

Viewing human faecal waste disposal through the lens of biblical sanitary code

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Abstract

The concept of cleanliness is clearly revealed in the Biblical Sanitary Code of Deuteronomy 23:12-14. Therefore, adherence to the Biblical Sanitary Code (BSC) (Deut 23:12-14) remains essential for faecal waste disposal challenges. This study examined the practice of faecal waste disposal and challenges in Igburu clan of Rivers-West Senatorial District vis-à-vis the Biblical Sanitary Code. The selected communities are situated along the Orashi-Sombreiro confluence. The work utilised the textual/inter-textual analysis and the quantitative approach. A hundred and fifty copies of questionnaire were distributed. Data generated were subjected to content analysis and the use of SPSS. This work hypothesizes that open toilet system in Igburu clan has received a community approval and has become a social practice which has bearing with the health condition of the community members. Given this backdrop therefore, Diffusion of Innovations Theory was utilized as a framework for this study. The findings revealed that 79% of respondents understood the BSC while 72% affirmed they never implemented the BSC. Also, 80% confirmed that faecal waste in the community designated site was often evacuated into the streams by rainfall. About 70% and 93% of the respondents respectively claimed the prevalence of air pollution and water-borne diseases in the region. The environmental and health challenges observed



could be reduced if the BSC is properly disseminated and implemented.

Keywords: biblical sanitary code, faecal waste disposal challenges, pollution, environmental wellbeing, igburu clan

Introduction

The divine motivation for cleanliness is highly implied in the Biblical Sanitary Code of Deuteronomy 23:12-14. Therefore, adherence to the Biblical Sanitary Code (BSC) of Deuteronomy 23:12-14 remains essential for faecal waste disposal challenges in Igburu clan of Rivers State. In the early 1800s human faecal waste remained a valuable and lucrative economic product sold and bought by scavengers and farmers until the inception of the white Americans' notable sanitary revolution in 1868.¹ The adoption of the notable sanitary revolution at that time appeared to have been based on the Biblical Sanitary code but rather, was borne out of racial disposition from the white Americans against the Native Americans as well as the darker-skinned peoples of the period. For whatever reasons, however, the white American's sanitary revolution, underpins the Biblical sanitary rule of Deuteronomy 23:12-14 which in deed reveals the "cleanliness motif" for a faith community especially, ancient Israelites on transition to Canaan. This sanitary code falls within the traditional laws enshrined in the book of Deuteronomy 21 – 26:19. Specifically, it is preserved in Deuteronomy 23: 12-14 and explains how ancient Israelites were to dispose faecal waste. It provided the process involved in their obligation namely: the designation of a place for faecal waste disposal, the use of implement such as shovel in digging small holes in the ground for faecal waste disposal.

According to Kizhakkeyil the motivating force for this rule could possibly be the concern for cleanliness and hygiene, holding that this sanitary code suggests the need for adequate and basic toilet

¹D.M Gerling, 'Excrementalisms: revaluing what we have only ever known as waste', *Food, Culture & Society*, 22 (5) (2019): 622-638, DOI: 10.1080/15528014.2019.1638126

facilities especially in modern times.² This concern is considered as the enforcement on sanitation with regard to faecal waste disposal where violation results in attendant epidemics of dysentery, cholera and typhus, and related diseases. Such concern is also regarded as God-revealed-principle in the Bible given to mankind thousands of years before scientists understood its benefit.³ Observably, adherence to sanitary laws has been essential for human health and well-being even in the face of global environmental pollution.⁴ Apparently, it appears that in recent centuries, the benefits of adhering to the Biblical toilet code (Deut 23:12-14) has not been clearly understood amongst communities in Igburu clan in Ogba-Ndoni-Egbema L.G.A (ONELGA) of Rivers State. This limited understanding of the advantage of the Biblical toilet code is exemplified in the practice of open defecation as would be revealed subsequently in the data generated for this discourse.

Nevertheless, this study examined the practice of open defecation/toilet system among the people of Igburu clan in Ogba-Ndoni-Egbema L.G.A (ONELGA), Rivers State, especially within communities along the *Orashi-Sombreiro* confluence; with the view to achieving the following objectives: 1. to investigate their attitude open defecation system; 2. to test their understanding of the Biblical toilet code; 3. to investigate the attendant health challenges of open toilet system, and 4. Make recommendations for the people of Igburu clan in Rivers State.

The literature

² S. Kizhakkeyil, *The Pentateuch: An Exegetical Commentary* (Bandra: St. Bombay Paul Society, 2009), 488-499.

³ S. Adu-Gyamf & C. Marfo. 'Preventive healthcare tapestry: ensuring a resonance' *Arts and Humanities Open Access Journal*, 2(6) (2018): 416, 418.

⁴ R. Kelishahi, *Environmental Pollution: Health and Operational Implication for Pollutants Removal*, 2012.

<https://www.environmental%20Pollution%20%20Health%20Effects%20and%20Operational%20Implications%20for%20Pollutnts%20Removal.xht> (accessed 10th October, 2018)

Discussing the divine nature of sanitation, Adu-Gyamf and Marfo,⁵ Mumuni⁶, Afolabi⁷, Fatubarin and Alabi⁸, Appiah⁹, Mwambazambi¹⁰, and Kizhakkeyil¹¹ link sanitary laws with God who seeks to dwell in a harmonious, restrained and tidy environment, and who requires that humanity protect, promote and conserve the environment for sustainable development. These scholars further emphasised the need to adhere to the Deuteronomic toilet code which has the potential for environmental protection against pollution.

On the prevalence of the practice of Open toilet system, that is, the emptying of bowels in the open without the use of properly designed structure (such as toilets) built for the handling of human waste in Nigeria, Obinna¹² and Oluseyi¹³ reveal that

⁵ S. Adu-Gyamf & C. Marfo. 'Preventive healthcare tapestry: ensuring a resonance' *Arts and Humanities Open Access Journal*, 2(6) (2018): 416, 418.

⁶ R.J. Mumuni, *An Interview with Joy News Multi TV*, 11 August 2014. <http://Wwww.Myjoyonline.Com/News/2014/August-11th/God-Abhor-Open-Defecation-Health-Officer-Php> (accessed 16 March 2016).

⁷ A.J. Afolabi, 'Environmental Pollution; A study of Matthew 21:12', *Religions Journal of the Nigerian Association For the Study of Religions* 23 (2013).

⁸ A. Fatubarin and D.O Alabi. 'The Role of Religion in the Natural Environment of Man', *Religions Journal of the Nigerian Association For the Study of Religions* 23 (2013).

⁹ S.E. Appiah, *A Religious Response To Environmental Degradation In Kumasi Metropolitan Assembly And Ejisu Juaben Municipal Assembly*, 2011. <http://www.ir.knust.edu.gh/bitstream/123456789/4049/1/Final.pdf> (accessed 3 March 2019).

¹⁰ K. Mwambazambi, 'Environmental Problem in Africa: A Theological Respons', *Ethiopian Journal of Environmental Studies and Management* 3(2) (2010): 54-63

¹¹ S. Kizhakkeyil, *The Pentateuch: An Exegetical Commentary* (Bandra: St. Bombay Paul Society, 2009), pp. 488-499.

¹² C. Obinna, 'Why Nigeria Ranks second worst open defecating country in the world –report', *Vanguard News Paper*, September 2018. <https://www.vanguardngr.com/2018/09/why-nigeria-ranks-second-worst-open-defecating-country-in-the-world-reportt/> (accessed 17 March, 2019).

¹³ A. Oluseyi, 'Nigeria's Sanitation Crisis 2016 World Toilet Day Nigeria Supplement', *Water Aid*, November, 2016. <https://www.google.com/search?q=oluseyi+Abdulmalik.+Nigeria%e2>

Nigeria is ranked amongst the top five countries, if not the second, that practice open defecation system. It further shows that 47 million Nigerians defecate in the open while another 75 million use unimproved toilets leading to the country's loss of ₦455 billion annually to poor sanitation. Emphasizing on the negative contribution of open toilet on the environment and the economy, Nkechinyere and Ugo enumerate amongst other factors, open defecation system, as detrimental to the environment and economic growth of the nation.¹⁴ The foregoing suggests that there is a challenge of fecal waste management given the prevailing practice of open toilet system in Nigeria which this work seeks to address.

According to the *WHO and UNICEF*¹⁵, open defecation has been associated with water-borne diseases especially when it is practiced near waterways (as noticed in the water regions of Igburu clan). As a result, the feces are carried into the water system, and the contaminated water ends up in the main water source used for drinking or cooking. This eventually attracts the attendant water-borne diseases such as Cholera, Typhoid, and Trachoma. From this literature, the health implication of open toilet system is generally exhibited.

Narrowing down to the Ogba-Ndoni-Egbema LGA (ONELGA) of Rivers State, several scholars have attributed the prevalent environmental pollution of the State to oil exploration and exploitation activities. Amongst these scholars are Nwaogazie, Abali and Hanshaw¹⁶, Iyorakpo and Wagio¹⁷, Josiah and Amah¹⁸,

%80%99s+Sanitation+Crisis+2016+World+Toilet+Day+Nigeria+Supple
ment%&spell=1&sa=X&ved=0ahUKEwjtfiuNzAhUGMuwkHcCoDhwBQgp
KAA&biw=1366&bih=576 (accessed 03 January, 2021).

¹⁴G.O Nkechiyere and K.C Ugo. 'The Role of Christianity in Environmental Protection in Nigeria', *Religions Journal of the Nigerian Association For the Study of Religions* 23 (2013).

¹⁵ World Health Organization/UNICEF Joint Monitoring Programme for Water, Sanitation and Hygiene', *UN-Water*, 8 May, 2015 <https://www.unwater.org/water-facts/water-sanitation-and-hygiene/> (accessed 3 January 2021).

¹⁶I.L. Nwaogazie, H.W. Abali and T. Hanshaw. 'Assessment Of Standard Pollutants In A Gas Flaring Region: A Case Of Ogba/Egbema/Ndoni Local Government Area of Rivers State of Nigeria', *International Journal Of Civil Engineering And Technology*, (2016): 7.

Nwaomah¹⁹, Affonne²⁰, Abodunrin²¹, Nwaomah²², Okaba²³, Clement Ikpatt and Scott²⁴, Spalling, Zwier and Kupp.²⁵ All these scholars have looked at oil and gas related pollution. Nevertheless, the need to revisit the environmental challenge of open toilet system in Igburu clan of Rivers State through the lenses of the Deuteronomic Toilet Code remains invaluable for this study.

Method and Materials

As a sociological study, this research adopts the analytical and quantitative research approaches to study. For the analytical aspect of the study, the text of Deuteronomy 23:12-14 which constitutes the Deuteronomic Toilet Code, was subjected to

¹⁷J. Iyorakpo and O.P. Wagio. 'Impact of Gas Flaring on the Built Environment: The Case of Ogba/Egbema/Ndoni Local Government Area, Rivers State Nigeria', *In European Scientific Journal*, (2015).

¹⁸U.G. Josiah and G.H Amah. 'The Mourning of the Land as Occasioned by Oil Mineral Pollution in the Niger Delta of Nigeria', *IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)* 4 (6) (Jul-Aug 2013): 44-49 www.iosrjournals.org

¹⁹S.M. Nwaomah, 'Biblical Ecology of Stewardship: Option in Quest for Sustainable Environment in the Niger Delta Region of Nigeria', *The Living Word: Journal of Philosophy and Theology*, 113 (2) (March- April 2013.): 89-103.

²⁰E. Affonne, 'Ogoni: Justice at Last', *Nigerian News World* 15(25) (August 22, 2011): 14-20. www.nigeriannewsworld.com

²¹A.O. Abodunrin, 'Anti-Pollution Laws in Deut 23:13-14' in C.U. Manus (ed.), *Biblical Studies and Environmental Issues in Africa* 1(143) (2008): 137 -145.

²²S.M. Nwaomah, 'Water in the Bible in the Context of the Ecological Debate in the Nigerian Delta', *The Journal for Faith, Spirituality and Social Change* 1.1(2) (2008): 187-204.

²³B.O. Okaba, *Petroleum Industry and the Paradox of Rural Poverty in the Niger Delta* (Benin City: Ethiope Publishing, 2005), Pp. 18-20.

²⁴C. Ikpatt and L.G. Scott. The Niger Delta Problems and Solutions: The Equilateral Resource Control (ERC) model as an Alternative Dispute Resolution (ADR) concept, *Niger Delta Peoples' World Congress*. 2001. http://nigerdeltacongress.com/narticles/niger_delta_problems_and_solution.htm (accessed 5 June, 2011).

²⁵H. Spalling, J. Zwier and D. Kupp. 'Earth keeping and the Poor: Assessing the Environmental Sustainability of Development Projects', *Perspectives on Science and Christian Faith*, 53(3) (September 2001): 142-151.

textual and inter-textual analysis where important Hebrew words within the texts were analysed in the context of the study's preoccupation. Also for the quantitative approach, a hundred and fifty (150) copies of questionnaire were distributed to the respondents using the purposive simple random sampling technique. The Ogba-Ndoni-Egbema L.G.A (ONELGA) is made up of 67 villages and towns and the residents are predominantly Christians. It covers three regions of the Ogba, Ndoni, and Egbema people of Rivers-West Senatorial District of the State. However, the Ogba region is sub-divided into three clans namely: Egi (dry land), Igburu (swamp or wet-land) and Usomini (water side). The Igburu clan which is the focus of this study is divided into four sub-regions which are as follows: Usonkisa, Alioma, Eluali, and Eti-Igburu regions.²⁶ Three communities from Igburu clan were purposively selected: Two (2) communities from Usonkisa and One (1) community from Eti-Igburu. These three communities are namely: Elieta, Egbada and Osiakpu respectively from the selected two of the four regions. These selected communities are mainly along the *Orashi-Sombreiro* River (confluence) where open defecation is mostly practiced. As a result of the inconsistent census record, it is difficult to have an authentic record of the total population of the three communities (Elieta, Egbada and Osiakpu). The data collated were analysed content wise as well as with the use of SPSS statistical package with descriptive and inferential statistical tools such as tables and averages adapted for needed data analysis. These led to the estimations and conclusions reached in this study.

Theoretical Framework

This work hypothesizes that open toilet system in Igburu clan has received a community approval and has become a social practice which has bearing with the health condition of the community members. Given this backdrop therefore, *Diffusion of Innovations Theory* was utilized as a framework for this study.

²⁶C.V. Izeogu, 'Ali-Ogba: Legend of Origin, Indigenous Political Structure and Economy', A paper presented at the First Annual Convention of Umuogba USA at Wellesley Airport Hotel, Atlanta, GA. USA, May 24-26, 2003.<http://www.umuogbausa.org/forms/ali-ogba%20origin.html> (accessed 28 March 2019).

Diffusion of innovations is regarded as the process by which an 'innovation' is communicated through certain 'channels' over time among the members of a social system. This Theory addresses how ideas, and social practices that are perceived as "new" spread throughout a society or from one society to another.²⁷ In this study, the theory is applied within the purview of a community's social practice of open defecation which has gradually become a cultivated culture amongst the community members perhaps through social interactions and has had a toll on the health of the people.

Over time, the system of Open defecation has been in practice through social interaction amongst community members. However, this theory also suggests *Effective diffusion* as a corrective measure. This requires practitioners to use both informal and formal communications channels and a spectrum of strategies for different settings, holding that disseminating an innovation in a variety of ways increases the likelihood that it will be adopted and institutionalised. In this breath, the study adopts the *effective diffusion model* as a way of communicating the need for proper disposal of faecal waste within Igburu Clan.

TEXTUAL ANALYSIS OF THE BIBLICAL SANITARY CODE (DEUT. 23:12-14)

A cursory look at the text of Deuteronomy 23:12-14 shows the presence of key nuances relevant in the discourse on sanitary rules as well as sanitary revolution in contemporary times. This section therefore, highlights the importance of some key words in the selected text which have obvious implications for faecal waste disposal especially in Igburu clan of Rivers State, Nigeria.

²⁷ U.S. Department of health and human services National Institutes of Health "Theories and Applications " *Theory at a Glance: A Guide For Health Promotion Practice* (Second Edition) (2005), 27. <http://www.sbccimplementationkits.org/demandrmnch/wp-content/uploads/2014/02/Theory-at-a-Glance-A-Guide-For-Health-Promotion-Practice.pdf#%5B%7B%22num%22%3A69%2C%22gen%22%3A0%7D%2C%7B%22name%22%3A%22FitH%22%7D%2C527%5D> (accessed 10 March, 2021).

In this section, Biblical sanitary code is also referred to as Deuteronomic Toilet code.

Nevertheless, in the biblical text of Deuteronomy 23:13, the Hebrew word *yātēd* used, appears twenty-four times in nineteen (19) verses and in eight (8) books of the Old Testament (Deut. 23:13; Exodus 27:19; 35:18; 38:20, 31; 39:40, Numbers 3:37; 4:32, Judges 4:21,22; 5:26; 16:14; Ezra 9:8; Isaiah 22:23,25; 33:20; 54:2 Ezekiel 15:3 Zachariah 10:4). Of all these verses, it carries the idea of an implement with a sharp edge like a peg often used in securing the tents during the wilderness experience of ancient Israel. In Exodus 27:19, it is used to secure the tents of the tabernacle together. An intertextual analysis reveals the different variants of the word in the English versions. For instance, the *American Standard Version* calls it 'paddle'²⁸ while the *Revised Standard Version* refers to it as 'stick' and *The New American Standard Bible* identifies it as 'spade'.²⁹ In the books of Exodus, Numbers, and Ezekiel, *yātēd* is called 'pin' while in Ezra, Judges and Zechariah it is called both 'pine' and 'nail'. In fact Isaiah called it 'stake' and 'nail.' It carries an idea of a sharp instrument of various uses.³⁰ Notwithstanding the various nuances, the underlying fact is that *yātēd* connotes 'digging a hole' whether in the wall or on the ground. And in the context of the Deuteronomic Toilet Code, the *yātēd* is meant to be used for making pits or holes on the ground for excrement. No wonder the RSV reads 'a stick with your weapons.' That is, when the first recipients of this code were to use the convenient, they were to carry with them a tool for digging the earth in which they could excrete.³¹

²⁸ F. Brown, S. Driver and C. Briggs. *The Brown Driver-Briggs Hebrew and English Lexicon* (Oxford: Clarendon Press, 1907), 450.

²⁹ R.L. Harris, 'yātēd' in (eds.) G.L. Archer, Jr. and B.K. Waltke, *Theological Wordbook of the Old Testament* (Chicago: Moody Press, 1980), 932a.

³⁰ T.D. Alexander and D.W. Baker, *Dictionary of the Old Testament Pentateuch* (Illinois Leicester, England: InterVarsity Press Downers Grove, 2003).

³¹ J. Gill, 'Commentary on Deuteronomy 23:12', *The New John Gill Exposition of the Entire Bible*.

<http://www.studylight.org/commentaries/geb/deuteronomy-23.html> (accessed 21 March 2019).

Another significant word used in the Deuteronomic Toilet Code is *ḥāpar* with the basic idea of ‘digging’ the ground for some reason. This word could also bear the meaning “to search” for something. Interestingly, *ḥāpar* is used often for digging a well. Genesis 21:30 and Genesis 26:15, 18-19 employs the word in connection with Abraham and Isaac respectively in their digging of wells. In Psalm 7:15, 16 it is used for digging a pit as a trap, while in Jeremiah 13:7, it connotes digging in quest of a hidden object.³² However, in the context of the Deuteronomic Toilet Code, as ancient Israelites stepped out of the camp to a designated area for defecation, they were to dig a hole in the ground into which the bowel was to be emptied.³³

Another important word in the Deuteronomic Toilet Code is the verb *kāsâ* which occurred 152 times in OT with the usual meaning of ‘cover up’ in the regular sense of the word. The *kāsâ* appears to be merely taking away from view or sight: that is to hide from view.³⁴ In this case, what is to be covered or hidden from view is further highlighted in the Deuteronomic Toilet Code. In the King James Version (KJV) what should be covered is “that which cometh from thee (Deut 23:13 KJV).” The NIV and the NASB both translated it as “your excrement (Deut 23:13 NIV, NAS)”. The Hebrew word used in the Deuteronomic Toilet Code as translated in these versions is *šē’â* which means filth, that is, human excrement (Deut 23:13; Ezek 4:12). This word is used only twice in the entire Old Testament Bible namely in Deuteronomy 23:13 and Ezekiel 4:12. It was used to illustrate the level of the sin of Israel and Judah in a scenario where the Prophet Ezekiel was asked to use *šē’â* as fuel to heat his oven for baking of bread which he rejected thus indicative of how repulsive human excrement could be.

³² Harris, *Theological Wordbook of the Old Testament*, 714.

³³Brown, Driver and Briggs. *The Brown Driver-Briggs Hebrew and English Lexicon*, 343

³⁴R.D.D. Jamieson, A.R. Fausset, and D. Brown, ‘Commentary on Deuteronomy 23:13’, *Commentary Critical and Explanatory on the Whole Bible* - Unabridged.
<https://www.studydrive.org/commentaries/jfu/deuteronomy-23.html>
(accessed 25 March 2019).

The LXX understanding of the Hebrew *ṣē'â* is quite intriguing. To the New Testament mind, the idea of covering the excrement is expressed as “covering ones’ shame.”³⁵ Here, the excrement is designated as ones’ shame which needs to be covered. By implication such exposure connotes an ‘indecent deed or act.’ Nevertheless, the Deuteronomic Toilet Code instructs that the *ṣē'â* (human excrement) be *kāsâ* (covered) properly after defecation at a designated place during the wilderness journey of ancient Israel. The plausible motivation of this code could be seen in the popular cliché “cleanliness is next to Godliness” (Deut 23:14). Underneath this ‘God factor’ in the discourse of cleanliness as enshrined in the Deuteronomic Toilet Code however, is the fact that the wellbeing of the people and their environment remained paramount within the purview of the code. No wonder they were to situate the place for the disposal of human excrement outside the camp (Deut 23: 12).

Data Analysis

Background of the Respondents

Table 1 shows the demographic characteristics of the participants. It revealed that (52%) were females while (48%) were males. The majority across the age range was 31-40years. (40%) participants were aged 31-40years, followed by those who were aged 20 to 30years (34%), while a least group of participants were 51years and above, (7%) which implied that majority of the participants were matured enough to understand these findings and responded appropriately. Also, most (62%) were married; (31%) were single while (7%) were divorced.

Twenty-six out of hundred Participants' (26%) were civil servants; (24%) engaged in business, and (16%) were farmers while (34%) engaged in other kinds of work apart from the above mentioned. With regards to educational background, more than half of the participants (57.6%) were graduates of secondary institution compared to (25%), who were

³⁵F. Wilbur Gingrich. *Shorter Lexicon of the Greek New Testament* Second Edition Revised by Frederick W. Danker, (Chicago and London: the University of Chicago Press, 1983), 29.

BSC/BA/HND and (18%) were first school leaving certificate holders. This showed that the majority of the participants were averagely learned. In addition, (41%) of the participants were from Osiakpu, while (32%) were from Egbada and (27%) from Elieta communities respectively.

OBJECTIVE ONE: TO TEST THEIR UNDERSTANDING OF THE DEUTERONOMIC TOILET-CODE

Table 2 expresses the respondents understanding about Deuteronomy 23:12-14. Forty-six (46%) percent of the respondents had read the text before and all of the respondents agreed with the text that it is God's will for us to be in good health because He loves a clean and healthy environment, for cleanliness and neatness are all part of His attributes, and ninety eight (98%) agreed that we are closer to God when our environment is clean for God dwells not in a dirty environment. More so, more than three -quarter (79%) of the respondents agreed with Deuteronomy 23:13b that God wants us to cover the waste from our body.

OBJECTIVE TWO: TO INVESTIGATE THEIR ATTITUDE TOWARD THE ENVIRONMENT THROUGH THE PRACTICE OF OPEN DEFECATION.

Table 3 reviews the respondent's attitude towards open toilet among Igburu clan.

Response to test items 1 and 4 reveal consistency and sincerity as 72% of the participants respectively claimed that they have an open community toilet situated in an open space for the community while another one is situated in their family houses and it is convenient for 42% of the respondents using it because they got relaxed when using it.

OBJECTIVE THREE: TO INVESTIGATE THE ATTENDANT HEALTH CHALLENGES OF OPEN TOILET SYSTEM WITH THE AIM OF HIGHLIGHTING THE BENEFITS OF ADHERING TO THE DEUTERONOMIC CODE

Table 4 shows the effect of the open toilet in Igburu clan. It reveals that almost all (93%) of the participants agreed that open toilet had a link with diseases and ailment experienced in their communities in form of vomiting and stooling while Seventy percent (70%) of the respondents agreed that they perceived foul odour around their building irrespective of the far distance, more than (60%) still perceived the foul odour from the open toilet. Eighty percent (80%) of the respondents attested that the fecal waste is often evacuated into the stream to create more space for subsequent waste. The majority (97%) agreed that house flies perched on their food. Forty three percent (43%) of the participants agreed that evacuating of the waste had not been a problem to the communities because when it rains, the flood helps in the evacuation though contrary to the Deuteronomic code on fecal waste management.

Discussion of Findings

The predominant religion in Rivers State of which the Igburu clan in Ogba-Ndoni-Egbema LGA (ONELGA) belongs is Christianity.³⁶ This implies the usefulness of the Deuteronomic Toilet Code (Deut 23:12-14) for such modern faith community which is expected to adopt code. The research discovered that there was almost a balance in the gender mix of respondents who participated in this research thus having a representation of both males and females. In terms of their age mix, over 90% of the respondents fall within 20-50 years of age thereby suggesting their youthfulness. The implication of this is that it may be pretty difficult to eradicate this practice given the categories of people involved in it – the young and middle age perhaps referred to as the ‘future of the community.’ From the data, the Open Toilet System has become a culture practiced by both young and old, male and female, married and single in Igburu clan of Rivers State, Nigeria. Again, their educational background suggests that they may not be ignorant of the attendant health hazard of open toilet system. At least, the respondents have the First School Leaving Certificate (FSLC).

³⁶ U.G. Josiah, ‘Hosea’s Perspective on the “Knowledge of God” and its Relevance to Rivers State, Nigeria’, *Doon Theological Journal* 11(1) (2014): 5-15 (12).

On the fact whether or not the respondents understand that a clean and healthy environment is a divine mandate, the majority of the respondents believed and agreed to the fact that clean and healthy environment is a divine mandate as revealed in their responses to test items 2-5 on table 2. However, there appears to be a gap in their responses to test items 1 and 6 on table 2. While 46% attested to their being aware of the Deuteronomic mandate to cover human fecal waste, the majority 54% claimed ignorance. But following their response to item 6, where 79% claimed to be aware of the divine mandate to cover human fecal waste as well as their responses to items 2 – 5 which show their knowledge about divine mandate for environmental cleanliness, it could be deduced that the 54% on item one, the 2% on item five and the 21% on item six, who claimed ignorance to the Deuteronomic toilet code may either be insincere or probably trying to cover up the communities' practice of open toilet system. This further suggests that they may be aware of the health implications of such practice but continued in it since it is a community business which has taken roots within the selected communities.

Moreso, regarding the test on their attitude toward environmental cleanliness, 72% of the respondents acknowledged the availability of Open Toilet System in, and for their community while 28% denied the fact. A keen look at the responses to items 1 and 4 as well as items 2 and 5 revealed consistency of the respondents as item 1 is similar to item 4 while item 2 is similar to item 5. This consistency implies a high level of sincerity in their response to items on this table. It further authenticates the majority's affirmation of the presence of Open Toilet System for the community. Although 42% claimed they found it convenient using the open toilet and 58% claimed they did not find it convenient using the Open Toilet System the fact remains that the availability of the Open Toilet System for the community is indisputable. Again, the responses of the 64% of the respondents who claimed they have toilets within the house, does not in any way eradicate the obvious fact of the availability of Open Toilet System for the community.

Responses to items 1 and 2 on table 4 suggest the prevalence of air pollution in the selected communities. This is shown respectively in the 79% and 67% responses that claimed they perceive foul odour within the community. Response to item 3

revealed the presence of flies within the community. Majority 97% of the respondents who claimed that flies perched on their food probably understood the infectious role of flies in contaminating their food. The forgoing could also be premised on the fact that house flies carry not less than 65 illnesses that infect people, some of which include Food poisoning, Dysentery, Diarrhea, Cholera, Tuberculosis, Typhoid and Anthrax among others.³⁷

Although 43% of the respondents did not see a challenge in the evacuating of human fecal waste from the open community toilet, 57% saw a challenge. Nevertheless, the claim of no challenge or existence of challenge in the evacuation of human fecal waste in Igburu clan is probably a matter of perspective on issues. While the 43% may not see any problem in the evacuation possibly because the rain flood helps evacuate the waste into the stream as attested to by 80% of the respondents on item 5, the 57% respondents could possibly see a problem in the evacuation given its attendant health effects as attested by 93% of the respondents who acknowledged that there was the prevalence of diarrhea and cholera among the people in item 6. Ultimately, whether or not evacuation of the fecal waste is a challenge, the reality is that the pattern of faecal waste management in Igburu clan comes along with certain health implications. This health hazard appears to be attributed to leaving the rain flood to evacuate the faecal waste at the designated space into the streams also given the fact that these communities live around the coastal regions of the Rivers West senatorial district. This affirmed the position of the United Nation Children's Fund (UNICEF) which revealed that open defecation is associated with water-borne diseases especially when open defecation is done near waterways, and people use the water for cooking or drinking.³⁸

³⁷C.J. Geden, 'Status of Biopesticides for control of house flies', *Journal of Biopesticides* 5 (January 2012): 24

³⁸World Health Organization/UNICEF Joint Monitoring Programme for Water, Sanitation and Hygiene', *UN-Water*, 8 May, 2015 <https://www.unwater.org/water-facts/water-sanitation-and-hygiene/> (accessed 3 January 2021).

In this discussion, it is evident that the people of Igburu clan to a large extent were aware of the Deuteronomic toilet-code but largely did not adhere to it thus resulting in the prevalence of the identified health challenges within the selected communities under study.

Conclusion/ recommendations

This research discovered that participants in Igburu clan understood the Deuteronomic toilet-code which deals with faecal waste management especially among a community of believers. This is germane as some faith communities in Rivers State are driven by the philosophy of “cleanliness is next to godliness”.³⁹ But despite their understanding of the toilet code and the importance of cleanliness, it appeared difficult for them to implement the principles enshrined in the Deuteronomic toilet-code especially as it relates to human faecal waste management within the community. In fact, Mr. Emeka Agwuanyi in an interview with *Vanguard newspaper*⁴⁰ claimed he cannot quit defecating in the bush, because he enjoys it. This reveals the extent to which this culture is deep rooted in some communities.

To avoid the attendant health challenges associated with open toilet system, there is need for continuous sensitisation of these rural communities on proper disposal of human faecal waste. This must be planned by stakeholders such as the government, village heads or leaders, and family heads in order to reduce the effect of water-borne diseases in the community; The study therefore recommends that the State sanitation laws in line with the Deuteronomic toilet code (Deut 23:12-14) must strictly be enforced to ensure the availability of decent and hygienic toilet

³⁹U.G. Josiah and L.C. Onyezonwu, ‘Dress and Keep the Garden: Environmental Stewardship as a Biblical Motif for the Great Commission’ *Asia-Africa Journal of Mission and Ministry* 9 (2014): 53-63.

⁴⁰C. Obinna, ‘Why Nigeria Ranks second worst open defecating country in the world –report’, *Vanguard News Paper*, September 2018. <https://www.vanguardngr.com/2018/09/why-nigeria-ranks-second-worst-open-defecating-country-in-the-world-reportt/> (accessed 17 March, 2019).

facility within Igburu Clan. This will further translate into remediation for some of these problems encountered in Igburu clan of Rivers State, Nigeria.

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Tables used in the Study

Table1. Demographic characteristic of the respondents

	Category	Frequency=150	Percentage %
Gender:	Male	72	48%
	Female	78	52%
	Total	150	100%
Age :	20-30yrs	51	34%
	31-40yrs	60	40%
	41-50yrs	28	19%
	51yrs and above	11	7%
	Total	150	100%
Marital status:	Married	93	62%
	Single	46	31%
	Divorced	11	7%

	Total	150	100%
Occupation:	Civil servant	39	26%
	Farmer	24	16%
	Businessmen /women	36	24%
	Others	51	34%
	Total	150	100%
Educational Background:	FSLC	27	18%
	SSCE	85	57%
	BSC/BA/HN D	38	25%
	Total	150	100%
Respondents community	Osiakpu	61	41%
	Elieta	41	27%
	Egbada	48	32%
	Total	150	100%

Field study, 2019

Table 2. The Perception of Igburu clan on Deuteronomic Toilet-Code

Items	Strongly agreed	Agreed	Undecided	Disagree	Strongly disagreed
1. I have read Deuteronomy 23:12-14 before	27(18%)	42(28%)	23(15%)	33(22%)	25(17%)
2. It is God's will that we are in good health	117(78%)	33(22%)	-	-	-
3. God loves a clean and healthy environment	114(76%)	36(24%)	-	-	-

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4. A healthy environment is a godly environment	120(80%)	30(20%)	-	-	-
5. We are closer to God when our environment is clean	108(72%)	39(26%)	3(2%)	-	-
6. God wants us to cover the waste from our body	73(49%)	45(30%)	22(15%)	5(3%)	5(3%)

Field study, 2019

Table 3. The attitude of Igburu people towards environmental cleanliness/sanitation

	Strongly agreed	Agreed	Undecided	Disagreed	Strongly disagreed
1. We have a community toilet open for all	14(9%)	95(63%)	21(14%)	10(7%)	10(7%)
2. It is very convenient using the open toilet	37(25%)	26(17%)	35(23%)	13(9%)	39(26%)
3. In our family house, we have toilets inside the building	50(33%)	46(31%)	6(4%)	21(14%)	27(18%)
4. Our community has an open place for toilet	21(14%)	87(58%)	18(12%)	12(8%)	12(8%)
5. You get relaxed when you use the open toilet	53(35%)	10(7%)	18(12%)	21(14%)	48(32%)

Field study, 2019

Table 4. The challenges resulting from the practice of open defecation/toilet in Igburu clan

	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
1. We perceive some foul odor around our building	73(49%)	45(30%)	9(6%)	8(5%)	15(10%)
2. Although the open toilet is far from our house, we still perceive the foul odor from the open toilet	46(31%)	54(36%)	9(6%)	20(13%)	21(14%)
3. Many times, house flies perched on our food	129(86%)	16(11%)	1(1%)	2(1%)	2(1%)
4. We don't have a problem evacuating the waste at the open toilet centre	21(14%)	44(29%)	46(31%)	15(10%)	24(16%)
5. When rain falls, it helps to evacuate the waste into the stream for more space	94(63%)	26(17%)	9(6%)	9(6%)	12(8%)
6. We have cases of children vomiting and stooling regularly in our community	58(39%)	81(54%)	3(2%)	3(2%)	5(3%)

Field study, 2019

