

# Evaluation of Maternal Preferences for Neonatal Male Circumcision in Enugu Nigeria

Uchechukwu Obiora Ezomike, Josephat Maduabuchi Chinawa<sup>1</sup>, Joseph T. Enebe<sup>2</sup>, Ezebus Chinonye Ezugwu<sup>3</sup>, Elias C. Aniwada<sup>4</sup>, Nkeiruka Elsie Ezomike<sup>5</sup>, Awoere T. Chinawa<sup>6</sup>, Sebastian Okwuchukwu Ekenze

Sub-Department of Pediatric Surgery, Faculty of Medical Sciences, College of Medicine, University of Nigeria, Departments of <sup>1</sup>Pediatrics, <sup>2</sup>Obstetrics and Gynaecology and <sup>4</sup>Community Medicine, Faculty of Medical Sciences, College of Medicine, University of Nigeria, Ituku/Ozalla Campus, Departments of <sup>3</sup>Obstetrics and Gynaecology and <sup>6</sup>Community Medicine, Enugu State University Teaching Hospital, <sup>5</sup>Department of Pediatrics, University of Nigeria Teaching Hospital, Enugu, Nigeria

## Abstract

**Background:** Although circumcision in male neonates is one of the most common procedures performed in neonatal surgery, mothers' preferences concerning the aspects of circumcision are not well-known. Since mother is the likely parent to present child for circumcision, her preferences should be given adequate consideration. **Objectives:** The objective of this study is to evaluate maternal preferences for neonatal male circumcision in Enugu. **Methodology:** A cross-sectional study where questionnaire was distributed by the researchers to consenting pregnant women attending antenatal clinics in two teaching hospitals in Enugu. Data analysis was performed using the SPSS. The results presented as means, percentages and tables. Test for significance was done using the Chi-square test. **Results:** Four hundred and sixty-one pregnant women participated in the study. Ninety-five percent (438/461) wanted circumcision and 83.5% (385/461) wanted it on or before the 8<sup>th</sup> day of life. The reasons were cultural/religious in 69% (302/447). Fifty-four percent (250/461) had no preferences as to methods, but for those who had, Plastibell was most preferred method in 28% (129/461) while 76% (235/309) preferred circumcision to be done in hospital. In 49.2% (227/461) preferred personnel were nurses but 79.6% (367/461) wanted doctors to attend to post-circumcision complications. In 79.2% (365/461), mothers will not insist on the use of anaesthesia for circumcision. Mothers with circumcised husbands were significantly more willing to circumcise a male child ( $P = 0.0018$ ). Higher educational status of mother was significantly related to willingness to insist on the use of anaesthesia ( $P = 0.046$ ) and use of analgesics after circumcision ( $P = 0.001$ ). **Conclusions:** Most mothers prefer neonatal male circumcision by nurses, while preferring doctors for post-circumcision complications. These choices are not affected by parents' educational status. Mothers with circumcised husbands accepted circumcision more than those with uncircumcised husbands. Higher maternal education encourages anaesthesia during circumcision and post-circumcision analgesia.

**Keywords:** Enugu Nigeria, evaluation, male circumcision, maternal preferences

## INTRODUCTION

Circumcision is a common surgical procedure performed on male neonates.<sup>[1,2]</sup> In many parts of Africa, it is performed mainly for cultural and religious reasons.<sup>[3-5]</sup>

Although the mother is the more likely parent to present a male child for circumcision<sup>[6]</sup> and in many cases takes the final decision on circumcision of her male neonate,<sup>[7,8]</sup> there is a paucity of data concerning women's opinion about neonatal male circumcision in some other climes<sup>[9]</sup> and in our environment.

Circumcisers may include health-care workers (HCWs) (doctors and nurses) and non-orthodox practitioners, although

in the many parts of Africa, most circumcisions are now performed in the hospitals.<sup>[9-11]</sup> The choice of circumcisers vary among parents<sup>[3]</sup> and from one geographical location to another.<sup>[1,3,10,11]</sup> Among the HCWs who circumcise, post-circumcision complications tend to occur more following circumcision by nurses than doctors.<sup>[11-14]</sup> Despite this, nurses are lead circumcisers in the many parts of the world.<sup>[11,12,15,16]</sup>

**Address for correspondence:** Dr. Uchechukwu Obiora Ezomike, Sub-Department of Pediatric Surgery, Faculty of Medical Sciences, College of Medicine, University of Nigeria, Ituku/Ozalla Campus, Enugu, Nigeria. E-mail: ezomikeuche@yahoo.com

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It is, therefore, important to determine maternal opinions and preferences as to acceptance or otherwise of circumcision, preferred methods, preferred circumciser, preferred age at circumcision, preferred personnel to handle complications and use or non-use of anaesthesia and post-circumcision analgesia.

Similar to some other studies elsewhere in the world,<sup>[9,15,17]</sup> we set out to study the preferences of mothers in Enugu, Nigeria as regards the various aspects of neonatal male circumcision using a survey of pregnant mothers attending antenatal clinics.

## METHODOLOGY

This is a cross-sectional study where copies of questionnaire were distributed to consenting pregnant mothers attending antenatal clinics in two teaching hospitals in Enugu, South-East Nigeria (University of Nigeria Teaching Hospital Ituku/Ozalla and Enugu State University Teaching Hospital) between 1<sup>st</sup> June and 31<sup>st</sup> November 2018. There was no pre-existing validated questionnaire available for assessing maternal circumcision preferences; hence, a new invalidated questionnaire was designed by the corresponding author following review of literature and valuable inputs from other authors. Copies of questionnaire were distributed to consenting pregnant mothers attending antenatal clinic in any of the two teaching hospitals by the authors and other doctors trained by them. We ensured that no one completed the questionnaire more than once. The copies of completed questionnaire were collected immediately at the antenatal clinic. Ethical clearance for the study was sought for and obtained from the Health Research and Ethics Committee of the University of Nigeria Teaching Hospital. Individual consent was implied when a prospective mother accepted, completed and returned the questionnaire. Those that declined consent were excluded from the study and not captured but were not stigmatised in any way. The data entry and analysis were performed using the Statistical Package for the Social Sciences software version 20 (SPSS Inc., Chicago, Illinois, USA) and results presented as means, percentages and tables. Test for significant relationships was done using the Chi-square test, and a  $P < 0.05$  was deemed significant.

## RESULTS

Four hundred and sixty-one women with a mean age of  $31.50 \pm 4.95$  years participated in the study. Most women wanted circumcision of their neonates if males (438/461, 95%) on or before the 8<sup>th</sup> day of life (385/461, 83.5%) [Table 1]. Their reasons for accepting circumcision were religiocultural in 69% of cases (302/447). In 54.2% (250/461) of cases, mothers did not have any preference for circumcision method but for those that had, Plastibell was the most preferred method (129/461, 28%) [Table 1] and preferred circumcision venue is the hospital (235/309, 76.1%). The preferred personnel to circumcise is the nurse (227/461, 49.2%) and this did not depend on educational status of mothers ( $P = 0.8$ ) or fathers ( $P = 0.59$ ). However, 79.6% (367/461) wanted doctors to attend to their child in case of post-circumcision complications [Table 1].

**Table 1: Circumcision preferences of mothers concerning their male child**

Variables	Frequency, n (%)
Preferred age for circumcision of a male child (days)	n=461
<8	150 (32.5)
8	235 (51.0)
>8	76 (16.5)
Willingness that her next child (if male) to be circumcised	n=461
Yes	438 (95.0)
No	23 (5.0)
Reason for wanting circumcision of your child if male	n=447
Culture/tradition	130 (29.7)
Religion	172 (39.3)
Hygiene	15 (3.4)
Cosmetics	10 (2.3)
Health reasons	83 (19.0)
Reduce promiscuity	9 (2.1)
No specific reason	28 (4.3)
Preferred method of circumcision	n=461
Plastibell	129 (28)
Clamps	16 (3.5)
Open method	66 (14.3)
No preferences	250 (54.2)
Preferred personnel to circumcise the next male child	n=461
Nurse	227 (49.2)
Doctor	165 (35.8)
Traditional birth attendant	1 (0.2)
No preferences	68 (14.7)
Preferred venue for circumcision of last male child	n=309
At home	73 (23.6)
Hospital	235 (76.1)
Traditional birth attendant's home	1 (0.3)
Will you insist on use of anaesthesia in circumcision of the next child?	n=461
Yes	96 (20.8)
No	149 (32.3)
No preferences	216 (46.9)
Preferred personnel in case of circumcision complications in your child	n=461
Nurses	40 (8.7)
Doctor	367 (79.6)
Traditional birth attendant	21 (4.6)
No preferences	33 (7.2)
Will you prefer analgesics to be given to your child after circumcision?	n=461
Yes	197 (42.7)
No	162 (35.2)
Don't know	102 (22.1)

Seventy-nine percent (365/461) will not insist on the use of anaesthesia during circumcision. Sixty-six percent (303/461) of mothers had tertiary education [Table 2] and higher educational status of mother was significantly related to willingness to insist on the use of anaesthesia for circumcision ( $P = 0.046$ ) and

use of analgesics after circumcision ( $P = 0.001$ ). Ninety-five percent (429/450) of the husbands were circumcised [Table 3] and the circumcision status of father was significantly related to maternal willingness to circumcise a male child ( $P = 0.0018$ ). There is, however, no significant relationship between mothers' marital status ( $P = 0.973$ ), husband's highest educational level ( $P = 0.598$ ), mothers' highest educational level ( $P = 0.629$ ), maternal age ( $P = 0.984$ ), husband's age ( $P = 1.00$ ), number of male children ( $P = 0.712$ ), tribe ( $P = 0.972$ ), parity (0.953) and maternal willingness to circumcise male neonate.

## DISCUSSION

In this survey, 95% of the women who responded wanted circumcision for their newborn males [Table 1]. This shows a high acceptance rate for neonatal circumcision in our environment. This is higher than circumcision acceptance rates of 82.9% in a survey by Phili and Karim.<sup>[17]</sup> and 83.7% in a survey by Ikwegbue *et al.*<sup>[9]</sup> Circumcision rates from another study in Nigeria were 87% by Okeke *et al.*,<sup>[11]</sup> whereas it is 93.3% in a study in the USA by El Bcheraoui *et al.*<sup>[16]</sup> and almost 100% in a study by Ben Chaim *et al.* in Israel.<sup>[18]</sup>

Most of the women in the current survey wanted male circumcision done on or before the 8<sup>th</sup> day of life [Table 1]. In another survey by Özveren,<sup>[8]</sup> most mothers also wanted circumcision in the early neonatal period, whereas most circumcisions were done mainly in the neonatal period in many other studies.<sup>[1,3,4,10,18]</sup> Due to the fact that the medical benefits of male circumcision in the neonatal period outweigh the risks<sup>[2]</sup> and neonatal circumcision is cost-effective,<sup>[1,19]</sup> this overwhelming maternal preference for early neonatal circumcision is justified and should be encouraged. Furthermore, compared to circumcisions performed in older males, neonatal and early infant circumcisions have lower complication rates when performed by trained professionals in the clinical settings.<sup>[18,19]</sup> In some other studies, however, most circumcisions were done beyond infancy in later childhood.<sup>[14,20,21]</sup>

Indications for neonatal circumcisions in this study were mainly cultural and religious reasons [Table 1], and these are also the main considerations for circumcision in some other studies.<sup>[3-5,20,21]</sup> However, in a survey by Özveren,<sup>[8]</sup> the major indications were mainly medical and hygiene and in another study by Rediger and Muller<sup>[15]</sup> in Canada, achieving good hygiene was rated high as an indication for circumcision.

In the current study, majority of mothers had no preferences as regard to methods of circumcision [Table 1]. This may suggest that many mothers trust the circumciser's choice of method. In those that had preference, plastibell is the most desired method as also was the most common method in other studies.<sup>[3,5]</sup>

A larger proportion of mothers in this study will prefer circumcision to be done in the hospital as also observed in other studies.<sup>[3,9-11]</sup> In this study, the most desired circumcisers were the nurses. This may be influenced by the fact that in one of the

**Table 2: Sociodemographic characteristics of mothers**

Variables	Frequency (n=461), n (%)
Age of respondents	
30 and below	210 (45.6)
31-40	234 (50.8)
>40	17 (3.7)
Highest educational level	
Primary and below	19 (4.1)
Secondary	139 (30.2)
Tertiary	303 (65.7)
Occupation	
Civil/public servant	174 (37.7)
Trader/business	111 (24.1)
House wife/unemployed/student	115 (24.9)
Others	61 (13.2)
Tribe	
Igbo	443 (96.1)
Others	18 (3.9)
Marital status	
Married	449 (97.4)
Others	12 (2.6)
Parity	
1	145 (31.5)
2-3	188 (40.8)
>3	128 (27.8)
Number of male child	n=314
1	179 (38.8)
2	93 (20.2)
>2	42 (9.1)

**Table 3: Sociodemographic characteristics of husband**

Variables	Frequency (n=450), n (%)
Husband's age	
35 and below	159 (34.5)
36-45	260 (56.4)
>45	31 (6.7)
Husband's highest educational level	
Primary and below	32 (6.9)
Secondary	150 (32.5)
Tertiary	268 (58.1)
Husband occupation	
Civil/public servant	185 (40.1)
Trader/business	166 (36.0)
Skilled self-employed	63 (13.7)
Others	36 (7.8)
Was your husband circumcised	
Circumcised	429 (95.3)
Not circumcised	21 (4.7)

teaching hospitals nurses were the main circumcisers, although in the other hospital, routine neonatal circumcision services were not offered. Nurses were also the main circumcisers in some other studies,<sup>[10,11,14]</sup> although in other studies, most circumcisions were done by doctors.<sup>[1,3,4,7,20]</sup> These differences may suggest regional variations in the preferences pointing

to the fact that identifying the preferred circumcisers in the different geographical locations and ensuring their adequate training in circumcision is important.

Nurses are the preferred circumcisers in the current study despite the fact that post-circumcision complications tend to be more following circumcisions performed by nurses<sup>[10-13,22]</sup> and less when performed by medical professionals.<sup>[14]</sup> Since mothers in our environment still preferred nurses to circumcise their children in spite of the fact that complications are more with nurses, we suggest that to help reduce complication rates and respect the mothers' circumciser preferences in our environment, better training of nurses for circumcision should be done as it has been shown in other climes that with adequate training nurses can perform circumcisions with low complication rates.<sup>[23-25]</sup> Furthermore, American Academy of Paediatrics (AAP) task force on circumcision guidelines<sup>[2]</sup> shows that untrained circumcisers have more complications than well-trained circumcisers, regardless of whether the former are physicians, nurses or traditional religious providers. Ben Chaim in Israel<sup>[18]</sup> found no significant differences in post-circumcision complications following neonatal circumcisions performed by medical personnels and "mohels"(traditional circumcisers trained as professionals for the procedure of circumcision). Appiah *et al.*<sup>[10]</sup> in Ghana found knowledge and practice gaps among circumcisers and suggested that trainings be organised for all providers, especially nurses to reduce the incidence of circumcision-related injuries. In a meta-analysis, Weiss *et al.*<sup>[26]</sup> found that several studies stressed the importance of training and experience of the provider of circumcision services.

Conversely, most preferred personnel for managing post-circumcision complications in this survey are the doctors. It may be possible that mothers prefer doctors to manage post-circumcision complications because they think that the preferred initial circumciser, who are mainly nurses, have failed, hence the need to choose a supposedly more qualified personnel. It may also be that they believe that doctors are better trained to handle complications. Despite this burden of responsibility for managing post circumcision complications placed on doctors, it has been reported that training of doctors in circumcision is suboptimal in our environment.<sup>[27]</sup> As a corollary training in the management of post-circumcision complications may also be inadequate. Hence, we highly recommend adequate training of nurses to reduce post-circumcision complications and upgrading the skills of doctors in managing post-circumcision complications.

Unlike in other studies where a large number of circumcisions were still done by non-orthodox circumcisers,<sup>[18,21]</sup> many mothers in this survey did not desire the services of non-orthodox circumcisers such as traditional birth attendants (TBAs). Therefore, efforts may not be wasted training TBAs for circumcision in our environment.

Most mothers, from this survey, will not insist on the use of anaesthesia for circumcision. Among those who responded

that they will insist on use of anaesthesia, mothers with higher highest educational level are more likely to insist on the use of anaesthesia for circumcision than those with lower highest educational qualifications. It has been suggested by some reports that non-use of anaesthesia may increase complication rates<sup>[13,22]</sup> and that anaesthesia for circumcision is appropriate. Despite this, most circumcisers use no anaesthesia or inadequate anaesthesia during circumcision<sup>[28]</sup> despite the fact that anaesthesia reduces pain score and is encouraged.<sup>[29]</sup> Mothers are therefore encouraged to request for the use of anaesthesia during male neonatal circumcision.

The maternal willingness to circumcise a child is significantly related to circumcision status of the husband. Despite the fact that it was mothers' preference being assessed, their husbands' circumcision status was a very important factor affecting their choice of circumcision for their male neonate. This may be due to their acceptance and satisfaction with the appearance of a circumcised male phallus when compared with uncircumcised one. Circumcision status of father was also an important factor influencing choice of circumcision in another study by Rediger and Muller.<sup>[15]</sup>

As also noted in some other studies,<sup>[13,30]</sup> majority of the women in this survey will not use analgesics following circumcision, although the use of analgesics after circumcision was more likely in women with tertiary education than those without tertiary education. However, AAP<sup>[2]</sup> encouraged that adequate analgesia should be provided whenever newborn circumcision is carried out.

This study is limited by the fact that it was done only in teaching hospitals which may not be a true representation of the general population. It may have been more appropriate to use only pregnant women whose child (ren) have been circumcised instead of using all pregnant women including those with no experience of circumcision. Preferences of other key players in circumcision decision-making such as child's father and grandmother were not studied. Furthermore, those that declined consent (non-responders) were not captured, and hence, it is difficult to calculate the response rate.

## CONCLUSIONS

Most mothers in Enugu want male circumcision in the neonatal period and will prefer nurses to circumcise their male neonates, but doctors to handle post-circumcision complications. This choice is not affected by educational status of mothers. Mothers whose husbands are circumcised accepted circumcision more readily than those whose husbands were not. Maternal education encourages the use of anaesthesia for circumcision and post-circumcision analgesia.

## Recommendations

We recommend that training/certification of circumcisers, especially nurses, be done before they are allowed to carry out circumcision. Furthermore, training of nurses and doctors in circumcision and doctors in managing post-circumcision



complications should be encouraged. Furthermore, we advocate increasing awareness of women on the use of anaesthesia during circumcision and post-circumcision analgesia. In addition, the hospital environment should be made more friendly and services affordable to encourage good patronage for circumcision services and ensure good outcome.

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### Conflicts of interest

There are no conflicts of interest.

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