

## Sociodemographic determinants of childhood male circumcision by traditional practitioners in a rural Nigerian town

TA Lawal

Department of Surgery, College of Medicine,  
University of Ibadan, Ibadan, Nigeria

### Abstract

**Introduction:** Circumcision, often associated with adverse effects, is performed by medical personnel and traditional circumcisers in Africa, with higher complication rate when performed by the latter. The aim of the study was to evaluate the sociodemographic determinants of seeking for male circumcision in childhood by a traditional practitioner.

**Materials and methods:** This was a cross-sectional study conducted in Igbo Ora, a rural community, in Southwest Nigeria between April and September 2017. One mother was selected from each enumerated household using multi-staged sampling technique and information obtained with interviewer-administered questionnaires.

**Results:** A total of 317 participants were recruited with a median age of 40.0 years. The majority were Yoruba (290, 91.5%), Muslims (198, 62.5%) and unskilled workers (244, 77.0%). All had one or more sons circumcised; the last was by: doctors (28, 8.8%), nurses (214, 67.5%) or traditional circumcisers (75, 23.7%). A traditional circumciser was more often involved when mother was Yoruba, less educated, unskilled worker, baby delivered at government hospital/home, when circumcision was done long ago or has multiple sons ( $p < 0.001$ ). The determinants of involvement of a traditional circumciser were: tribe (OR = 20.83, 95% CI: 2.42, 166.67,  $p = 0.006$ ), education (OR = 34.48, 95% CI: 8.20, 142.86,  $p < 0.001$ ), occupational class (OR = 8.11, 95% CI: 1.32, 49.80,  $p = 0.024$ ) and how recent circumcision was (OR = 2.96, 95% CI: 1.41, 6.24,  $p = 0.004$ ).

**Conclusion:** Tribe, education and occupational class are factors that determine patronage of traditional circumcisers.

**Keywords:** Circumcision; predictors; rural; sociodemographic determinants; traditional

### Résumé

**Introduction:** La circoncision, souvent associée à des effets indésirables, est pratiquée par le personnel médical et les exciseurs traditionnels en Afrique, avec

un taux de complication plus élevé lorsqu'elle est réalisée par ce dernier. Le but de l'étude était d'évaluer les déterminants sociodémographiques de la recherche de la circoncision masculine dans l'enfance chez un praticien traditionnel.

**Matériels et méthodes :** Il s'agit d'une étude transversale menée entre avril et septembre 2017 dans la communauté rurale d'Igbo Ora, dans le sud - ouest du Nigéria. Une mère a été sélectionnée dans chaque ménage énuméré en utilisant la technique d'échantillonnage en plusieurs étapes et l'informations obtenues à l'aide de questionnaires administrés par intervieweurs.

**Résultats :** Un total de 317 participants a été recruté avec un âge médian de 40,0 ans. La majorité était composée de Yoruba (290 ; 91,5%), de musulmans (198 ; 62,5%) et de travailleurs non qualifiés (244 ; 77,0%). Tous avaient un ou plusieurs fils circoncis, le plus moins par : les médecins (28, 8,8%), les infirmières (214, 67,5%) ou les exciseurs traditionnels (75, 23,7%). Les exciseurs traditionnels étaient plus souvent impliqués lorsque la mère était yoruba, travailleuse non qualifiée, peu instruites, et accouchées à l'hôpital du gouvernement / à la maison, lorsque l'excision était pratiquée il y a longtemps ou a plusieurs fils ( $p < 0,001$ ). Les déterminants de l'implication d'un exciseur traditionnel étaient : la tribu (OR = 20,83, IC 95%: 2,42, 166,67,  $p = 0,006$ ), éducation (OR = 34,48, IC 95%: 8,20, 142,86,  $p < 0,001$ ), classe professionnelle (OR = 8,11, IC 95%: 1,32, 49,80,  $p = 0,024$ ) et comment récente était la circoncision (OR = 2,96, IC 95%: 1,41, 6,24,  $p = 0,004$ ).

**Conclusion :** La tribu, l'éducation et la classe professionnelle sont des facteurs qui déterminent le patronage des exciseurs traditionnels.

**Mots - clés:** circoncision ; prédicteurs ; rural ; déterminants sociodémographiques ; traditionnel

### Introduction

Male circumcision is one of the most often performed surgical procedures worldwide [1]. The procedure dates back to centuries and it is undertaken by surgically trained as well as untrained personnel. Circumcision, which had been associated with some controversies on account of its safety and benefits

compared to retaining the prepuce skin, has gained more support with the evidence that it offers some protection against the HIV pandemic in high prevalence regions of Africa [2-4].

There are still concerns about the safety of the procedure because of serious complications reported in 0.2% to 33.7% [5-8]. These adverse events include post circumcision bleeding, redundant prepuce, urethrocutaneous fistula and glanular amputation among others [7,9,10]. The prevalence of complications is reported to be higher when performed at older ages [7,11] and when performed by less well trained individuals or traditional practitioners [7,12-14].

With renewed interest in circumcision and recommendations that neonatal age is perhaps the best time to perform the procedure [1,8], there are concerns about the morbidity that may be associated with the procedure. Training of personnel in terms of technique, instrumentation and perioperative care has been the main focus of advocacy for safe circumcision [6,7]. This, largely targeted at the medically trained practitioners, may not be enough to eradicate the morbidities. Behavioural changes and sociobiological models that identify the clients of traditional circumcisers would be an additional avenue to the preventive aspect. Identifying sociodemographic factors, which can predict parents that are likely to seek for circumcision performed by a traditional circumciser, will be useful for primary prevention. Parental education about choices to make, questions to ask the circumcisers and the perioperative plan may then be adequately addressed once the target personnel is known. The aim of the study was, thus, to evaluate the socio-demographic determinants of seeking for circumcision at the hands of traditional practitioners.

### Materials and methods

This was a cross-sectional study conducted in a rural community, Igbo Ora, in South-western Nigeria between April and September 2017. Following institutional review board approval from the Oyo State Ethics Review Committee, multi-staged sampling technique was used to recruit participants. A minimum sample size of 289 participants was calculated based on a prevalence of male childhood circumcision by traditional practitioners of 25% obtained in a nearby rural town, a precision (d) of 5% and a power of 90%. The first stage involved selection of three out of the seven officially recognized wards by balloting using sealed envelopes. The second stage involved selection of

100 households in each ward, with each household consecutively visited and only one mother recruited from that household once the family had a son. Households where the mothers were not available at the time of the survey were skipped and the next household approached until the minimum required was reached.

Information was obtained from consenting participants using structured interviewer-administered questionnaires, which was translated into the local language – Yoruba. The Yoruba version of the questionnaire was back translated into English language and a linguistic expert made adjustments to the final version, which was validated in a rural community in a nearby town. The questionnaire contained items on the sociodemographic characteristics of the respondents, family sizes and ages of children, circumcision status of their sons, where the circumcision was done and the circumciser. Occupational status was recorded and recoded into three: skilled workers, unskilled workers i.e. traders and artisans and dependants [15]. Information was also obtained on antenatal care, details provided about male circumcision during pregnancy and by the circumciser and care of the circumcised phallus. Mothers who were not able to converse in either English language or Yoruba language were excluded from the study.

Data were entered into a computer and statistical analysis performed using SPSS version 21 (IBM; Armonk, New York). Univariate statistical analysis was done and results summarised as medians and ranges for continuous variables and percentages, ratios and proportions for categorical variables. Tests of association between categorical variables were conducted with Chi square statistic. For the purpose of cross-tabulation, age was dichotomized according to the median age. Variables that were significant at 20% during bivariate analysis were pooled into a multivariate logistic regression model to determine predictors of seeking for male childhood circumcision from a traditional practitioner. The p value for statistical significance was set at < 0.05.

### Results

A total of 317 participants were recruited. The median age of the participants was 40.0 years (range of 16 to 86 years). The majority (290, 91.5%) were Yoruba, 198 (62.5%) were Muslims, 244 (77.0%) were unskilled workers and 242 (76.3%) had 12 years or less of education (Table 1).

The number of sons in each family was one to seven (median of two sons). A total of 93 (29.3%)

Table 1: Sociodemographic characteristics of the participants

Variables	Categories	Number	Percentage
Age (years)	≤40	168	53.0
	>40	149	47.0
Tribe	Yoruba	290	91.5
	Igbo	5	1.6
	Hausa/Fulani	22	6.9
Religion	Islam	198	62.5
	Christianity	117	36.9
	Others	2	0.6
Occupational class	Skilled workers	62	19.6
	Unskilled workers	244	77.0
	Dependants	11	3.5
Educational status	None	60	18.9
	Primary school	42	13.2
	Secondary school	140	44.2
	Technical post-secondary	48	15.1
	University	27	8.5
	Total	317	100.0

participants had three or more sons. The last son in the family was delivered at a Government hospital (187, 59.0%), private clinic (117, 36.9%) or at home (13, 4.1%).

All the participants had one or more sons circumcised. The circumcision of the youngest son was done at a median age of six weeks (range from one week to four years). The circumcision of the

youngest son was done by: doctors (28, 8.8%), nurses (214, 67.5%) or traditional circumcisers (75, 23.7%). The majority (259, 81.7%) did not receive any counselling about male circumcision from health care workers during antenatal care. The parents were told to come back three to thirty days after the circumcision (median duration of three days).

Table 2: Association between sociodemographic characteristics of the participants and personnel that did the circumcision

Variable	Circumciser:			Total No (%)	X <sup>2</sup>	p value
	Doctor No (%)	Nurse No (%)	Traditional No (%)			
Age (years)						
≤40	14 (8.3)	129 (76.8)	25 (14.9)	168 (100.0)	16.300	<0.001*
>40	14 (9.4)	85 (57.0)	50 (33.6)	149 (100.0)		
Tribe						
Yoruba	20 (6.9)	196 (67.6)	74 (25.5)	290 (100.0)	19.423	<0.001*
Others	8 (29.6)	18 (66.7)	1 (3.7)	27 (100.0)		
Religion						
Christianity	15 (12.8)	77 (65.8)	25 (21.4)	117 (100.0)	3.829	0.147
Islam & Others	13 (6.5)	137 (68.5)	50 (25.0)	200 (100.0)		
Occupational class						
Skilled workers	8 (12.9)	50 (80.6)	4 (6.5)	62 (100.0)	15.412	0.004*
Unskilled workers	18 (7.4)	159 (65.2)	67 (27.5)	244 (100.0)		
Dependants	2 (18.2)	5 (45.5)	4 (36.4)	11 (100.0)		
Educational status						
None	3 (5.0)	26 (43.3)	31 (51.7)	60 (100.0)	42.055	<0.001*
Primary/secondary	14 (7.7)	128 (70.3)	40 (22.0)	182 (100.0)		
Tertiary education	11 (14.7)	60 (80.0)	4 (5.3)	75 (100.0)		
Total	28 (8.8)	214 (67.5)	75 (23.7)	317 (100.0)		

\*Statistically significant

**Table 3:** Association between place of delivery and the number of boys in the family and personnel that did the circumcision.

Variable	Circumciser:				X <sup>2</sup>	p value
	Doctor No (%)	Nurse No (%)	Traditional No (%)	Total No (%)		
<b>Place of delivery</b>						
General hospital <sup>#</sup>	24 (12.8)	108 (57.8)	55 (29.4)	187 (100.0)	28.645	<0.001*
Private clinic	4 (3.4)	99 (84.6%)	14 (12.0)	117 (100.0)		
At home	0 (0.0)	7 (53.8)	6 (46.2)	13 (100.0)		
<b>Number of boys</b>						
1 or 2	20 (8.9)	165 (73.7)	39 (17.4)	224 (100.0)	16.890	<0.001*
≥ 3	8 (8.6)	49 (52.7)	36 (38.7)	93 (100.0)		
<b>Total</b>	28 (8.8)	214 (67.5)	75 (23.7)	317 (100.0)		

# - Included all government run hospitals and health centres; \* - statistically significant

**Table 4:** Logistic regression analysis of relationship between socio-demographic variables and circumcision by a traditional practitioner

Variable	Categories of variable	OR	95% CI	p value
Age	> 40 years	2.96	1.41 – 6.24	0.004*
	≤ 40 years			
Tribe	Yoruba	20.83	2.42 – 166.67	0.006*
	Others			
Religion	Islam	1.00	0.52 – 1.94	0.998
	Christianity			
Occupational class	Dependants	8.11	1.32 – 49.80	0.024*
	Unskilled workers	3.72	0.80 – 17.23	0.093
	Skilled workers			
Educational status	None	34.48	8.20 – 142.86	<0.001*
	Primary/secondary	8.06	2.23 – 29.41	0.001*
	Tertiary			
Place of delivery	Home	3.55	0.76 – 16.52	0.106
	General hospital	1.28	0.30 – 5.49	0.739
	Private clinic			
Number of boys	≥ 3	1.19	0.57 – 2.49	0.636
	1 or 2			

\*Statistically significant; reference category on logistic regression = traditional circumciser

The proportion of sons of older respondents who had circumcisions done by traditional practitioners was higher than that of sons of respondents aged 40 years or less (33.6 vs. 14.9%,  $p < 0.001$ ). A higher proportion of boys from Yoruba families were circumcised by a traditional practitioner than boys from other ethnic groups (25.5% vs. 3.7%,  $p < 0.001$ ). Higher proportions of sons of dependants (36.4%) or unskilled workers (27.5%) were circumcised by traditional practitioners compared to sons of skilled workers

(6.5%),  $p = 0.004$ . The proportions of sons of participants with 12 or fewer years of education (22.0%) or had who no formal education (51.7%) circumcised by traditional practitioners were higher than that of sons of mothers who had tertiary level of education (5.3%),  $p < 0.001$ . There was no significant association between the religious beliefs of participants and the choice of circumciser (Table 2).

The proportions of boys delivered at government hospitals (29.4%) or at home (46.2%) whom traditional practitioners circumcised were

higher than the proportion of boys delivered in private clinics (12.0%) who had the procedure done by traditional circumcisers,  $p < 0.001$ . The proportion of boys from families with three or more sons (38.7%) who were circumcised by a traditional practitioner was higher than the proportion of boys from families with fewer sons and whom traditional practitioners circumcised (17.4%),  $p < 0.001$  (Table 3).

Sons of older mothers i.e. procedure performed chronologically much earlier were nearly three times more likely to have been circumcised by traditional practitioners compared to sons of younger mothers i.e. procedure performed much more recently (OR = 2.96, 95% CI: 1.41, 6.24,  $p = 0.004$ ). Yoruba sons were 21 times as likely as sons of mothers from other ethnic groups to have had the procedure done by traditional circumcisers (OR = 20.83, 95% CI: 2.42, 166.67,  $p = 0.006$ ). The odd of being circumcised by traditional practitioners was eight times higher for children of dependants than those of skilled workers (OR = 8.11, 95% CI: 1.32, 49.80,  $p = 0.024$ ). Sons of uneducated mothers were also 34 times more likely than sons of those who had tertiary education to have had circumcisions done by traditional practitioners (OR = 34.48, 95% CI: 8.20, 142.86,  $p < 0.001$ ). Religious beliefs of participants, the place of delivery of the last son and the number of sons in the family were not significant predictors of seeking for circumcision from traditional practitioners (Table 4).

## Discussion

This cross-sectional study was conducted in a rural community to explore the sociodemographic factors that would be helpful in preventive health education, targeted at reducing the complications of circumcision – a procedure that is ubiquitously performed in many parts of the world. A rural community was selected because of the possibility that traditional circumcisers will be more often encountered there than in more urban settings, which may have more qualified healthcare professionals working therein. The participants involved in the study were largely Yoruba, unskilled workers – mainly traders and artisans and the majority had 12 years or less of formal education. These are characteristic of rural communities in South-western Nigeria. The study design allowed information to be obtained easily on the aims and objectives in a snapshot fashion. A major limitation of the study, however, was recall bias, which might have arisen in the information provided by older participants whose most recent encounters could have occurred many years previously.

Circumcision of sons was reported in all the families surveyed in this study. This reflects the general pattern of behaviour in this part of Africa, where male circumcision is widely practiced [5,6]. The procedure of male circumcision in Africa had, hitherto, been largely influenced by religion and cultural practices with a much higher prevalence of male circumcision reported in Northern/Western African countries than in Eastern/Southern Africa [16]. In Nigeria, the influence of religion on male circumcision has resulted in most families circumcising their sons.

The median age at circumcision in this study was six weeks. All the sons had been circumcised by the age of four years. Abdur-Rahman *et al.* [17] reported similar ages at circumcision in a hospital-based study in North-Central Nigeria. The practice of neonatal or early childhood circumcision appears to be culturally influenced. Most Yoruba parents in the region circumcise their sons about the time of the naming ceremony [18] and over 90% of the participants in this study belonged to that ethnic group. Mothers who are civil servants would want the circumcision wound healed before resumption from maternity leave at about 8 to 12 weeks post-partum in the region [5]. Furthermore, the later the circumcision is performed, the more worried the parents get about cleaning the prepuce and pain control during the procedure.

A traditional circumciser performed the (last) male circumcision in 23.7% of cases. Healthcare professionals – largely nurses, did the overwhelming majority of circumcisions. This could be due to the presence of a few general and cottage hospitals, health centres and public health facilities in the town, such that the modern health care option was not unusual among the population. The proportion of male circumcision performed by traditional practitioners in this study was much higher than 9% obtained from the same region of the country but in an urban setting a few years previously [6]. Traditional circumcisers are more likely to practice in rural or semi-urban settings than in urban ones because of the wider gap in accessing orthodox medical care in rural communities. Traditional practitioners, in this series, were involved with childhood circumcision rather than circumcision done later as a rite of passage into adulthood. The latter is not routine cultural practice in South-western Nigeria.

Over 80% of the participants did not receive any counselling about male circumcision during antenatal care. This was in spite of over 95% of the mothers delivering their babies in a hospital. This is

in contrast to 83.5% of parents, in a study conducted in New York, who were counselled about circumcision of their sons [19]. In that study, the parents were informed of the advantages and disadvantages of the procedure and 50% of parents had decided to go ahead with circumcision even before the child was delivered [19]. Appropriate counselling of mothers, especially those expecting boys, about circumcision and care of the wound is a form of public health education to improve the outcome of circumcision.

Chronology was a significant factor influencing the choice of circumcision in this study, as older mothers were more likely than younger ones to have visited traditional circumcisers. In essence, circumcisions performed more recently were less likely to have been performed by traditional practitioners compared to those performed earlier. This may suggest a gradual reduction in patronage of traditional circumcisers. Ethnicity was another significant factor influencing the choice of circumcision; Yoruba mothers were more likely to engage traditional circumcisers than mothers from other ethnic groups. This is in keeping with the influence of culture and tradition over circumcision in our society [20,21]. This effect likely overtakes religious beliefs, as there was no significant relationship between the religious beliefs of the mothers and seeking for circumcision by a traditional practitioner. In a prospective study conducted on requests for circumcisions in Nnewi, South-Eastern Nigeria, 200 (59.3%) of 337 requests were for cultural reasons compared to 122 (36.2%) for religious reasons [21]. Culture also played a predominant role, regardless of the religious beliefs of the parents, in driving circumcision in other studies from the same country [5,6,20].

Educational level and occupational status were significant predictors of seeking for circumcision at a traditional circumciser's workshop. Participants who were less educated, unskilled workers or dependants were more likely to engage traditional circumcisers. Delivery at home or at a government hospital, which may be associated with a lower social status, rather than giving birth at a private clinic was also associated with circumcision of sons by a traditional practitioner. Low social class with associated poorer educational status, larger family sizes and less skilled occupations are features that predominate in rural communities in developing countries [22,23]. These factors are also implicated in driving patronage of traditional circumcisers. It is therefore, imperative to target mothers in this group during

community health education programmes or antenatal care to provide information about circumcision options, techniques and care of the wound.

In conclusion, tribe, education and occupational class are factors that determine patronage of traditional circumcisers. Public health awareness targeted at identified groups can help improve safety of circumcision.

## References

1. Lawal TA and Olapade-Olaopa EO. Circumcision and its effects in Africa. *Transl Androl Urol* 2017;6(2):149-157.
2. Auvert B, Taljaard D, Lagarde E, *et al.* . Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. *PLoS Med* 2005;2(11):e298.
3. Bailey RC, Moses S, Parker CB, *et al.* Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *Lancet* 2007;369(9562):643-656.
4. Gray RH, Kigozi G, Serwadda D, *et al.* Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet* 2007;369(9562):657-666.
5. Abdur-Rahman LO, Musa OI and Oshagbemi GK. Community-based study of circumcision practices in Nigeria. *Annals of Tropical Medicine and Public Health* 2012;5(3):231-235.
6. Okeke LI, Asinobi AA and Ikuero OS. Epidemiology of complications of male circumcision in Ibadan, Nigeria. *BMC Urol* 2006;6:21.
7. Weiss HA, Larke N, Halperin D and Schenker I. Complications of circumcision in male neonates, infants and children: a systematic review. *BMC Urol* 2010;10:2.
8. Young MR, Bailey RC, Odoyo-June E, *et al.* Safety of over twelve hundred infant male circumcisions using the Mogen clamp in Kenya. *PLoS One* 2012;7(10):e47395.
9. Abdur-Rahman LO, Kolawole IK, Adeniran JO, *et al.* Pediatric day case surgery: experience from a tertiary health institution in Nigeria. *Ann Afr Med* 2009;8(3):163-167.
10. Bode CO, Ikhisemojie S and Ademuyiwa AO. Penile injuries from proximal migration of the Plastibell circumcision ring. *J Pediatr Urol* 2010;6(1):23-27.
11. El Bcheraoui C, Zhang X, Cooper CS, *et al.* Rates of adverse events associated with male

- circumcision in U.S. medical settings, 2001 to 2010. *JAMA Pediatr* 2014;168(7):625-634.
12. Bailey RC, Egesah O and Rosenberg S. Male circumcision for HIV prevention: a prospective study of complications in clinical and traditional settings in Bungoma, Kenya. *Bull World Health Organ* 2008;86(9):669-677.
  13. Magoha GA. Circumcision in various Nigerian and Kenyan hospitals. *East Afr Med J* 1999;76(10):583-586.
  14. Osifo OD and Oriafio IA. Circumcision mishaps in Nigerian children. *Ann Afr Med* 2009;8(4):266-270.
  15. Esan TA, Olusile AO, Akeredolu PA and Esan AO. Socio-demographic factors and edentulism: the Nigerian experience. *BMC Oral Health* 2004;4(1):3.
  16. Drain PK, Halperin DT, Hughes JP, Klausner JD and Bailey RC. Male circumcision, religion, and infectious diseases: an ecologic analysis of 118 developing countries. *BMC Infect Dis* 2006;6:172.
  17. Abdur-Rahman LO, Nasir AA and Adeniran JO. Circumcision: perspective in a Nigerian teaching hospital. *Afr J Paediatr Surg* 2013;10(3):271-274.
  18. Jimoh BM, Odunayo IS, Chinwe I, *et al.* Plastibell circumcision of 2,276 male infants: a multi-centre study. *Pan Afr Med J* 2016;23:35.
  19. Bisono GM, Simmons L, Volk RJ, *et al.* Attitudes and decision making about neonatal male circumcision in a Hispanic population in New York City. *Clinical pediatrics* 2012;51(10):956-963.
  20. Bode C, Ademuyiwa A, Jeje E, *et al.* Preferred methods of male neonatal circumcision among mothers in Lagos Nigeria. *J West Afr Coll Surg* 2011;1(2):29-37.
  21. Ekwunife OH, Ugwu JO, Okoli CC, Modekwe VI and Osuigwe AN. Parental circumcision preferences and early outcome of plastibell circumcision in a Nigerian tertiary hospital. *Afr J Paediatr Surg* 2015;12(4):251-256.
  22. Asamoah BO, Agardh A, Pettersson KO and Ostergren PO. Magnitude and trends of inequalities in antenatal care and delivery under skilled care among different socio-demographic groups in Ghana from 1988 - 2008. *BMC Pregnancy Childbirth* 2014;14:295.
  23. Heaton TB, Crookston B, Pierce H and Amoateng AY. Social inequality and children's health in Africa: a cross sectional study. *Int J Equity Health* 2016;15:92.