Investigation of willingness of residents to adopt alternative burial methods in Abuja, Nigeria

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Abstract: As cities grow in population, there is pressure on urban land resulting in prioritisation of scarce land for various uses. Burial grounds are often poorly rated in the priority scale since comparatively, they are considered as poor contributors to public economy. This situation, coupled with growing concerns about the environmental and health implications of casket cemetery burials has led to the growing adoption of alternative burial methods globally. In Africa, including Nigeria however, adoption of alternative burial methods has been slow. This paper therefore, investigated the willingness of residents of Abuja, Nigeria to adopt alternative modes of burial. Specifically, it sought to identify the burial methods Abuja residents are familiar with, ascertain residents’ willingness to consider alternative burial methods, the alternative burial methods favoured by residents and the factors that influence choice of alternative burial methods by residents. Data were obtained by administering copies of a questionnaire to randomly selected respondents and analysed using the Statistical Package for Social Sciences. The paper found that residents who were willing to adopt alternative burial methods marginally surpassed those who rejected the idea, suggesting significant resistance to adoption of alternative burial methods among respondents. The paper therefore identified the need for sensitization of residents especially through credible religious, sociocultural leaders and other opinion moulders including the media. In addition, there is need to review of policies and regulatory frameworks to accommodate alternative burial methods.

1. Introduction

Death is the inevitable and ultimate end of human beings on earth. When this happens, there is a need to safely dispose of the remains of the diseased in order to avoid public health hazards. In many urban areas, especially in Europe, US and Africa, dead bodies are disposed of by burying in cemeteries in accordance with the social, cultural, and religious dictates of the society [1]. This involves packaging in caskets and burying in a pit dug in the ground. The ground is thereafter covered with earth. Many cemeteries are solely designated for this purpose. In several areas, cemeteries started in church premises but had to be relocated to the outskirts of cities due to health hazards posed by congestion and consequent poor management [2]. Over time however, many old cemeteries have been encompassed by their cities as cities continue to grow under the force of urbanisation. The demographic expansions also mean that there is growing need for creation of new cemeteries or expansion of existing ones, many of which are already filled to capacity.

Unfortunately, there is stiff competition for urban land. Since cemeteries are not considered as having high economic value [3] and coupled with the phobias associated with cemeteries [4,5], obtaining land for cemetery burials has become quite problematic. In addition, the growing awareness of environmental issues and the need for sustainability of human actions have further raised serious concerns as to the viability of the conventional mode of cemetery burials [6,7]. Consequently, across the globe, countries are exploring and adopting alternative
methods of disposing diseased bodies [8]. According to [9] presently in the US, preference for cremation has overtaken the conventional casket burial. Similarly, in the Czech Republic, about three-quarters of the dead are cremated [2]. In Nigeria and many African countries, adoption of alternative burial methods has been rather slow.

This paper therefore, sought to explore the willingness of Nigerian urban residents to adopt alternative ways of disposing the remains of their deceased loved ones, using Abuja, Nigeria as a study area. The study addressed the following questions: i) what burial methods are Abuja residents familiar with? ii) are residents willing to consider other burial methods? iii) which alternative burial methods would residents consider? and iv) what factors will influence residents’ choice of alternative burial methods? Abuja was selected as the focus of this study because of its unique position as the capital city of Nigeria. Its annual phenomenal growth rate of about 35% and position as the fastest-growing African city [10] also makes it worthy of investigation of this nature.

2. Review of the literature

2.1 The concept of death and burial practices

Death is the cessation of human life in biological terms. However, in many cultures and religions, it is seen as a transition to another realm of existence [11, 12]. [13] posited that it is a sacred journey from the physical realm to the realm of the spirits to continue existence. Thus, the spirits are believed to hover around and maintain a bond with the living. Consequently, the disposal of the remains of the dead is treated with care, solemnity and reverence. As noted in the literature, farewell ceremonies for the dead vary across cultures being dictated by cultural norms, values, religion and belief systems [7,8]. How the dead are treated in the African context is influenced by the beliefs that both the living and the dead deserve good treatment [14] on one hand, and that the dead transform to ancestral spirits [12] who watch over the living. According to [15], how well a spirit plays this role depends on the way his death has been handled. Dissatisfied spirits can become vengeful ghosts that bring calamities to the living [16]. Thus, a bond is believed to continuously exist between the living and the dead as both groups comprise the social world as opined by [15]. This explains the preference among many Africans for burying the dead in their ancestral homes [14]. In the culture of the Wolaita people of Southwestern Ethiopia, for instance, [1] reported that trees are planted on graves to provide abode for these ancestral spirits, making such trees sacred. They also mark the graves.

In many African traditional settings, including Nigeria, therefore, the living ensures that the dead get befitting burials in line with prevailing customs as celebration of life, mark of reverence, respect and honour for the dead as well as emotional closure for the living [6,12,14,16]. Similar sentiments prevail in other climes [2,7,8].

The preferred mode of burial is the casket burial in graves. Therefore, in many African traditional settings, including Nigeria, the dead were placed in caskets and then buried in graves within their homesteads or vicinity of their abodes while they lived. Caskets were usually made from natural materials like plantain leaves, bamboo or other locally available materials. Burials were usually preceded and followed by various rituals and rites that differed from one locality to another. There were no centralised cemeteries, except the “evil forests”, where those whose deaths were considered sacrilegious were thrown into for the wild beasts to devour. However, several factors have moderated burial practices in Africa over time. These include religion, the World War I, [14] as well as globalization and technological advancement due to urbanization. These have supported a booming funeral industry that has commodified burials especially in urban areas [15] in several ways. Firstly, is the creation of cemeteries, centralised burial grounds, for the dead within cities, as opposed to the traditional homestead burials. Secondly, is the transformation of the coffin materials to more durable, expensive and sometimes imported materials like polished hard wood, plastics, fibre glass, metals, glass and vanish, combined to reflect the socioeconomic status of the dead or his family. Thirdly, the grave has transformed from ordinary pit in the earth to what can be referred to as underground concrete tanks, finished in screeed, tiles and marbles. The tanks are covered with concrete slabs after the coffins bearing the deceased are laid in them. Graves are conspicuously marked. Fourthly, embalming and refrigeration of dead bodies have become common practice as corpses are preserved for several weeks or months before burial. Exceptions are Islamic burials that occur soon after death [13]. They are comparatively simple, cheap and abhor embalmment, caskets, cementing of graves or constructing on top of them [11], [11] recorded a detailed process.

Globally and Nigeria inclusive, this conventional burial method has been associated with several challenges, many of which are documented in the literature. These include scarcity and high cost of burial space, dwindling
revenue, health and environmental hazards due to contamination of underground water, huge consumption of hardwood, steel, copper, and reinforced concrete used for caskets and vaults, diminished values of surrounding properties, theft and vandalism [4,5,6,7,8,9,17,18]. The severity of these challenges necessitated the adoption of alternative burial methods in different parts of the world. In 2013, the Lagos State government, Nigeria passed the cremation bill making cremation optional for residents. This received mixed reactions from the public. Currently in Nigeria, three burial methods are prevalent. These are the home burials, which are now less observed in urban areas due to legislation but persist in the rural areas, cemetery casket burials and Islamic cemetery burials found mainly in the urban areas. In a culturally and religiously diversified country like Nigeria, concerns about adoption of alternative burial methods are not unexpected. Abuja, the capital city and focus of this paper, is relatively new compared to other cities in the country. However, considering its exponential growth and need for sustainable growth, there is need to be proactive and plan for future inevitable events like sustainable disposal of human remains.

2.2 Alternative burial methods and factors influencing people’s willingness to adopt them
A review of the literature has revealed several alternative burial methods to the conventional casket burial used in Nigeria. They include cremation (which reduces the corpse to ash by burning), green burial (an eco-friendly method that supports use of non-toxic and biodegradable materials), grave recycling (which enables graves to be reused), resomation and promession [19]. Resomation or biocremation is a type of cremation that employs an alkaline hydrolysis process and produces less carbon dioxide than cremation [18]. [20] provided a detailed process of promession. Essentially, it is an automated process that reduces human remains via a combination of nitrogen freezing and vibrations. The product is stored in a biodegradable coffin and buried in a shallow grave. These have emerged presumably to ameliorate the challenges of casket burial, many of which were highlighted in the preceding section of this paper. The major benefits of alternative burial methods are efficient land management, environmental sustainability and lower costs [8,21]. Level of adoption of these methods of burial has varied from one location to another. [21] summarized reasons for this as social, cultural and environmental. [12,19] noted that conventional burial is considered more culturally respectful in the African context. Furthermore, [22] stressed that conventional casket burial method conveys spiritual, religious and cultural significance. In the context of African culture, therefore, there is an attachment to funerals which sometimes necessitates marking of graves and unveiling of the gravestone. These are considered significant for grave identification and giving a level of closure to the family of the deceased.

In addition, [18] identified religious factors. Religious persons tend to flow with the religious beliefs and values. For instance, it was not until after the Second Vatican Council (1962-65) approved cremation burial method that catholic adherents in the Czech Republic began to adopt it, which invariably contributed to the high patronage of cremation services in that country [2]. Similarly, its disapproval in Islam has deterred several Muslims from adopting it [22]. Contributing on the significance of beliefs, [8] stressed that while those who perceive that the body separates from the soul at death might be favourably disposed to a composting process, those who believe in resurrection or sacredness of the body, find the process offensive. With regard to personal characteristics, [8] also found that the old appeared more conservative and less disposed to adopting more secular death practices than the young. Furthermore, [22] noted that limited knowledge of alternative burial practices which are relatively novel poses a challenge for their adoption. However, the negative impacts of some of these alternatives like cremation which have been found to have negative environmental and health impacts have also hindered their adoption [9,21].

3. Methodology and procedure
3.1 The study area
The focus of this research is Abuja, the Federal Capital Territory of Nigeria. In 2006, Abuja had a population of 776,298 [23]. According to the United Nations, Abuja grew by 139.7% between 2000 and 2010, making it the fastest growing city in the world [24]. As of 2015, the city was experiencing an annual growth of at least 35%, retaining its position as the fastest-growing city on the African continent and one of the fastest-growing cities in the world [10]. The only operational cemetery in Abuja, Gudu cemetery was commissioned in 2012. Prior to
2012, those who died in Abuja had to be buried outside Abuja. This suggests that there is need for more burial plots.

3.2 Data sourcing and treatment
The quantitative method, with the questionnaire as the main instrument of data collection was adopted in this study. A questionnaire was designed for the study based on the findings from the literature review. Section one of the questionnaire solicited information on respondents’ socioeconomic profile while section two sought information on their familiarity with burial methods and willingness to adopt alternative methods. The Likert scale was not used in the questionnaire. Respondents were provided options to select from. Four hundred (400) copies of the questionnaire were administered to randomly selected residents of Abuja. However, only 150 copies of the questionnaire retrieved were considered adequate for analysis. Descriptive statistics was carried out on the data using the Statistical Package for Social Sciences (SPSS) version 25. The results are presented in tables.

4. Presentation of results of the study
4.1 Personal profile of respondents
The findings on the personal characteristics of respondents are presented in Table 1. Majority of the respondents are Christians (64.7%), male (55.3%) and aged between 20 and 49 years (79.4%). Most of them belong to the three major ethnic groups in Nigeria namely Yoruba (36.0%), Ibo (32.0%) and Hausa (30.0%).

Table 1: Socioeconomic characteristics of respondents

| Socioeconomic Characteristics | Variables | Frequency (n) | Percentage (%) |
|------------------------------|-----------|---------------|----------------|
| Gender                       | Male      | 83            | 55.3           |
|                              | Female    | 67            | 44.7           |
| Ethnic group                 | Hausa     | 45            | 30.0           |
|                              | Ibo       | 48            | 32.0           |
|                              | Yoruba    | 54            | 36.0           |
|                              | Others    | 3             | 2.0            |
| Age                          | Under 19  | 8             | 5.3            |
|                              | 20-29     | 47            | 31.4           |
|                              | 30-39     | 41            | 27.4           |
|                              | 40-49     | 31            | 20.6           |
|                              | 50-59     | 12            | 8.0            |
|                              | 60-69     | 9             | 6.0            |
|                              | 70 and above | 2     | 1.3            |
| Religion                     | Christianity | 97        | 64.7           |
|                              | Islam     | 47            | 31.3           |
|                              | Traditional | 1           | 0.7            |
|                              | None      | 5             | 3.3            |

4.2 Prevalent burial methods
In the questionnaire, respondents were presented with a list of burial methods found in the literature and asked to tick either “yes” or “no” if they had either witnessed or participated in the burial methods. This was to determine the burial types the respondents were familiar with. The findings presented in Table 2 reveal that 127 of the respondents representing 84.7% had witnessed conventional burials in homes (home burials) while 122 (81.3%) and 95 (63.3%) claimed they had witnessed conventional burial in cemeteries and those performed according to Islamic rites respectively. The respondents claimed they had neither witnessed or participated in the other burial methods which included cremation, natural or green burial, grave recycling, resomation, recompositing, vertical burials and mausoleum.
Table 2: Burial methods respondents had witnessed or been involved in

| Burial method          | Respondents’ responses | Frequency (n) | Percentage (%) |
|------------------------|------------------------|---------------|----------------|
| Conventional burial method (cemetery) | yes                    | 122           | 81.3           |
|                        | no                     | 28            | 18.7           |
| Islamic burial         | yes                    | 95            | 63.3           |
|                        | no                     | 55            | 33.0           |
| Conventional burial method (Home burial) | yes                    | 127           | 84.7           |
|                        | no                     | 23            | 15.3           |

4.3 Willingness to adopt alternative burial methods and stated preference

Data showing respondents’ willingness to be buried using alternative burial modes and the alternative burial methods they prefer are presented in Table 3. It can be seen that slightly over a half (51.3%) of the respondents indicated a willingness to opt for an alternative burial method. The remaining 48.7% indicated a lack of interest in alternative burial practices.

Table 3: Willingness to consider alternative burial methods and preference

| Variables                         | Respondents’ responses | Frequency (n) | Percentage (%) |
|-----------------------------------|------------------------|---------------|----------------|
| respondents’ willingness to opt for alternative burial methods | Yes | 77 | 51.3 |
|                                    | No | 73 | 48.7 |
| Preferred alternative burial method | Cremation | 28 | 18.7 |
|                                    | Second interment | 1 | 0.7 |
|                                    | Natural or green burial | 26 | 17.3 |
|                                    | Grave recycling | 6 | 4.0 |
|                                    | Resomation | 3 | 2.0 |
|                                    | Recompositing | 28 | 18.7 |
|                                    | Vertical burials & mausoleum | 11 | 11.0 |
|                                    | None | 47 | 31.3 |

Table 3 reveals that majority (31.3%) of the respondents did not consider any of the alternative burial methods. From the table however, the most preferred burial methods were cremation (18.7%) and recompositing (18.7%), closely followed by natural or green burial (17.3%). The least favoured burial methods were second interment (0.7%) followed by resomation (2.0%). Others were grave recycling (4.0%) and vertical burials/mausoleum (11.0%). Reasons for considering alternative burial methods are presented in Table 4. It is instructive to know that 21.3% of respondents claimed they would not consider alternative burial methods for any reason. Nevertheless, the main reason selected by 35 respondents representing 23.4% of all respondents for considering alternative burial methods was to conserve land. Other reasons included speedy process (16.0%), safety (14.0%), convenience (14.0%) and lower cost (11.3%).

Table 4: Reasons for considering alternative burial methods

| Respondents’ responses | Frequency (n) | Percentage (%) |
|------------------------|---------------|----------------|
| land scarcity           | 35            | 23.4           |
| fast                   | 17            | 11.3           |
| safety                 | 21            | 14.0           |
| convenience             | 24            | 16.0           |
| cheap                  | 21            | 14.0           |
| none                   | 32            | 21.3           |

5. Discussions
The personal profile of the respondents show that they are matured enough to participate in a study of this nature. The prevalent burial methods Abuja residents are conversant with identified in this study are conventional casket burials in homes (home burials), the conventional casket burials in cemeteries and the conventional burials in cemeteries conducted according to Islamic dictates. The study showed that the newer burial types, considered as alternatives in this paper, are quite alien to Abuja residents. This finding is in line with [22] who reported prevalence of conventional burial practices in South Africa. Further investigations revealed that the home burials mostly occurred outside Abuja presumably in the villages. The reasons for this are mainly cultural preference, lack of burial facilities in Abuja prior to 2012 and limited capacity of the only cemetery there. The Islamic burial is observed to be quite close in nature to green or natural burial since both types abhor embalmment and use of non-degradable materials as noted by [11]. The difference appears to be in the fact that Islamic burial places are not flexible in use and therefore, cannot be converted to parks or other public social functions. There is thus, a need for dialogues with both leaders and adherents of the Islamic faith towards to accept multiplicity of use of burial places.

Although the results showed that majority (51.3%) of the respondents indicated a willingness to adopt alternative burial methods, the difference between them and those not willing to consider alternative burial methods (48.7%) is very marginal. This suggests there is an obvious resistance to the adoption of alternative burial methods among Abuja residents who can be considered conservative in this context. The reasons for such resistance can be explained by cultural practices and religious beliefs, which consider the innovative burial methods disrespectful to the dead and subjecting them to more torture. similar observations were made in South Africa by [19,22]. They are also considered incapable of providing desired closure to the bereaved. It could also be that residents are not aware of the details and benefits of these new methods.

It is worth noting that after the burial methods had been explained to respondents (in the questionnaire) majority of respondents (31.3%) would still not consider any of the alternative methods. This further shows the level of socio-cultural conservatism among Abuja residents. The three most favoured burial methods among Abuja residents were cremation (18.7%), recomposting (18.7%) and natural or green burial (17.3%). These are the methods already gaining popularity in the western world as reported by [2,7]. They have also gained the support of some groups that can be considered opinion moulders and behaviour influenceArs. For instance, the support of the Catholic Church for cremation fuelled its adoption amongst the catholic adherents globally. Nigeria is not expected to be different. Besides, cremation conserves the use of land, which makes economic sense. In the same vain, the environmentalist movement has also swayed opinion in favour of methods like recomposting and green burials that are considered eco-friendly and less harmful to human health. Those opting for recomposting and green burial methods in this study are probably sympathetic to environmental ideals. It is worthy to note that some of the alternatives like cremation were not properly investigated prior to their propagation. The extant literature reveals their adverse effects [7,8].

The claim by many respondents in this paper that land scarcity was their reason for considering alternative burial methods is a positive development. This shows that Abuja residents are concerned about the limited available land in the city and would contribute in their own way to making land available for more competitive uses. Such concerns for the common good are needful in building a sustainable and virile city. The need to conserve land is the major reason for search for alternative burial methods as shown in the literature [5,19,22]. The other reasons, which include convenience, safety and cost, can be understood in the light of risks encountered in transporting corpses to the villages for burial, conflicts and confrontations that are sometimes encountered with relatives in the villages and high costs burdens. Thyenes et al [8] also found cost to be a major reason people considered alternative burial methods. Of significance also is when death occurs in periods of epidemics and pandemics, as is currently the case with the corona virus that has necessitated state lockdowns and made it practically impossible to either preserve the dead in mortuaries or transport them outside the city of their demise.

6. Conclusions
This paper investigated the willingness of Abuja residents to adopt alternative burial methods by identifying the burial methods Abuja residents are familiar with, ascertaining residents’ willingness to consider alternative burial methods, the alternative burial methods favoured by residents and the factors that influence choice of alternative burial methods by residents. The results identified the main modes of disposing dead bodies in Abuja as home
burials, conventional burial in cemeteries and those performed according to Islamic rites. The paper also revealed that residents willing to adopt alternative burial methods marginally surpassed those who rejected the idea. Favoured alternative methods were those that have received additional boost from opinion moulders and the media. The major reasons for considering alternatives were land conservation, convenience, safety and cost reduction. From the above, it can be concluded that Abuja residents are still conservative and heavily tilted towards cultural practices with respect to burials.

The findings of this paper raise several implications some of which are briefly discussed in this section. The strong attachment to prevalent burial methods as evidenced in this paper by the high proportion of respondents who were neither willing to adopt alternative burial methods nor consider them for any reason suggest deep rooted cultural and religious beliefs and concerns. Changing such conservative mindset of Abuja residents will require serious reorientation. This will involve religious, social and cultural leaders, other trusted opinion leaders as well as the media. People need to be aware of the detrimental impact of current burial methods on land availability, environment, human health and property values to name a few, as well as the benefits of the proposed alternatives. In proposing alternatives, care must be taken to select those that have been carefully researched and found capable of delivering their promises. This is in order to avoid the current experience with cremation in some countries, where after wide adoption of the method findings are overwhelming as to its negative impact on human health and the environment. Residents’ concern for land conservation as revealed in this paper, should be leveraged upon by both the government and environmentalists to propagate and support eco-friendly burial methods. No doubt, this will require public sensitization, mobilization and guidance. Existing policies guiding burial practices should also be amended to pave way for these alternative burial methods.

Finally, it must be noted that the realities of negative impact of current burial methods are already obvious in parts of the country. In Lagos for instance, a cremation bill has been passed and multiple burials per grave is already a practice. In addition, graves within residential properties are being relocated in order to increase property values, especially when such properties are offered for sale. It is only a matter of time before Abuja begins to experience serious land constraints that have necessitated such measures in Lagos. Change is therefore, inevitable. The time to prepare for change is now. All hands must therefore be on deck to ensure that change as regards how the dead are buried is sustainably managed and less disruptive to both the living and the dead.

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