminer l'association des audiovisuels d'accouchement sur l'anxiété et les résultats obstétricaux chez les mères primipares.

Méthode : Un essai contrôlé randomisé a été mené à l'University College Hospital d'Ibadan, au Nigéria, auprès de mères primipares (primigravides). Le groupe expérimental a regardé une vidéo documentaire du processus d'accouchement pendant la période prénatale, contrairement aux témoins. Le critère de jugement principal était les niveaux d'anxiété moyens tandis que les critères de jugement secondaires étaient certains paramètres obstétricaux sélectionnés. L'analyse descriptive et le test t de Student ont été utilisés pour comparer les moyennes des résultats continus ; tandis que le test du chi carré a été utilisé pour comparer les tendances des résultats catégoriels. Le niveau de signification statistique a été fixé à 5 %.

Résultats : Un total de 120 femmes enceintes ont été recrutées, avec 115 participantes suivies jusqu'à la naissance et incluses dans l'analyse basée sur l'analyse en intention de traiter (ITT). La randomisation a été équilibrée sans différences significatives dans les caractéristiques de base entre les groupes expérimentaux et témoins. Les femmes du groupe témoin avaient des niveaux d'anxiété légèrement plus élevés pendant la grossesse (33,2 vs 30,3 au recrutement, 33,7 vs 30,4 à 34 semaines et 33,9 vs 30,8 à 37 semaines) tandis que celles du groupe expérimental avaient des niveaux d'anxiété plus élevés à la naissance (32,3 vs 31,1) mais ces différences n'étaient pas statistiquement significatives.

Conclusion : L'exposition aux audiovisuels de l'accouchement n'a pas entraîné de réduction significative des niveaux d'anxiété et cela peut éventuellement avoir un effet négatif sur les mères pour la première fois. L'utilisation de matériel audiovisuel comme outil pour rassurer les mères pour la première fois peut nécessiter des évaluations supplémentaires avant qu'il ne soit adopté localement, dans le service obstétrical de routine.

Mots-clés : *Vidéo d'accouchement, anxiété, travail, primigeste, audiovisuel d'accouchement*

Correspondence: Dr. I.O. Morhason-Bello, Department of Obstetrics and Gynaecology, Faculty of Clinical Sciences, College of Medicine, University of Ibadan, Ibadan, Nigeria. E-mail: imranmorhasonbello@gmail.com

Introduction

Antenatal anxiety is one of the commonest psychosomatic manifestation in pregnancy [1]. Antenatal anxiety can occur due to fear or concern of pregnancy, and/or labour outcome [2-4]. Studies have demonstrated that antenatal anxiety is common among nulliparous than multiparous women; those with previous antenatal, intrapartum and postpartum adverse obstetric outcomes (such as preterm labour, labour pain, low birth weight and intrauterine death); advanced maternal age in pregnancy; previous mental ill health and use of nicotine related drugs [3, 5, 6].

Antenatal anxiety is also associated with pregnant women that are scheduled for obstetric interventions such as elective Caesarean or instrumental delivery and epidural anaesthesia [7]. Fear of childbirth is the most commonly reported trigger of anxiety and other sources of anxiety include concern about fetal and neonatal wellbeing[4, 8, 9]. There is also evidence that antenatal anxiety can be hereditary, but no study has identified any associated candidate gene [10].

Antenatal anxiety complicates 10 to 40% of pregnant population [3, 6, 11, 12]. Prevalence of antenatal anxiety varies by the type of assessment tools/instruments used, obstetric parameters of participants studied, and the time in the life course of the pregnancy when anxiety is measured [1, 7, 13, 14]. Studies had shown that high levels of maternal anxiety during pregnancy is associated with postpartum depression [15-17]. Antenatal anxiety is associated with increased maternal and fetal cortisol hormone levels [18]. The increased cortisol level in women has been linked with increased risk of fetal heart rate abnormality and early obstetric operative delivery [18-20]. Antenatal anxiety is also associated with future emotional and behavioural problems in the children of such mothers [21, 22].

During antenatal visits, expectant mothers are routinely offered information to educate them on what to expect during labour and delivery, in an effort to allay their fears. Most of this information is however delivered verbally or with the aid of diagrammatic illustrations, which might sound abstract to the end users. Previous studies from United States of America showed that online birth education is associated with antenatal anxiety [23, 24]. The outcome of these studies appeared mixed; one study indicated that 72% of first-time pregnant mothers, and 34% of women that had been pregnant once were willing to watch a video on childbirth as an educational material before delivery [20]. However, another study reported that 32% of first-time mothers felt more anxious after watching audiovisual displays about the child birthing process[24]. At the moment there is no universal consensus on the role of audiovisual intervention to reduce the anxiety levels of women regarding events of labour despite a fairly favourable outcome from some studies in different settings [25-28].

Pregnant women and their family members are usually anxious, particularly during childbirth [29]. In order to reduce anxiety during this period, some health worker offer health talk or counselling as a form of reassurance to prospective mothers and their family members. In Nigeria, some health facilities allow pregnant women to watch television or video/ film at the antenatal waiting room as part of the health institution's hospitality. Despite the availability of this audiovisual opportunity, there are insufficient studies exploring the role of this intervention on anxiety levels of expectant mothers especially among women with first pregnancy and childbirth experience. This study aims to determine the effect of watching a childbirth educational video on anxiety levels and obstetric outcomes among first time mothers.

Materials and methods

The study was a randomized controlled trial among booked antenatal patients at the University College Hospital (UCH), Ibadan, Nigeria in August 2012 and April 2013. A tertiary health facility of 1000-beds with an annual delivery rate of between 2000 and 2500. An average of 350 pregnant women are seen per week for antenatal care (ANC) clinic. At every ANC, the routine care involves registration, vital signs measurement and group health talk by nurses/ midwives before consultation and review by doctors. The labour ward has an admission room, the first stage, delivery suite and theatre. Ethical approval was obtained from the University of Ibadan/University College Hospital, Ethical Review Committee. The trial registration identification is ACTRN12614000120673 at the Australian New Zealand Clinical Trial Registry.

Prospective mothers who met the inclusion criteria were approached and recruited. Eligible women were primigravid/nulliparous women with singleton pregnancy, anticipated vaginal delivery, and with gestational age (GA) between 28 – 30 weeks at the time of recruitment. The exclusion criteria were refusal to participate, previous history of mental ill health, presence of any chronic medical disorders – hypertension, diabetes mellitus and sickle cell disorders, and other obstetric indications that could contraindicate vaginal delivery. A written consent

was obtained from individual participant after a detailed explanation of the study protocol. Participants were assured that their decision to participate in the study will not influence outcome of their antenatal and childbirth care.

The participants that consented were recruited into the trial and randomized into two arms of treatment or control. The randomization sequence was generated using Random Allocation Software, Version 1.0, 2004. Based on the sequence generated, treatment groups (A and B) were written on pieces of cardboard paper and put into sealed opaque envelopes. Each of the opaque envelopes had a serial number on it. Two trained research assistants (RAs) who were not part of the medical staff supervised the randomization procedure at every ANC. On each clinic day, consenting women that met the inclusion criteria were given serial numbers with allotted treatment group based on their arrival time. Only RAs had access to the list of numbers used to prevent clinicians' influence on the randomization. Participants opened the opaque envelope in the presence of a RA, and the assigned treatment group was recorded by RA in the trial booklet. An identification number was given and recorded on the medical file for ease of follow-up. The research protocol was closely monitored by the RAs to avoid any protocol violation and also to ensure that treatment groups assigned were faithfully maintained. All members of research team involved in data collection were blinded.

The intervention was a five-minute documentary video of events of the second stage of labour (childbirth). The educational video contained child-birthing process of a woman in second stage of labour including the conduct of active management of third stage. This video was shown to participants allocated to the experimental arm in groups of 6 to 10 per session at a private room in the ANC. An experienced midwife facilitated each session. After each video documentary session, a midwife facilitated discussion, clarifications and questions on childbirth process. Misconceptions and rumours about childbirth process were also discussed.

The primary outcome was a significant change in level of the anxiety in the intervention arm compared to the controls. The secondary outcomes were labour pain perception and labour experience for those in the treatment arm compared to those in the control arm.

Two instruments namely: Socio-demographic questionnaire; and State Trait Anxiety Inventory (STAI) were used, and they were both interviewer-administered semi-structured questionnaires. The sociodemographic questionnaire consisted of two sections. The first section contained information on baseline socio demographic characteristics of trial participants while the second section covered some aspects of obstetric history.

The STAI was used to assess anxiety and it is a validated tool that consisted of 20 questions on current feelings of anxiety (state) and usual feeling of anxiety (trait). The STAI also assessed tension, apprehension, nervousness, and worry [30]. The feelings of anxiety were rated on a Likert scale of 1 (not at all) to 4 (very much so) for each question. The scores obtained were summed, and the total score ranged from 20 to 80. Clinicians who performed the anxiety assessment at baseline and at other points (34 weeks, 37 weeks and 24 hours after childbirth) for both treatment arms were blinded and did not participate in the obstetric care of these women. The obstetric and neonatal outcomes of each participant were recorded before discharge from the health facility (Figure 1: Consort trial flow).

The sample size was calculated with an intention to detect a minimum difference of 5points in anxiety levels between the groups at 80% power and alpha error of 0.05. This resulted in a sample size of 80. We estimated that about 30% of the women might be lost to follow up, and therefore sample size was adjusted to 114. This was rounded up to 120 (60 in each group).

The data was coded, entered, cleaned, and analyzed using Statistical Package for the Social Sciences (SPSS) version 18.0.1. Demographic data and clinical characteristics were summarized as mean ± standard deviation for continuous variables and as frequency counts (percentages) for categorical variables. The independent groups t test and the chi-square test were used, as appropriate, to analyze group differences. The data was analysed both by intention to treat and per protocol using consort guideline. The hypothesis was two-sided, and level of statistical significance was 5%.

Results

Out of 134 eligible women, 120 were randomized (60 in each treatment arm), 11 refused participation while three admitted having watched a film/ documentary on child birthing process, and they were excluded. Among those in the intervention group, four did not receive the intervention (Figure 1). The randomization produced a balanced design, as there were no significant differences in the background characteristics between the experimental and control group (Table 1).

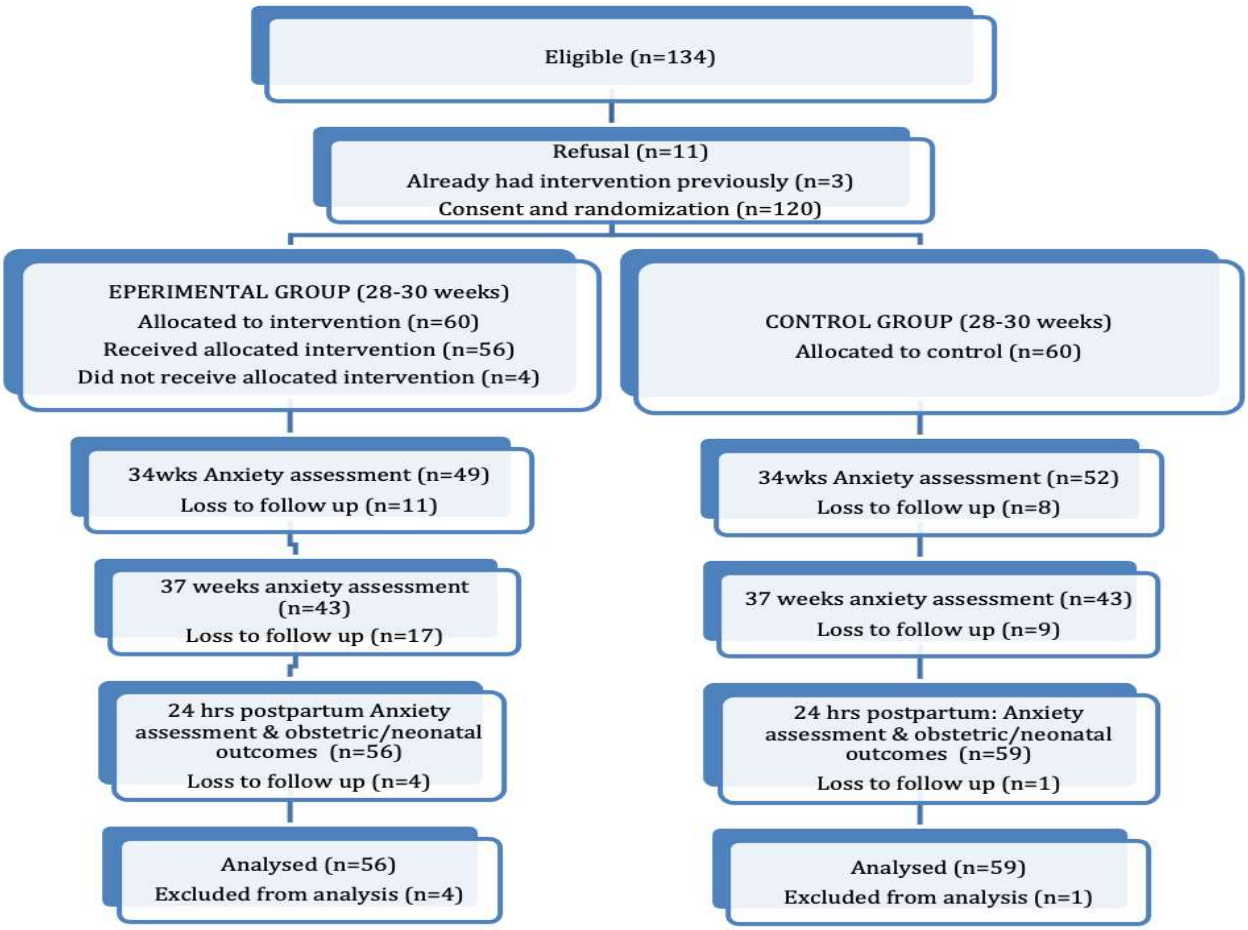

Table 1: Background characteristics between experimental and control groups

Characteristics	Experimental (%)	Control (%)	X^2/t	P-value
Age (years)				
Mean (SD)	28.4 (3.3)	29.2 (4.1)	-1.41	0.30
Occupation				
Skilled	25 (46.3)	26 (45.6)	0.07	0.97
Semiskilled	14 (25.9)	16 (28.1)		
Unskilled	15 (27.8)	15 (26.3)		
Family type				
Monogamous	45 (95.7)	53 (94.6)	0.07	0.80
Polygamous	2 (4.3)	3 (5.4)		
Level of education				
Secondary	0 (0)	4 (6.9)	3.79	0.12*
Tertiary	53 (100)	54 (93.1)		
Ethnicity				
Yoruba	45 (80.4)	51 (86.4)	0.77	0.38
Others	11 (19.6)	8 (13.6)		
GA at enrolment (weeks)				
Mean (SD)	30.0 (1.4)	29.5 (1.7)	1.60	0.11
Presence of companion				
Yes	11 (20.8)	19 (34.5)	2.56	0.11
No	42 (79.2)	36 (65.5)		

**Fishers exact*

Comparison of the mean STAI scores between experimental and control groups using both intention to treat (ITT) and per protocol (PP) analysis is presented in Table 2. On ITT analysis, women in the control group had higher mean STAI scores at recruitment into the study (33.2 SD=9.3), 34 weeks (33.7 SD=9.6) and 37 weeks (33.9 SD=8.7) compared to those in the experimental group with mean STAI of 30.3 (SD=8.7) at recruitment into the study, 30.4 (SD=8.4) at 34 weeks and 30.8 (SD=10.0) at 37 weeks of gestation. At childbirth however, women in the experimental group had a higher mean STAI score of 32.3 (SD=11.9) compared to those in the control group 31.1 (SD=10.4). There was no significant difference between mean STAI scores in the two groups.

Concerning trends of anxiety scores in the experimental group, the score increased from recruitment till after childbirth. However, anxiety scores increased in the control arm from recruitment till 37 weeks gestation, and thereafter decreased after childbirth. In both ITT and PP analyses, the mean anxiety scores among the controls was higher than that of the experimental group at recruitment, 34 weeks and 37 weeks. However, the reverse occurred after childbirth with experimental group having higher mean anxiety scores compared to the control group.

On ITT analysis, there were significant differences in some obstetric outcomes between women in the experimental and control group. Specifically, women in the experimental group presented in advanced stage of labour with a mean cervical dilatation of 4.0 (SD=2.4) cm compared to those in the control group with mean dilatation of 3.0 (SD=1.5) cm (p=0.04). However, women in the control group had a significantly longer duration of active phase of labour (7.4; SD=5.8) hours compared to those in the experimental group (3.5; SD=3.4) hours, (p<0.001). In addition, more women were delivered by Caesarean section in the experimental group (50.0%) compared to the control (32.2%) groups. Similar results were observed in PP analysis of obstetric outcomes. Apart from this, there was also a significantly higher proportion of women in the control arm (38.9%) that had companionship during childbirth more than the experimental group (9.1%) (p<0.001). Other obstetric outcomes such as demand for analgesia, Apgar score and time to initiation of breastfeeding were not statistically significant on both ITT and PP analysis (Table 3).

Table 2: Mean State Trait Anxiety Inventory scores by study group (primary outcome)

	Mean STAI anxiety score(SD)		t	P value
	Experimental	Control		
Intention To Treat Analysis				
At recruitment	30.3 (8.7)	33.2 (9.3)	-1.68	0.10
34 weeks	30.4 (8.4)	33.7 (9.6)	-1.82	0.07
37 weeks	30.8 (10.0)	33.9 (8.7)	-1.45	0.15
Birth	32.3 (11.9)	31.1 (10.4)	0.60	0.55
	Experimental	Control	t	P value
Par Protocol Analysis				
At recruitment	28.9 (9.1)	35.1 (8.7)	-2.99	0.004*
34 weeks	30.4 (8.9)	34.6 (9.5)	-2.00	0.05
37 weeks	31.4 (10.3)	33.7 (8.7)	-1.06	0.29
Birth	32.3 (11.8)	29.8 (10.4)	0.99	0.33

Discussion

Use of audiovisual material as pregnancy and childbirth educational resource is uncommon in Nigeria and findings from this study offers preliminary insight. First time pregnant mothers with no anticipated obstetric complications and no previous history of mental ill health participated in this study. Findings in this study showed that exposure to child birthing educational audiovisual materials might increase the level of anxiety in the early post-partum period, contrary to the widely held view. Although the observed increase of post-partum anxiety was marginal and statistically insignificant, but this may suggest that use of audiovisual material as a counselling tool may increase anxiety of pregnant mothers.

The higher anxiety score recorded in the experimental group than the control group in this study could be due to any of the following reasons. First,

Table 3: Obstetric outcomes by study group (secondary outcome)

Intention To Treat Analysis	Experimental	Control	X^2/t	P-value
Cervical dilation on admission (cm)Mean (SD)	4.0 (2.4)	3.0 (1.5)	2.023	0.04*
Duration of active phase of labour (hours)Mean (SD)	3.5 (3.4)	7.4 (5.8)	-3.42	<0.001*
Analgesia (Yes)	5 (9.4)	1 (1.9)	2.91	0.11**
Mode of deliverySVD	28 (50.0)	40 (67.8)	3.77	0.05
Caesarean section	28 (50.0)	19 (32.2)		
Presence of companion (Yes)	11 (20.8)	19 (34.5)	2.56	0.11
Delivery complications (Yes)	5 (10.0)	11 (23.4)	3.16	0.08
Mean Apgar score (SD)				
1 minute	8.2 (1.1)	8.4 (0.9)	-1.20-0.27	0.230.79
5 minutes	9.7 (0.5)	9.7 (0.6)		
Time to initiation of breastfeeding				
Mean (SD)	3.1 (7.2)	2.8 (7.1)	0.20	0.84
Labour experience				
Satisfying	23 (71.9)	28 (65.1)	2.30	0.32
Not satisfying	4 (12.5)	11 (25.6)		
Indifferent	5 (15.6)	4 (9.3)		
Par Protocol Analysis	Experimental	Control	X^2/t	P-value
Cervical dilation on admission (cm)				
Mean (SD)	4.1 (2.3)	3.3 (1.5)	1.41	0.17
Duration of active phase of labour (hours)				
Mean (SD)	3.5 (3.6)	6.7 (5.8)	-2.31	0.03*
Analgesia (Yes)	3 (9.1)	1 (2.9)	1.19	0.28
Mode of delivery				
SVD	16 (44.4)	27 (69.2)	4.70	0.03*
Caesarean section	20 (55.6)	12 (30.8)		
Presence of companion (Yes)	3 (9.1)	14 (38.9)	8.23	<0.001*
Delivery complications (Yes)	4 (12.1)	8 (24.2)	1.63	0.20
Mean Apgar score (SD)				
1 minute	8.3 (1.1)	8.5 (0.8)	-0.720.444	0.470.66
5 minutes	9.8 (0.5)	9.7 (0.7)		
Time to initiation of breastfeeding				
Mean (SD)	3.8 (8.8)	3.4 (8.3)	0.19	0.85
Labour experience				
Satisfying	10 (55.6)	19 (65.5)	2.453	0.29
Not satisfying	3 (16.7)	7 (24.1)		
Indifferent	5 (27.8)	3 (10.3)		

NB: No woman had assisted vaginal delivery; * significant at $p<0.05$; **fishers exact test

the audiovisual materials presented to pregnant mothers covered only the second stage of labour and delivery of placenta. The childbirth video may have created a painful and difficult scene which could heighten the anxiety levels of nulliparous women. Second, most women in the experimental group presented in advanced stage of labour than the control group, which expectedly, is associated with higher anxiety levels. Third, there was comparatively lower proportion of women in experimental group that had companionship for social support during childbirth than the control group. The absence of support person may increase the anxiety level of women during childbirth [31]. Despite these limitations, it is important to note that the head-to-head comparison between the two groups (experimental vs control) showed a relatively higher anxiety level in the control group at each point of measurements (recruitment, 34, and 37 weeks) except after childbirth. It is plausible that some participants among the controls with background anxiety problems were missed during screening for anxiety related disorders before recruitment into this study.

Specifically, the mean anxiety score at baseline was higher in the control group as compared with

the experimental group but this was not statistically significant. Subsequently, there was a gradual increase in mean anxiety scores for both groups from the point of recruitment into the study up to 37 weeks gestation. This was in keeping with literature findings that the pattern of anxiety levels in the antenatal period is usually "U-shaped": high anxiety in the 1st trimester; lowest in the second trimester and then steadily increase again in the 3rd trimester as delivery approaches [32, 33].

It is interesting to note that women in the control group had relatively better secondary outcomes compared to the experimental group. In this analysis, women in the control group had fewer delivery by Caesarean section, more proportions of those with satisfying labour experience and better one minute Apgar score. However, these observed benefits were not statistically significant except for the mode of delivery on ITT analysis. A plausible explanation for these findings might be due to a higher proportion of women in the control group who had companions (social support person) during their delivery and many of them presented in the hospital in early labour. Generally, the presence of social support person during labour and childbirth is associated with better obstetric and neonatal outcomes including reports of a more satisfying labour experience [34, 35].

The result of this study should be interpreted with caution due to the following reasons. The population sampled was small, and this could have accounted for the lack of significant difference in the anxiety levels measured over the four points and between the study arms. The study did not account for other likely causes of anxiety that may have occurred in between the measurement points. For example, medical disorders, antenatal admissions, adverse psychosocial life events, and other unpleasant experiences could have swayed the outcome of anxiety assessment at each of the points [14]. The anxiety measured with STAI may not be directly linked to fear of childbirth, which could present in extreme cases as tokophobia [36, 37].

Notwithstanding these limitations, this study has its strengths. This is probably the first scientific research effort in Nigeria to investigate use of audiovisual aid to educate women on events of second stage of labour which is often regarded as the most critical period of the childbirth process. In addition, the recruitment of first time mothers with no previous mental health problems provided better leverage to assess the effect of audiovisual material shown on anxiety levels. Furthermore, the study design was robust, and the randomization was balanced with tolerable attrition rate at each point of the anxiety measurements. The data were analysed by intention to treat, which makes interpretation of our findings more realistic. Lastly, STAI scale that was used to assess anxiety in this study is an internationally acceptable tool that could easily be used, and results compared other settings.

In conclusion, the outcome of this study suggests that watching audiovisual materials about the second stage of labour during ANC did not have a significant effect on reducing anxiety levels of first-time mothers. On the contrary, it may actually have the tendency towards heightening anxiety levels in the peripartum period. We recommend that more studies should be conducted on this emerging practice to determine its potential utility within the context of Nigerian maternity settings.

Acknowledgements

We are grateful to the women that volunteered freely to participate in this study as well as the management of the University College Hospital, Ibadan, Nigeria for granting our request to undertake this study.

References

1. Sinesi A, Maxwell M, O'Carroll R and Cheyne H: Anxiety scales used in pregnancy: systematic review. BJPsych Open 2019, 5(1):e5.
2. Ross LE and McLean LM: Anxiety disorders during pregnancy and the postpartum period: A systematic review. J Clin Psychiatry 2006, 67(8):1285-1298.
3. Esimai OA, Fatoye FO, Quiah AG, Vidal OE and Momoh RM: Antepartum anxiety and depressive symptoms: A study of Nigerian women during the three trimesters of pregnancy. Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology 2008, 28(2):202-203.
4. Zigic Antic L, Nakic Rados S and Jokic-Begic N: Are non-pregnant women afraid of childbirth? Prevalence and predictors of fear of childbirth in students. J Psychosom Obstet Gynaecol 2019, 40(3):226-231.
5. Valizadeh L, Zamanzadeh V, Mohammadi E and Arzani A: Continuous and multiple waves of emotional responses: Mother's experience with a premature infant. Iranian journal of nursing and midwifery research 2014, 19(4):340-348.
6. Adewuya AO, Ola BA, Aloba OO and Mapayi BM: Anxiety disorders among Nigerian women in late pregnancy: a controlled study. Archives of women's mental health 2006, 9(6):325-328.

7. Ravid E, Salzer L, Arnon L, *et al*. Is there an association between maternal anxiety propensity and pregnancy outcomes? BMC Pregnancy Childbirth 2018, 18(1):287.
8. Rubertsson C, Hellstrom J, Cross M and Sydsjo G: Anxiety in early pregnancy: prevalence and contributing factors. Arch Womens Ment Health 2014, 17(3):221-228.
9. Jokic-Begic N, Zigic L and Nakic Rados S: Anxiety and anxiety sensitivity as predictors of fear of childbirth: different patterns for nulliparous and parous women. J Psychosom Obstet Gynaecol 2014, 35(1):22-28.
10. Sydsjo G, Agnafors S, Bladh M, Josefsson A: Anxiety in women - a Swedish national three-generational cohort study. BMC Psychiatry 2018, 18(1):168.
11. George A, Luz RF, De Tychey C, Thilly N and Spitz E: Anxiety symptoms and coping strategies in the perinatal period. BMC Pregnancy Childbirth 2013, 13:233.
12. Nasreen HE, Pasi HB, Rifin SM, *et al*. Impact of maternal antepartum depressive and anxiety symptoms on birth outcomes and mode of delivery: a prospective cohort study in east and west coasts of Malaysia. BMC Pregnancy Childbirth 2019, 19(1):201.
13. Brunton RJ, Dryer R, Saliba A and Kohlhoff J: The initial development of the Pregnancy-related Anxiety Scale. Women Birth 2019, 32(1):e118-e130.
14. Bayrampour H, Ali E, McNeil DA, *et al*. Pregnancy-related anxiety: A concept analysis. Int J Nurs Stud 2016, 55:115-130.
15. Adewuya AO, Ola BA, Aloba OO, Dada AO and Fasoto OO: Prevalence and correlates of depression in late pregnancy among Nigerian women. Depression and anxiety 2007, 24(1):15-21.
16. Seymour M, Giallo R, Cooklin A and Dunning M: Maternal anxiety, risk factors and parenting in the first post-natal year. Child: care, health and development 2014.
17. Shlomi Polachek I, Huller Harari L and Baum M, R DS: Postpartum Anxiety in a Cohort of Women from the General Population: Risk Factors and Association with Depression during Last Week of Pregnancy, Postpartum Depression and Postpartum PTSD. The Israel journal of psychiatry and related sciences 2014, 51(2):128-134.
18. Ramos IF, Guardino CM, Mansolf M, *et al*. Pregnancy anxiety predicts shorter gestation in Latina and non-Latina white women: The role of placental corticotrophin-releasing hormone. Psychoneuroendocrinology 2019, 99:166-173.
19. Nergiz Avcioglu S, Altinkaya SO, Kurt Omurlu I, *et al*. Impacts of maternal anxiety on non-stress test parameters. Clin Exp Obstet Gynecol 2016, 43(6):830-835.
20. Sjostrom K, Valentin L, Thelin T and Marsal K: Maternal anxiety in late pregnancy: effect on fetal movements and fetal heart rate. Early Hum Dev 2002, 67(1-2):87-100.
21. Van Batenburg-Eddes T, Brion MJ, Henrichs J, *et al*. Parental depressive and anxiety symptoms during pregnancy and attention problems in children: a cross-cohort consistency study. J Child Psychol Psychiatry 2013, 54(5):591-600.
22. Webb R and Ayers S: Cognitive biases in processing infant emotion by women with depression, anxiety and post-traumatic stress disorder in pregnancy or after birth: A systematic review. Cognition & emotion 2014:1-17.
23. Cleeton ER: Attitudes and beliefs about childbirth among college students: results of an educational intervention. Birth 2001, 28(3):192-200.
24. Declercq E. R, Sakala C., Corry M. P and Applebaum S.: Listening to Mothers II: Report of the Second National U.S. Survey of Women's Childbearing Experiences. New York: Childbirth Connection, USA. Available from:http://www.childbirthconnection.org/pdfs/LTMII_report.pdf (accessed 12/12/2014). 2006.
25. Gourounti K, Anagnostopoulos F and Lykeridou K: Coping strategies as psychological risk factor for antenatal anxiety, worries, and depression among Greek women. Arch Womens Ment Health 2013, 16(5):353-361. doi: 310.1007/s00737-00013-00338-y. Epub 02013 Apr 00735.
26. Eley VA, Searles T, Donovan K and Walters E: Effect of an anaesthesia information video on preoperative maternal anxiety and postoperative satisfaction in elective caesarean section: a prospective randomised trial. Anaesth Intensive Care 2013, 41(6):774-781. doi: 710.1177/0310057X1304100613.
27. Corbijn van Willenswaard K, Lynn F, McNeill J, *et al*. Music interventions to reduce stress and anxiety in pregnancy: a systematic review and meta-analysis. BMC Psychiatry 2017, 17(1):271. doi: 210.1186/s12888-12017-11432-x.
28. San Lazaro Campillo I, Meaney S, McNamara K and O'Donoghue K: Psychological and support interventions to reduce levels of stress, anxiety or depression on women's subsequent pregnancy with a history of miscarriage: an empty systematic review. BMJ Open 2017,

7(9):e017802. doi: 017810.011136/bmjopen-012017-017802.
29. Fatoye FO, Owolabi AT, Eegunranti BA and Fatoye GK: Unfulfilled desire for pregnancy: gender and family differences in emotional burden among a Nigerian sample. Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology 2008, 28(4):408-409.
30. Spielberger CD, Gorsuch RL and Lushene RE: Manual for the State-Trait Anxiety Inventory. Palo Alto, California: Consulting Psychologists Press. 1970.
31. Rouhe H, Salmela-Aro K, Toivanen R, *et al*. Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience - a randomised controlled trial. Journal of psychosomatic obstetrics and gynaecology 2014:1-9.
32. Figueiredo B and Conde A: Anxiety and depression in women and men from early pregnancy to 3-months postpartum. Arch Womens Ment Health 2011, 14(3):247-255.
33. Lee AM, Lam SK, Sze Mun, *et al*. Prevalence, course, and risk factors for antenatal anxiety and depression. . Obstet Gynecol 2007, Nov;110(5):1102-12.
34. Miquelutti MA, Cecatti JG and Makuch MY: Antenatal education and the birthing experience of Brazilian women: a qualitative study. BMC Pregnancy Childbirth 2013, 13:171.
35. Morhason-Bello IO, Adedokun BO, Ojengbede OA, *et al*. Assessment of the effect of psychosocial support during childbirth in Ibadan, south-west Nigeria: a randomised controlled trial. The Australian & New Zealand journal of obstetrics & gynaecology 2009, 49(2):145-150.
36. Handelzalts JE, Becker G, Ahren MP, *et al*. Personality, fear of childbirth and birth outcomes in nulliparous women. Archives of gynecology and obstetrics 2014.
37. Billert H: [Tokophobia—a multidisciplinary problem]. Ginekol Pol 2007, 78(10):807-811.

Received = 23/12/2020
Accepted = 02/03/2021