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Research

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Exploring the characteristics of callers of mental health emergency hotlines in Nigeria: a descriptive study

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Abstract

Introduction: *emergency hotlines increasingly garner attention as a viable strategy to enhance access to mental health services. Yet, there is a dearth of research concerning their operations in developing countries. This paper reviewed calls to the mental health emergency hotlines implemented in Nigeria from March 2022 to September 2023.* ***Methods:*** *data were collected through a structured Excel checklist, and subsequently exported to a statistical package for the social sciences for analysis. The analytical approach is predominantly descriptive.* ***Results:*** *the findings reveal that out of the 717 calls received, 512 were associated with mental health concerns. Notably, these mental health-related calls emanated from all six geopolitical zones in Nigeria, especially from the South West zone, closely followed by the South-South zone. Although the majority of callers identified as male, in the North East and North Central regions, there were more female callers. Across all zones, a consistent pattern emerged, with the majority of callers falling within the age bracket of 18 to 27 years. Additionally, there was a significant representation of unemployed individuals among the callers. The primary reason for these calls was a pressing need for urgent mental health services, particularly in response to issues such as depression, anxiety, and suicide. Notably, there was an evident uptick in call volume from July to September. The North West and South West zones displayed a predilection for making most of their calls between 12 - 6 pm.* ***Conclusion:*** *understanding the nuances in these call patterns can serve as a valuable foundation for tailoring targeted mental health interventions to address the specific needs of various geographic zones and demographic groups.*

Introduction

There is a global consensus among experts for urgent action on mental health. In 2019, it was reported that 970 million people were grappling with mental health disorders, with anxiety and depression emerging as the most prevalent conditions [1]. Between 1990 and 2019, the global burden of Disability-Adjusted Life Years due to mental disorders increased from 80.8 million to 125.3 million, with the proportion of global DALYs attributed to mental disorders rising from 3.1% to 4.9% [2]. Emerging studies also suggest that the advent of the COVID-19 pandemic in 2020 may have significantly increased the prevalence and impact of mental illness [3-5]. Recent evidence suggests that efforts to improve access to mental health services are being sought, including outside the health systems like the use of emergency hotlines [6]. While preventing and treating mental illness is possible, access to effective care remains a challenge [1]. The proportion of people who received evidence-based treatment is reportedly low [7]. This issue becomes even more pronounced in Low and Middle-Income Countries, where 80% of individuals grappling with mental illness reside [8]. Poor access to mental health services has led experts to predict that by 2030, depression will be the third leading cause of disease burden in Low and Middle-Income Countries [9]. Thus, depressive disorders, which account for a substantial 40.5% of DALYs attributed to mental health disorders, are particularly noteworthy in this context, with anxiety disorders following at 14.6% [10].

As an example, Nigeria, with over 200 million population scattered across six geopolitical zones, has one in every four people reporting mental illness [11]. Yet, only about 10.4% of Nigerians with a severe case of mental disorder had access to treatment [12]. This glaring treatment gap can be attributed to several significant factors. Firstly, there are only nine federal neuropsychiatric hospitals tasked with serving the mental health needs of Nigeria's vast population of over 200

million [13]. Additionally, there are about 300 psychiatrists, mostly in urban areas, serving persons living with mental health illnesses [14]. Moreover, based on the estimate by the World Health Organization, only about 3.3-4% budget is reserved for mental health, with 90% going to the few psychiatric hospitals [15]. This confluence of factors underscores the alarming rate at which individuals at risk of mental health issues are unable to access the essential care they urgently need. There is global adoption of a comprehensive Mental Health Action Plan 2013-2020. An imperative pillar of this action plan revolves around the provision of comprehensive and seamlessly integrated mental health services [16]. A pivotal strategy to attain this goal is through the establishment of a national mental health emergency hotline, dedicated to addressing the growing mental health crisis [17]. This is particularly useful in resource-constrained settings and provides services such as counseling, support, and referral services for people experiencing mental disorders like depression, anxiety, substance use, and suicidal thoughts. Many studies report their effectiveness in reaching some populations, but most of these studies are conducted in developed countries [12,17,18]. However, its use in low- and middle-income countries and the availability of caller-specific descriptive data remain unclear [6].

Mobile network coverage in Nigeria currently sits at 92.3% [19]. This high coverage has enabled the provision of services in health and Agriculture, with promising results in Nigeria. For example, 92% of Agricultural extension workers use cell phones to disseminate information to farmers [20]. Farmers also utilize toll-free platforms to source information regarding all phases of planting operations [21]. In another study in Nigeria and Uganda, it was reported that a fistula hotline was successfully implemented to screen women for fistula using interactive voice response technology and provide pre-recorded messages on where and how to access fistula treatment [22]. All these suggest that an emergency hotline can be leveraged to provide services to those in need of mental healthcare in Nigeria. However, this is rarely the case as most interventions on mental healthcare in Nigeria have been about awareness creation and training of healthcare workers to improve service delivery, as well as the identification and referral of severe mental health cases [23,24].

Research on the usage of mental health emergency hotlines in Nigeria, remains extremely limited, with only a paper emerging in our literature search [25]. Nonetheless, the system was not toll-free, which restricted the volume of calls on a regional basis. Additionally, the majority (77%) of calls originated from a single state out of the 36 states in Nigeria. As a result, there is a notable gap in characterizing the callers' attributes across the diverse geopolitical zones within Nigeria, each of which presents unique contexts. Against this backdrop, this study aims to describe the characteristics of callers of implemented mental health emergency hotlines in Nigeria. This will serve as the building block for studies that will provide mental health services using emergency hotlines. Moreover, it will help tailor interventions that meet the needs of different groups and contexts.

Methods

Study design and setting: suicide research and prevention initiative set up a hotline to receive calls and provide services related to mental health from all the states in Nigeria, including the federal capital territory. Although the hotline has been in operation since 2017, the data for this study was collected between March 2022 and September 2023. This is because it was at this point that the hotline system was upgraded to a toll-free system, with a dashboard for extensive call monitoring and analysis, ensuring that counselors are always available to receive calls. The system also enables call recording for quality assurance purposes. The study is a cross-sectional study design since the characteristics of each respondent were collected at a single point in time. The counselors were

trained by the suicide research and prevention initiative to receive calls and handle mental health cases. However, they refer complex cases to the suicide research and prevention initiative members, who are mental health professionals in different states. With the support of the hotline manager and mental health experts, these agents help ensure patients get the best care they need. If calls were missed due to heavy traffic or other circumstances on the system, they are returned as soon as possible to ensure their mental health needs are met. Through follow-up calls, these agents also provide patient feedback regarding care received and care outcomes from the different care institutions. These members are neither paid nor incentivized, as they do this as a social responsibility.

Awareness creation: the suicide research and prevention initiative relied on consultations with community stakeholders and awareness creation in traditional and new media to create awareness of mental health emergency hotlines. As for the new media, they sensitized the public through media posts on Facebook, Twitter, Instagram, and LinkedIn. On traditional media, they created technical programs on radio, to sensitize the public about the awareness of the phone numbers to reach out. Additionally, they also engaged in programs on Twitter spaces, Instagram live shows, Time Out with the suicide research and prevention initiative on Telegram, annual national conferences, research competitions, and social media campaigns.

Participants and data collection: this toll-free system allows the routing of multiple calls to our hotline agents, who work in shifts to ensure 24-hour service availability. Calls were open for people of all backgrounds, provided they were from Nigeria. To further ensure a robust system, four individuals with backgrounds in counseling, psychology, and social work were engaged and trained by the suicide research and prevention initiative solely to handle the hotline system, coordinated by a hotline manager. The training was to ensure the consistency and reliability of the data collected. Callers receive phone counseling and referrals to our members in the different state chapters where they reside for additional services as appropriate. These counselors are vast in English, pidgin English, Yoruba, and Igbo languages. They were supported by agents at Jos University Teaching Hospital who spoke Hausa language.

Instruments: a standardized protocol was developed for the counselors to ensure consistency in data collection procedures. In addition to obtaining relevant information from callers, it reduced measurement bias that may have taken place. The protocol is as follows: warm introduction by telling callers their names, politely asking for the names of callers, confirming the location of the call, and documenting the reason for the call. Other information includes religious background, occupation, marital status, and job status. This information was recorded in a checklist built into the Excel spreadsheet.

Ethical consideration: the study followed the ethical principles for carrying out studies involving human subjects. The suicide research and prevention initiative was coordinated by the Lagos University Teaching Hospital. The participants were asked for consent to use their data for research purposes. They were also informed that they could choose to withhold any information. Also, the data captured were anonymized to remove details linking to the participants (i.e., phone details, names, and addresses).

Data analysis: the data in the Excel spreadsheet were exported into a statistical package for the social sciences, version 25. The data were cleaned to the highest quality information. The data were analyzed using descriptive statistics, which produces summary statistics of the characteristics of callers using frequency distribution and variability across geopolitical zones in Nigeria. During the analysis, we created an indicator variable (Not Disclosed) to represent the non-response. This method of analysis has been used in a previous hotline study on mental health [26].

Results

Characteristics of callers: a total of 717 calls were made to the hotline. As shown in Table 1, about 26.08% of the calls were classified as random calls - these were unsolicited calls for reasons not connected to mental health issues. Additionally, 2.37% of calls were received with the callers intending to verify the authenticity of the hotline while 0.14% was an international call. The analysis, however, was focused on calls from the six geopolitical zones in Nigeria where the caller intends to receive one or more mental health services. This represented 71.41% of all the calls made to the hotline. Figure 1captures the distribution of the callers across the 6 geopolitical zones in Nigeria. It shows that most callers are from the South-West part of the country (51.2%) followed by South-South (17.4%) and North-Central (15.4%). The least calls were made from North-East (1.8%), followed by North-West (4.7%) and South-East (9.6%).

Demographics and purpose of calls: Table 2 presents key insights into the demographics and purpose of callers across Nigeria's geopolitical zones. It reveals variations in gender, age, marital status, religion, job status, and the purpose of calls, providing a comprehensive view of the hotline's user base and their needs. The data reveals interesting trends within and across these categories. The gender distribution of callers is nearly equal, with 56.1% male and 43.9% female callers. Notable variations exist by region, with higher percentages of female callers in the North-East (66.7%) and North-Central (51.9%), while the Southern regions (South-East - 57.1%, South-South - 65.2%, South-West - 55.3%) receive more calls from males. About half of the callers (51.0%) fall within the age group of 18 to 27 years, showing consistency across all six geopolitical zones. A significant majority of callers (72.9%) report being single, with a higher concentration of single callers in the North-West compared to other zones.

The majority of callers (69.5%) identify as Christians, with more Christian callers in every zone except the North-West. A significant portion of callers (58%) are unemployed, with the highest percentage in the North-West (70.8%) and North-Central (65.8%). Only 30.5% of callers are employed. The primary reason for calling the hotline is to seek urgent mental health attention due to conditions such as anxiety and depression (61.5%). In the Southern zones, there is low interest in calls for mental health information, with a minor difference in the South-East, where 10.2% call for such information. Callers from the South-East, South-West, and South-South regions express a greater desire for counseling compared to mental health information.

Timing of calls: calls were consistently received from March 2022 to September 2023 from six geopolitical zones. However, there was no call from North-East between January and March. Notably, the majority of calls from the NE occurred from October to December, accounting for 55.6% of their total calls (Figure 2). Similarly, in the North-West and South-South zones, there were relatively fewer calls during the same period, with only 4.2% and 9.0% of their calls, respectively, falling in this timeframe. In the remaining zones, namely the South-West, South-East, North-Central, and North-West, the peak calling period was from July to September. The South-South and Southeast regions stood out in this regard, with 53.9% and 53.1% of their calls occurring during these months, respectively (Figure 3).

The majority of calls were received during the afternoon, particularly between 1200 and 1800 hours, closely followed by calls made in the morning, spanning from 06 to 1200 hours. When examining call patterns across different zones, a similar trend emerged. In the North-West, North Central, South-East, South-South and South-West, there was nearly a balanced distribution of calls across various periods, with 12.5%, 15.2%, 14.3%, 12.4%, and 13.0% respectively, of calls happening between 0 and 6 hours. Notably, there was no caller from North-East during the early morning

hours (00-06 hours). Conversely, in the North Central region, there was a significant uptick in night calls, accounting for 25.3% of calls between 18 and 24 hours. The South-South region closely followed with 15.7% of calls during this nighttime period, and the South-West and South-East regions recorded 13% and 12.2% of calls during the same time frame, respectively.

Discussion

The findings show that most of the calls were from South-West, which is the second most populated geopolitical zone in Nigeria. Intriguingly, despite the North-West being the most populated zone, it surprisingly ranks second to last in the overall distribution of calls by zone. An earlier study has shown that 77% of calls to a mental health emergency hotline were from Lagos, one of the states in SW [25]. This may be connected to better awareness of the hotline and the growing mental health programs in the state [27]. While this suggests the need for more contextual exploration of factors influencing the use of mental health emergency hotlines, it reveals regional differences in telecommunications dynamics across Nigeria's geopolitical zones. The data shows a gender disparity in call patterns, with more males calling from the Southern regions (South-East, South-South, South-West) and more females from the Northern regions (North-East and North-Central). Understanding these disparities can inform the development of gender-specific mental health programs or campaigns tailored to the needs of different gender groups. The consistent age distribution of callers (51.0% falling within the 18-27 age group) suggests that young adults are the primary users of the hotline. This may be connected to the prevalence and use of smartphones among people of this category in Nigeria [28,29]. Incidentally, it was found that the addictive use of smartphones by this age group influences mental illness [30]. This insight could guide the development of age-appropriate mental health support and resources. Additionally, the higher concentration of single callers in the North West implies that this region might have unique challenges for single individuals, which could be explored further to provide targeted support.

The data shows variations in religious affiliation and employment status. In most of the zones, there were more calls from those who identified as Christians, indicating either a significant prevalence of mental health cases or a tendency to seek support from a mental health emergency hotline. The higher percentage of unemployed callers in the North-West and North-Central may indicate a need for vocational and employment support alongside mental health services. Other studies have consistently shown that unemployment has a strong influence on depression and other social vices [31,32]. Understanding these patterns can help in tailoring mental health services to align with the cultural and religious backgrounds of different regions. The variation in call timing across regions, with some regions having a preference for night calls, suggests that helpline services should consider operating hours that accommodate these regional preferences. Offering 24-hour services, especially in regions with significant night-time call activity, might be beneficial. Similarly, the seasonal variation in call activity across different regions highlights the importance of adapting resources and support to meet increased demand during specific periods. For example, the Northeast experiences a surge in calls from October to December, which might be associated with specific seasonal factors affecting mental health. Climate change-related events such as droughts, floods, rising sea levels, and escalating temperatures can have profound psychological and emotional impacts on individuals and communities [33]. The primary reason for calling (seeking urgent mental health attention due to conditions such as anxiety and depression) is consistent with the global trend in mental health challenges. In another study on hotlines for mental illness, the predominant reason for calls was for emotional support [26]. Also, in this study, there was a lower need for mental health information, suggesting a need for more educational outreach in these areas to

increase awareness and understanding of mental health issues.

Implications of findings: the findings of this study can inform targeted strategies for providing mental health support and information to different segments of the population. Policymakers should use this data to develop targeted strategies for improving access to services across regions. This could involve investing in infrastructure, expanding educational opportunities, and addressing economic disparities. It's also important to ensure that the services provided are culturally and linguistically sensitive to cater to the diverse needs of the Nigerian population. The findings underscore the need for policies that promote equity and inclusivity. Bridging the regional gap in access to services is not only a matter of social justice but also contributes to the overall development and stability of the country. Collaboration between government agencies, non-governmental organizations, and private sector entities can play a significant role in addressing these regional disparities. Joint efforts can lead to more effective and efficient interventions.

Limitations: the study has some limitations. First, using a descriptive study means that the study did not establish causality between variables, an area that future studies can build on. Also, the huge number of participants refusing to disclose their demographic characteristics may have affected the findings of our research, so it should be interpreted with care. Despite these limitations, the findings underscore the importance of informed policy decisions and resource allocation.

Conclusion

The distribution of mental health emergency hotline users in Nigeria's geopolitical zones highlights significant disparities in access to services and information. Recognizing and addressing these disparities is essential for fostering a more equitable and inclusive society, as well as ensuring that all Nigerians can benefit from the opportunities and resources available to them. This data serves as a starting point for evidence-based policymaking and action to bridge the regional gap and improve the overall well-being of the population. Policymakers and service providers can use this data to tailor their efforts to address specific regional needs and disparities in mental health services. Therefore, it's crucial to continue collecting and analyzing data to monitor changes in this distribution over time. This can help assess the effectiveness of policies and initiatives aimed at reducing mental illness across different regions.

What is known about this topic

- *Experts express a shared concern regarding the imperative to enhance access to mental health services;*
- *Emergency hotlines are gaining recognition as a viable approach to improving the accessibility of mental health services;*
- *Although the use of mental health emergency hotlines is notable in developed countries, their application in developing countries remains underexplored.*

What this study adds

- *The results indicate that a majority of the calls originated from the South West, the second most populous geopolitical zone in Nigeria;*
- *The data reveals a gender disparity in call patterns, with a higher number of male callers from the Southern regions and a greater number of female callers from the Northern regions;*
- *The study illustrates variations in religious affiliation and employment status, indicating a higher number of calls from Christians and individuals who are unemployed.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Conception and design of manuscript: Nnenna Mba-Oduwusi and Aloysius Odii; acquisition of data: Tosin Samuel Adeniyi, Mubarak Ahmed; analysis and interpretation of data: Nnenna Mba-Oduwusi, Aloysius Odii, Tosin Samuel Adeniyi, Mubarak Ahmed and Bolaji Akala; drafting of the manuscript: Aloysius Odii; critical revision of the manuscript: Nnenna Mba-Oduwusi, Raphael Emeka Ogbolu, Titi Tade, Olubunmi Idera Buhari, Falmata Baba Shettima, Nneka Ngozichukwu Unaogu, and Kehinde Aniyat Sodimu; supervision: Bolaji Akala. All the authors have read and agreed to the final manuscript.

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Tables and figures

Table 1: broad categorization of calls

Table 2: descriptions of callers' characteristics by geopolitical zones

Figure 1: geopolitical zones of phone calls received

Figure 2: month of call and geopolitical zones of callers

Figure 3: time of calls and geopolitical zones

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Table 1: broad categorization of calls

Type of calls	**Frequency**	**Percentage**
Mental health issues	512	71.41
To verify authenticity	17	2.37
Random calls	187	26.08
International call	1	0.14
Total	717	100

Table 2: descriptions of callers' characteristics by geopolitical zones							
	North East	**North West**	**North Central**	**South East**	**South South**	**South West**	**Total**
Gender							
Male	3(33.3%)	15(62.5%)	38(48.1%)	28(57.1%)	58(65.2%)	145(55.3%)	287(56.1%)
Female	6(66.7%)	9(37.5%)	41(51.9%)	21(42.9%)	31(34.8%)	117(44.7%)	225(43.9%)
Age							
17/below	0(0.0%)	1(4.2%)	5(6.3%)	3(6.1%)	5(5.6%)	17(6.5%)	31(6.1%)
18-27	3(33.3%)	3(62.5%)	15(50.6%)	40(49.0%)	24(53.9%)	48(50.0%)	131(51.0%)
28-37	1(11.1%)	4(16.7%)	13(16.5%)	10(20.4%)	19(21.3%)	47(17.9%)	94(18.4%)
38/above	0(0.0%)	0(0.0%)	6(7.6%)	0(0.0%)	1(1.1%)	13(5.0%)	20(3.9%)
ND*	5(55.6%)	4(16.7%)	15(19.0%)	12(24.5%)	16(18.0%)	54(20.6%)	106(20.7%)
Marital status							
Single	6(66.7%)	20(83.3%)	53(67.1%)	37(75.5%)	63(70.8%)	194(74.0%)	373(72.9%)
Married	2(22.2%)	2(8.3%)	17(21.5%)	7(14.3%)	17(19.1%)	42(16.0%)	87(17.0%)
Separated/ Divorced	0(0.0%)	0(0.0%)	2(2.5%)	0(0.0%)	1(1.1%)	3(1.1%)	6(1.2%)
ND*	1(11.1%)	2(8.3%)	7(8.9%)	5(10.2%)	8(9.0%)	23(8.8%)	46(9.0%)
Religion							
Christians	5(55.6%)	11(45.8%)	52(65.8%)	38(77.6%)	76(85.4%)	174(66.4%)	356(69.5%)
Islam	2(22.2%)	12(50.0%)	18(22.8%)	5(10.2%)	5(5.6%)	59(22.5%)	101(19.7%)
ND*	2(22.2%)	1(4.2%)	9(11.4%)	6(12.2%)	8(9.0%)	29(11.1%)	55(10.7%)
Job/status							
Employed	4(44.4%)	5(20.8%)	18(22.8%)	13(26.5%)	27(30.3%)	89(34.0%)	156(30.5%)
Unemployed	4(44.4%)	17(70.8%)	52(65.8%)	28(57.1%)	52(58.4%)	144(55.0%)	297(58.0%)
ND*	1(11.1%)	2(8.3%)	9(11.4%)	8(16.3%)	10(11.2%)	29(11.1%)	59(11.5%)
Purpose of							
In crisis	4(44.4%)	15(62.5%)	44(55.7%)	25(51.0%)	54(60.7%)	173(66.0%)	315(61.5%)
information	0(0.0%)	1(4.2%)	9(11.4%)	5(10.2%)	2(2.2%)	10(3.8%)	27(5.3%)
Counselling	5(55.6%)	8(33.3%)	26(32.9%)	19(38.8%)	33(37.1%)	79(30.2%)	170(33.2%)
Total	9(100%)	24(100%)	79(100%)	49(100%)	89(100%)	262(100%)	512(100%)
***ND** - Not disclosed							

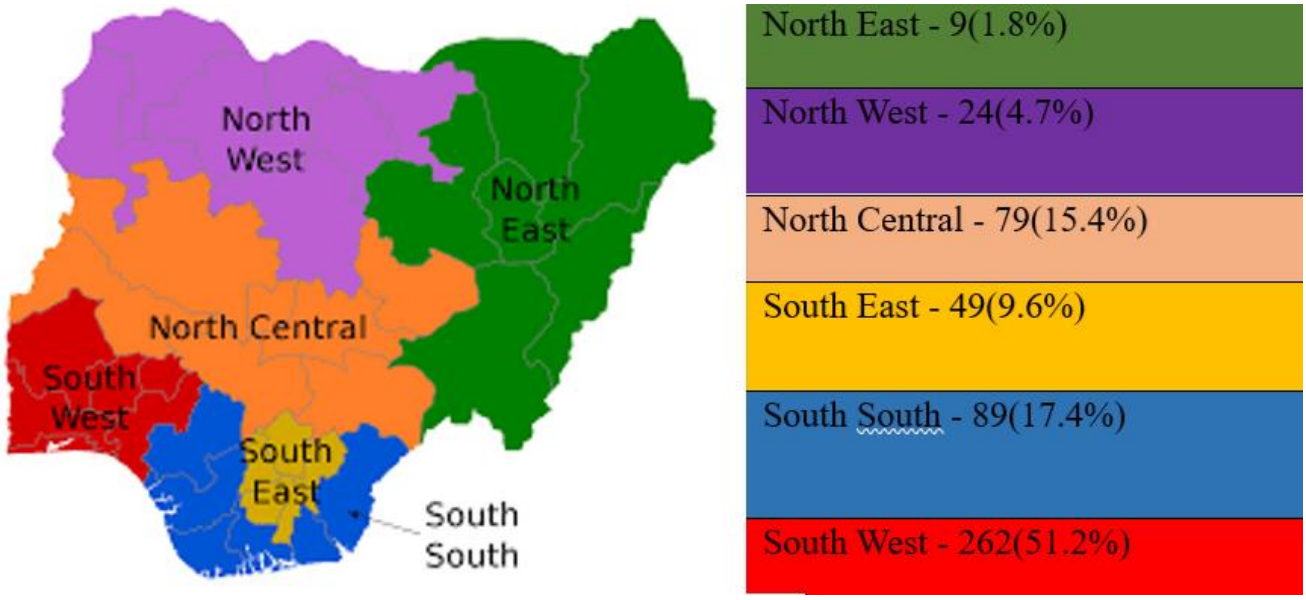

Figure 1: geopolitical zones of phone calls received

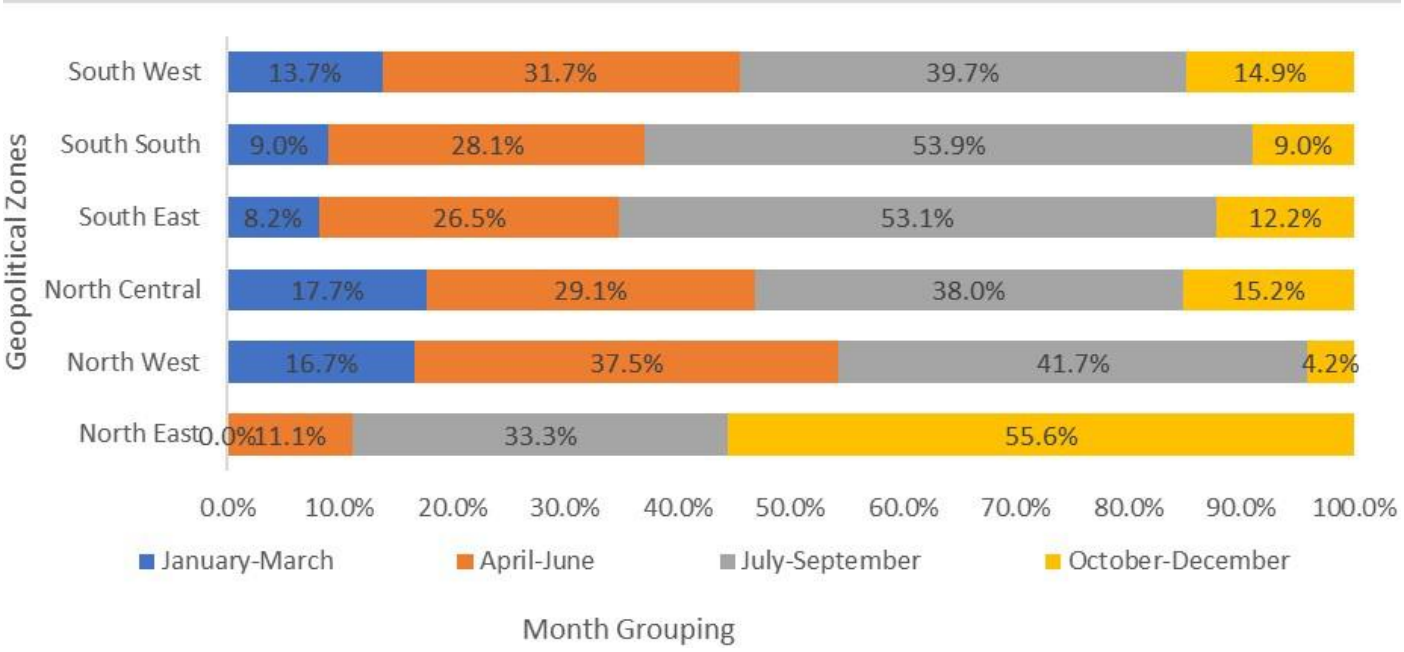

Figure 2: month of call and geopolitical zones of callers

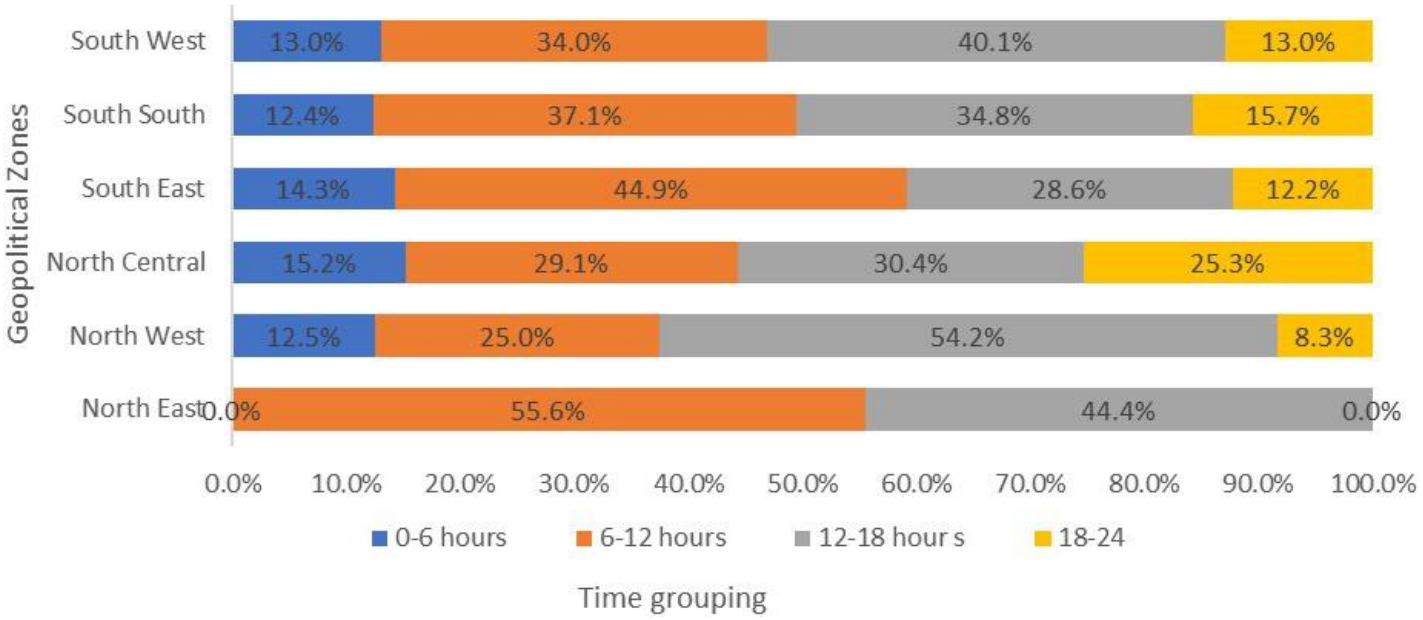

Figure 3: time of calls and geopolitical zones