

INFLUENCE OF SETTLEMENT PATTERN ON INTER-RELIGIOUS AND INTER-CULTURAL HARMONY IN KADUNA METROPOLIS

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ABSTRACT

Kaduna Metropolis has experienced increasing ethnic and religious segregation, influencing inter-religious and inter-cultural harmony. Settlement patterns play a crucial role in shaping socio-spatial interactions, with historical conflicts exacerbating divisions. This study examines the influence of settlement pattern on inter-religious and inter-cultural harmony in Kaduna Metropolis. Primary data was collected through structured questionnaires covering socio-demographics and study-specific factors, while GPS coordinates were used to map spatial distributions across four Local Government Areas (Kaduna South, Kaduna North, Chikun, and Igabi). A triangulated analytical approach was used, combining descriptive and inferential statistical methods. Frequencies, percentages, means, and chi-square tests assessed demographic factors, segregation influences, and intergroup relations, while GIS mapping visualized settlement distributions. Findings revealed significant gender disparity in responses (66.2% male, 33.08% female), influenced by cultural and religious restrictions. Religious representation was 58.4% Christian and 35.7% Muslim, though not reflective of Kaduna State's actual composition. Ethnic diversity was evident, with Hausa/Fulani (33.1%), Yoruba (14%), and Igbo (13%) as the dominant groups. Unemployment (57.8%) emerged as a key socio-economic challenge, while 56.1% of respondents reported relocating due to past crises. Politics (72.8%) and ethnicity (59.8%) were major segregation drivers. The study concludes that historical conflicts, political interests, and socio-economic factors drive segregation, undermining inter-religious harmony. It recommends urban integration policies, strengthened community dialogues, economic empowerment programs, and political accountability to foster peaceful coexistence and sustainable development.

Keywords: Settlement patterns, ethnic segregation, religious segregation, intergroup relations, Kaduna Metropolis, socio-spatial interactions, GIS mapping, urban integration, community cohesion, conflict resolution.

INTRODUCTION

Globally, settlement patterns play a fundamental role in shaping social interactions, cultural exchanges, and religious coexistence (Qi et al., 2024). The way communities are spatially distributed within cities and towns significantly influences the level of integration, social cohesion, and potential for conflict (Lai et al., 2024). More than 56% of the world's population resides in urban areas, and this figure is projected to rise to 68% by 2050 (Kohlhase, 2013). This rapid urbanization has led to the expansion of cities, often shaping the way people live together (Gu et al., 2021). Urban settlements may be integrated, where different ethnic and religious groups coexist in shared spaces, or segregated, where communities live in separate enclaves based on identity factors

such as ethnicity, religion, or socioeconomic status (Diab et al., 2022). Studies show that cities with integrated settlement patterns, such as those in Germany, tend to experience lower levels of communal conflict and higher levels of social cohesion (Useche et al., 2024). Yue et al. (2024) reported that urban areas with high levels of social integration tend to have 30% lower rates of inter-group conflict compared to segregated communities. In contrast, areas where ethnic and religious groups live in isolation from one another tend to exhibit increased social tensions, heightened mistrust, and a higher likelihood of conflict (Ford et al., 2015). For example, in India, 70% of urban conflicts reported between 2000 and 2020 occurred in cities with significant religious clustering (Shaban et al., 2020). These global trends highlight the importance of settlement patterns in shaping social relationships and long-term stability in urban centers (Daniele et al., 2020).

In Africa, urbanization has been accompanied by both integration and segregation of different ethnic and religious groups (Paul et al., 2021). The continent has witnessed rapid urban growth, with cities expanding due to rural-urban migration, population growth, and economic opportunities (Sakketa, 2023). Aliyu & Amadu (2017) reported that more than 45% of Africa's population now lives in cities, and this number is expected to reach 60% by 2050. However, this urban expansion has not always resulted in harmonious coexistence. In some cities, informal settlements and government housing policies have led to the creation of ethnically or religiously homogeneous neighborhoods, reinforcing social divisions (Rigon, 2022).

In Nigeria, the most populous country in Africa with over 223 million people (Abubakar et al., 2022), these settlement dynamics are evident in major cities such as Lagos, Kano, Jos, and Kaduna. The historical factors shaping settlement patterns in Nigeria include colonial urban planning, economic disparities, religious affiliations, and security concerns (Bikam & Chakwizira, 2020). In several Nigerian cities, religious and ethnic enclaves have persisted for decades, influencing patterns of social interaction, economic collaboration, and political alliances (Adegami & Uche, 2015). Kaduna Metropolis, a major urban center in northern Nigeria, is a prime example of how settlement patterns influence inter-religious and inter-cultural harmony (Ajibuah, 2011). The city, with an estimated population of 1.3 million (Mshelia et al., 2021), has long been a melting pot of various ethnic and religious groups. However, it has also witnessed periodic episodes of ethno-religious conflicts, many of which have been linked to the spatial separation of communities along religious and ethnic lines (Bello et al., 2023). Kaduna Metropolis is historically divided into two main sections: the predominantly Muslim northern part of the city, where Hausa-Fulani communities are concentrated, and the predominantly Christian southern part, where various ethnic groups, including the Igbo, Yoruba, and other minority groups, reside (Tuki, 2024). This division, often referred to as the "Kaduna Dichotomy," has

significantly shaped inter-group relations in the city. Studies indicate that over 70% of Kaduna residents live in religiously homogeneous neighborhoods (Bello et al., 2023), limiting cross-cultural interactions and reinforcing social boundaries. This segregation has been a key factor in the recurrence of religious and ethnic violence in the city. Major crises such as the 1987 Kafanchan Riots, the 2000 Sharia Crisis, and the 2011 post-election violence were largely fueled by religious and ethnic divisions that mirrored the city's settlement pattern (Uroko, 2018).

Therefore, this study aims to examine the influence of settlement patterns on inter-religious and inter-cultural harmony in Kaduna Metropolis. It seeks to explore how spatial distribution of religious and ethnic groups affects social interactions, economic collaboration, and potential conflicts within the city. Specifically, the study aims to analyze the socio-demographic and economic characteristics of residents in the study area, examine the extent to which ethno-religious crises have influenced migration and settlement changes, and assess the role of politics, ethnicity, and unemployment in community segregation and security dynamics. Furthermore, the study investigates the relationship between political, ethnic, and religious factors in shaping community interactions and social stability in Kaduna Metropolis.

By addressing these objectives, the study will provide valuable insights into how spatial segregation influences social cohesion, economic disparities, and the overall atmosphere of trust between communities. Additionally, the research can inform urban planning and policy decisions aimed at fostering better integration and improving the living conditions of marginalized communities, ultimately contributing to the socio-economic development and long-term stability of Kaduna Metropolis.

METHOD AND MATERIAL

Study area

Kaduna metropolis, located in northern Nigeria, spans Kaduna North, Kaduna South, and parts of Igabi and Chikun LGAs. Positioned between latitudes 10°25'0"N–10°35'30"N and longitudes 7°22'30"E–7°30'30"E, it covers about 50 km² from the city center (Figure 1). Kaduna has a tropical continental climate, with a rainy season from April to October and peak rainfall in August. Maximum temperatures reach 38°C in March and April, while harmattan brings cooler weather in December and January (Isa et al., 2023). The city lies on the Kaduna plain, featuring undulating land, rocky hills, and shallow, marshy floodplains known as *Fadamas* (Baba et al., 2022). Its geology consists mainly of migmatites, biotites, and granitic gneisses. The city falls within the Northern Guinea Savanna, but human activities have altered its natural vegetation. Soils are predominantly ferruginous, suitable for agriculture (Zaharaddeen et al., 2016). The Kaduna River, originating from the Jos Plateau, divides the city into northern and southern sections, flowing into the Shiroro Dam. The metropolis, with a 2023 projected population of 1,913,526, is ethnically diverse, including Hausa, Fulani, Gbagyi, and other groups (Favour, 2018). Islam and Christianity are the dominant religions (Uroko, 2018). Residential areas range from low to high-density neighborhoods. The economy is driven by manufacturing, commerce, and services, including textile mills, breweries, and banking. Kaduna remains a major trade and transportation hub in northern Nigeria, fostering industrial and infrastructural development (Aliyu & Suleiman, 2016).

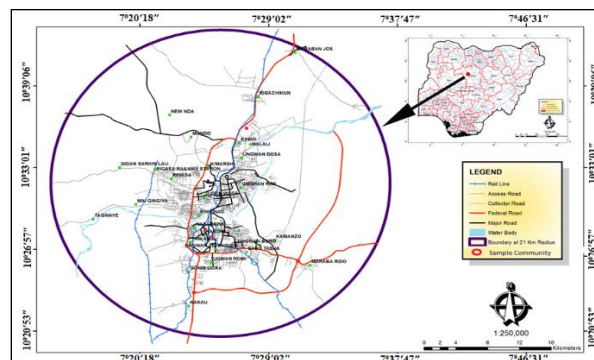


Figure 1: Map Showing Kaduna Metropolis with an Inset Map of Kaduna State

Source: Adopted and Modified from Kaduna State Base Map

The research utilizes primary data obtained through questionnaires, which are divided into two sections. Section A collects respondents' Socio-demographic characteristics. Section B contains study-specific questions. Additionally, GPS coordinates of areas dominated by particular ethnic and religious groups were recorded. The study focuses on Kaduna Metropolis, covering Kaduna South, Kaduna North, Chikun, and Igabi, with a total projected population of 1,627,600. Two localities from each Local Government Area (LGA) were purposively selected to investigate segregation causes and effects.

The research employs a combination of purposive and random sampling techniques. Purposive sampling was used to select two localities per LGA that have a combination of both Muslim and Christian populations, ensuring that the study captures inter-religious and inter-cultural interactions in Kaduna Metropolis. This approach enhances the study's relevance by focusing on areas where religious coexistence is evident. Random sampling was then applied within these selected areas to ensure that all eligible participants had an equal chance of being included in the questionnaire distribution, reducing selection bias and improving the representativeness of the findings. The sample size was determined using the 1999 population census, projected to 2024, following the National Population Commission's recommendations. The Krejcie and Morgan method was used to determine the sample sizes for each selected ward, resulting in a total of 384 respondents across the study area.

Data Collection, Handling, Preparation, and Analysis

Data for this study was collected through structured questionnaires, interviews, and geospatial data sources. The questionnaire was designed to capture demographic characteristics, settlement patterns, and perceptions of inter-religious and inter-cultural harmony. Respondents were selected using a combination of purposive and random sampling, ensuring the inclusion of both segregated and mixed settlements across Kaduna Metropolis. Purposive sampling was used to select specific localities where both Muslims and Christians coexisted within the metropolis, as these areas provided a relevant context for studying inter-religious and inter-cultural interactions. Random sampling was then employed to ensure that every individual within these selected areas had an equal opportunity to participate, reducing selection bias and enhancing the representativeness of the sample.

After data collection, all responses were carefully reviewed for completeness and consistency. Incomplete or inconsistent responses were either corrected through follow-up verification or excluded to maintain data accuracy. The validated data was then coded and entered into Statistical Package for the Social Sciences (SPSS) for analysis.

Data Analysis

The data analysis involved both statistical and geospatial techniques to ensure a comprehensive understanding of settlement segregation and its impact on inter-religious and inter-cultural harmony in Kaduna Metropolis. Descriptive statistics, including frequencies, percentages, and mean values, were used to summarize the demographic characteristics of respondents and identify key segregation factors. To examine the relationships between settlement segregation and intergroup harmony, as well as the socio-economic effects of segregation, inferential statistical methods were applied. Specifically, chi-square tests were used to determine whether a significant relationship exists between segregation patterns and inter-religious/inter-cultural interactions. For spatial analysis, Geographic Information System (GIS) techniques were employed to map and visualize settlement patterns. ArcGIS software analyzed the spatial distribution of religious and ethnic groups, while satellite imagery was processed using El-Shayal software to enhance mapping accuracy. These geospatial techniques provided a visual representation of settlement segregation, helping to identify areas of religious and cultural clustering within Kaduna Metropolis. By integrating statistical and spatial analysis, the study offers valuable insights into the socio-spatial dynamics of segregation and its broader implications for social cohesion, economic opportunities, and intergroup relations in the study area.

Table 1: Sample size of selected wards in Kaduna Metropolis

LGA	WARDS	POP SIZE	SAMPLE SIZE
Kaduna South	Barnawa	74,778	53
	Kakuri	177,186	125
Kaduna North	Malali	51,930	37
	Unguan Rimi	77,494	
Chikun	Kujama	4,423	
	Maraban Rido	11,056	8
Igabi	Mando (Afaka)	33,342	24
	Barkallahu	919	
Total		544,165	384

Source: Author's Analysis – Using Krejcie and Morgan, 1970

RESULTS AND DISCUSSION

This section presents the findings of the study on the influence of settlement patterns on inter-religious and inter-cultural harmony in Kaduna Metropolis. It provides an analysis of the key factors shaping settlement patterns, including historical, political, ethnic, and religious influences. The discussion interprets these findings in relation to existing literature and theoretical frameworks, highlighting the implications of segregation on social cohesion and intergroup relations. Additionally, spatial analysis using GIS

mapping offers a visual representation of the extent of segregation within the metropolis. The results also examine the socio-economic conditions of residents, including education and employment levels, and their impact on intergroup interactions. The discussion further explores potential policy measures and interventions that could mitigate segregation and promote harmonious coexistence among diverse communities in Kaduna.

Table 2: Socio-demographic characteristics of Respondents

Gender	Frequency	Percent
Male	263	66.2
Female	134	33.08
Total	397	100
Descriptive Statistics		Age
Minimum	20	
Maximum	90	
Mean	36.92	
Std. Deviation	15.886	
Religion	Frequency	Percent
Protestant	84	22.2
Catholic	137	36.2
Muslim	135	35.7
Others (Specify)	22	5.8
Total	378	100
Ethnicity	Frequency	Percent
Hausa/Fulani	130	33.1
Yoruba	55	14
Igbo	51	13
Others (Specify)	157	39.9
Total	393	100
Married	Frequency	Percent
No	185	48.8
Yes	194	51.2
Total	379	100

Source: Author's survey (2024).

Table 2 shows the gender, age distribution, religion, ethnicity and the marital status of the respondent in the study area, the table reveals that 66.2% of the respondents were males while 33.08% were females. The under representation of female is as result of cultural and religion restriction which made them difficult to be accessible. The descriptive statistics of the age of the respondents shows average age of 35 years, maximum of 90 years and minimum of 20. The distribution of respondents by religion beliefs indicates that Christians constituted about 58.4%, Muslims constituted about 35.7% of the respondents, however this is not this does not imply that this is the true reflection of the religious spread in the study areas as accurate data on the religious distribution of the areas was not available, instead it only reflects the response rate by the adherents of the two dominant religions in

Kaduna State. While the researcher ensured that both religions were given equal chance and are adequately represented in the sample, the researcher however does not have control over how many of them returned the questionnaires within the stipulated time of the research. As such more Christians responded and returned the questionnaires than Muslims.

It is important to state that both Muslims and Christians in Kaduna State claim numerical superiority over one another. However, there is no accurate data to back any of their claims as data on religion was not collected even in the most recent national population census in 2006 and the 1991 national census before it. Hausa/Fulani constitute about 33.1% of the respondents, Yoruba constitute 14% of the respondents, Igbo constituted about 13% of the respondents. Other ethnicity constitutes about 40% of the respondents. It is obvious that Kaduna State has multi-ethnic group because of its location and the huge influx of people from other part of the country and world at large. This reason may be why other ethnic groups constitute the large percentage of the respondents. The findings reveal that 51.2% of the respondents are married and 48.8% are not married. The findings are in line with (Uroko, 2018) who conducted a study *Readdressing the Ethno-Religious Conflicts in Southern Kaduna, Nigeria in the Light of Abraham-Lot Narrative* and discuss in details the socio-demographic characteristics of the respondents

Table 4: Economic Characteristics of Respondents

Educational Level	Frequency	Percentage
Unable to read and write	26	6.5
Able to read and write but no formal education	33	8.3
Did not complete primary school	57	14.4
Primary school certificate	17	4.3
Junior secondary school certificate	22	5.5
Senior secondary school certificate	82	20.7
Post-secondary school	160	40.3
Total	397	100
Employment Status	Frequency	Percentage
Unemployment	223	57.6
Full time Job	90	23.3
Part-time job	54	14
Self Employed	20	5.2
Total	387	100
Occupation	Frequency	Percentage
Artisan	70	18.6
Farming	63	16.7
Trading	58	15.4
Civil Service	49	13
Others	137	36.3
Total	377	100
Annual income	Frequency	Percentage

	Frequency	Percentage
Cash (in Naira)	189	88.3
Others	25	11.7
Total	214	100
Household income	Frequency	Percentage
Poor	85	28.5
Near Poor	88	29.5
Non-Poor	125	41.9
Total	298	100

Table 4 shows the educational level, employment status, occupation, annual income, and household income of the respondents in the study area. Kaduna State is known as the Centre of Learning in Nigeria, and the distribution of respondents have confirmed that with 40.3% with post-secondary education, 20.7% of the respondents with senior secondary school certificate 5.5% are with junior secondary school certificate, 4.3% are with primary school certificate, while 14.4% did not complete primary school, 8.3% are able to read and write but no formal education, and 6.5% of the respondents are unable to read and write primary school certificate, this means that the respondents were in good position to be able to give account of the history of the numerous crises that have occurred in the State and also be able to share their experiences. The finding reveals that 57.8% of the respondents are unemployed, 23.3% of the respondents are fully employed, 14% of the respondents has part-time job and 5.2% of the respondents are self-employed. The findings reveal that majority of the respondents are not employed and unemployment might be a serious problem to the society which can lead to migration and at sometimes violence.

The table reveals that 16.7% of the respondents are engaged in farming, 18.6% artisanal, 15.4% are traders, 13% of the respondents are service servants while 36.3% of the respondents has other businesses. It is clear that majority of the respondents are self-employed. The findings reveal that 51.2% of the respondents are married and 48.8% are not married. The findings are in line with (Uroko, 2018) who conducted a study on *Readdressing the Ethno-Religious Conflicts in Southern Kaduna, Nigeria in the Light of Abraham-Lot Narrative* and discuss in details the socio-demographic characteristics of the respondents

Table 5: Change of area of residence

Changing Area of Residence	Frequency	Percent
Yes	198	56.1
No	155	43.9
Total	353	100

Table 5 shows the responses on the change of area of residence in the study area, the findings show that majority of the respondents (56.1%) change area of residence while 43.9% of the respondents did not change area of residences. The respondents that change area of residence might be as a result of crises that was experienced in Kaduna. Most areas in Kaduna before the inception of ethno-religious crises are made up of mixed religion and ethnic

member, the situation is now a different situation. People are residing in area where the majority of the residence are members of their ethnic or religion group. This is to say that majority of residents in the study area has change location as a result of aftermath of anticipated ethno-religious crises. The finding agrees well with that of (Uroko, 2018) who stated that the study area is divided in to two with Christians in the south and Muslims in the north.

Table 6: Politics as a factor of segregation of community

Politics	Frequency	Percent
Strongly Agree	142	72.8
Agree	50	25.6
Neutral	3	1.5
Total	195	100

Table 6 shows if politics cause segregation of community in the study area, the findings reveals that majority (72.8%) of the respondents strongly agreed that politics cause segregation of community in the study area. 25.6% of the respondents agreed that politics cause segregation of community in the study area while 1.5% of the respondents are neutral. The finding has clearly stated that about 98% of the respondent believe politics is a key cause segregation in the community. Politicians can sometimes cause a problem that can lead to segregation to achieve political interest. Kaduna is a multi-ethnics and multi-religious state. As such, peaceful co-existence is sine qua none to the development and security of the state. Yet, this is not the case as the state has continued to experience violent ethno-religious conflicts tainted with political undertone, more especially between the Christians and Muslims in the state. Despite the fact that Kaduna is a secular state, the interference of religion in political affairs is second to none. For political interest and control a lot of politicians are behind a lot of violence which lead to segregation, basically to dominate a political word. The findings is in line with of (Yakubu, 2020) who conducted a study on British Colonial Legacy And Ethno-Cultural Conflicts In Takum, Taraba State, North-Eastern Geo-Political Zone, Nigeria

Table 7: Ethnicity as a factor of segregation of community

Ethnicity	Frequency	Percent
Strongly Agree	113	59.8
Agree	69	36.5
Neutral	7	3.7
Total	189	100

Source: Author's survey (2020).

Table 7 show if ethnicity cause segregation in the study area, the finding reveal that the findings that majority (59.8%) of the respondents strongly agreed that ethnicity cause segregation of community in the study area. 36.5% of the respondents agreed that Table 9 shows the level of interaction with past community in the study area, the findings show that 16.1% of the respondents only interact with relatives, 7.2% with colleagues, 9.5% with friends outside neighborhood, majority 30.2% with people in

ethnicity cause segregation of community in the study area while 1.5% of the respondents are neutral. The finding has clearly stated that about 98% of the respondent believe politics is a key cause segregation in the community. Ethnicity has contributed greatly to segregation of settlement in the study area, majority of Hausa and Fulani tribe who are predominately Muslims live in the northern part of the study area while Katab and other tribe who are majorly Christians live in the southern part of the study area. The separation of settlements among ethnicity is solely for security or safety.

Table 8: Religion as a factor of segregation of community

Religion	Frequency	Percent
Strongly Agree	150	78.1
Agree	38	19.8
Neutral	4	2.1
Total	192	100

Table 8 shows if religion cause segregation in the study area, the finding reveal that of majority of the respondents strongly agreed that religion cause segregation of community in the study area. 19.8% of the respondents agreed that family status cause segregation of community in the study area while 2.1% of the respondents are neutral. The believe of majority of the respondents is that religion cause segregation. During the 2019 campaign period it was reported that severally pastors and Imams has campaign for political parties and candidates of their religion, that has go alone way in creating anxiety to some residents which have made them to relocated to another area. Religious leaders play a role in the segregation of settlement as most Imams and Pastors preach to member to relocate to another area. That has gone a long way in creating segregation among communities. Similar studies by (Aliyu et al.,2012) support these findings.

Table 9: Level of interaction with past community

Level of Interact with your past Community	Frequenc y	Percent
Relatives	56	16.1
Colleagues	25	7.2
Friends (outside Neighborhood)	33	9.5
People inside Neighborhood	105	30.2
People in the vicinity of neighborhood	51	14.7
People in the Further areas	43	12.4
All of the Above	25	7.2
None of the Above	10	2.9
Total	348	100

neighborhood, 14.7 with people in the vicinity of neighborhood, 12.4% with people in the further areas, 7.2% interact with all of the above while 2.9 interact with none of the above. The findings indicate a close relationship between member of the neighborhood.

Communication with members of past community is taking place, social media is a factor that straighten the communication, as majority of people exchange pleasantries with the member of past community regularly. This has made communication easy. Members of past community also rejoice with each other during the

time of celebration, time such as name ceremony, Sallah or Christmas, members of past community also condole with each other during the time of sorrow such as death. The findings agree well with that of (Blessing, 2016).

Table 10: Level of interaction with your current community

Level of Interact with your Current Community	Frequency	Percent
Relatives	31	8.5
Colleagues	43	11.8
Friends Outside Neighborhood	39	10.7
People inside Neighborhood	88	24.2
People in the vicinity of Neighborhood	89	24.5
People in further areas	26	7.2
All of the Above	43	11.8
Trying to be familiar	4	1.1
Total	363	100

Table 10 shows the level of interaction with current community in the study area, the findings show that 8.5% of the respondents only interact with relatives, 11.8% with colleagues, 10.7% with friends outside neighborhood, 24.2% with people in neighborhood, 24.5 with people in the vicinity of neighborhood, 7.2% with people in the further areas, 11.8% interact with all of the above while 1.1 interact with none of the above. The findings indicate respondents are adopting to the new community and establishing new relationship

with neighbor's. Social interaction is an exchange between two or more individuals and is a building blocks of society. Interaction is taking place between current community is place of worship, public space such as market, hospitals and banks. Some are familiar or related to member of current community interaction was enhanced and straighten. The findings agree well with that of (Blessing, 2016).

Table 11: Chi-square test between segregation of settlements and inter-religious and inter-cultural harmony in Kaduna metropolis

	Place of Contact with People of different Religions Background	Members of the Family with Different Religious Background with respondents	Different Religious by Members of the Family	Members of the Family with Different Ethnic Background with respondents	Different of ethnicity by members of the family	Extent of tolerance and accommodation of People with different ethnic and religious background
Chi-square	108.864	52.100	25.564	46.606	13.538	145.857
P-value	0.000	0.002	0.000	0.000	0.004	0.000
Alpha	0.05	0.05	0.05	0.05	0.05	0.05

The results presented in Table 11 indicate a significant relationship between the segregation of settlements and inter-religious and inter-cultural harmony in Kaduna metropolis. The chi-square values for all variables under consideration are statistically significant at an alpha level of 0.05, as evidenced by their p-values, which are all below this threshold. Specifically, the chi-square value for the place of contact with people of different religious backgrounds is 108.864, with a highly significant p-value of 0.000, suggesting that segregation influences opportunities for inter-religious interactions. Similarly, the chi-square value for having family members with different religious backgrounds is 52.100 (p = 0.002), while that for different religious affiliations among family members is 25.564 (p = 0.000), indicating that settlement patterns may affect religious diversity within households.

Additionally, the chi-square value for having family members from different ethnic backgrounds is 46.606 (p = 0.000), and for different ethnicities among family members, it is 13.538 (p = 0.004), highlighting that ethnic diversity within families is also significantly associated with settlement patterns. The highest chi-square value of 145.857 (p = 0.000) pertains to the extent of tolerance and accommodation of people with different ethnic and religious backgrounds, suggesting a strong link between segregation and social harmony. These findings collectively show that residential segregation in Kaduna metropolis significantly impacts inter-religious and inter-cultural interactions, potentially reinforcing divisions or fostering inclusivity depending on settlement patterns. The result is in line with that of (Oluwole, 2013) who reported similar finding in his study.

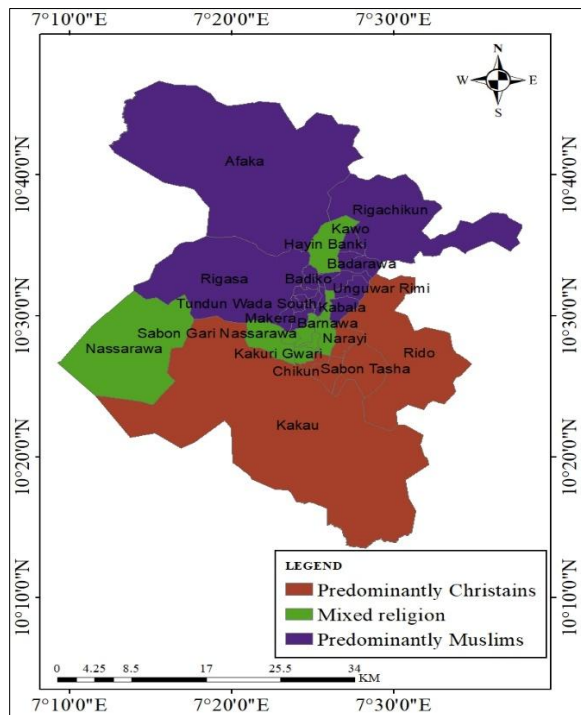


Figure 2: Map of Kaduna metropolis based on inter-religious and inters cultural harmony

Figure 2 presents a map of Kaduna metropolis, illustrating the spatial distribution of religious groups and the extent of inter-religious and inter-cultural interactions within different areas. The map categorizes the metropolis into three distinct regions based on religious composition: predominantly Muslim areas (marked in purple), predominantly Christian areas (marked in brown), and mixed-religion areas (marked in green). From the map, it is evident that the northern and central parts of Kaduna metropolis, including areas such as Afaka, Rigasa, Rigachikun, and Badiko, are predominantly Muslim. Conversely, the southern region, encompassing Chikun, Sabon Tasha, Kakau, and Narayi, is predominantly Christian. Meanwhile, certain areas, such as Sabon Gari, Nassarawa, and Badarawa, exhibit a mixed-religion composition, indicating a higher degree of inter-religious coexistence.

The spatial segregation observed in this map aligns with historical patterns of religious and ethnic clustering in Kaduna, which has often been influenced by socio-political factors, migration patterns, and communal tensions. The presence of mixed-religion zones shows areas where inter-religious interactions and cultural exchanges are more pronounced, potentially fostering greater tolerance and accommodation. However, the clear division between predominantly Christian and Muslim areas may indicate a level of social and residential segregation, which could impact inter-group relations, social cohesion, and overall metropolitan harmony. The implications of this spatial distribution on inter-religious and inter-cultural harmony are significant. Areas with high levels of segregation may experience limited interactions between different religious and ethnic groups, reinforcing social divisions. Conversely, the mixed-religion zones may serve as important spaces for fostering understanding and peaceful coexistence.

Overall, the map highlights the complex interplay between settlement patterns, religious diversity, and social harmony in Kaduna metropolis.

Conclusion

The study on the influence of settlement patterns on inter-religious and inter-cultural harmony in Kaduna Metropolis has revealed significant findings regarding the socio-spatial dynamics of segregation in the area. The research highlights that settlement patterns in Kaduna have been largely shaped by historical, political, ethnic, and religious factors, leading to increasing segregation along religious and ethnic lines. Findings indicate that political influence plays a significant role in fostering segregation, as 98% of respondents agreed that political interests contribute to the division of communities. Ethnicity also plays a major role, with Hausa/Fulani groups predominantly residing in the northern part of the study area, while other ethnic groups, particularly from Southern Kaduna, reside in the southern part. Additionally, ethno-religious crises have influenced migration patterns, leading to a shift from mixed settlements to segregated communities where people prefer to reside among those who share their religious and ethnic identity. The study further reveals that while Kaduna is known as the "Centre of Learning," educational disparities persist, with a considerable percentage of respondents lacking formal education. Unemployment is also a pressing issue, with 57.8% of respondents unemployed, a factor that may contribute to tensions and instability. GIS mapping has provided a spatial representation of segregation, confirming that communities in Kaduna Metropolis are now largely divided along religious and ethnic lines. This separation, driven by historical and contemporary conflicts, has impacted social cohesion and intergroup relations, limiting opportunities for meaningful interactions among diverse groups. Overall, the study underscores the need for proactive measures to address segregation and foster inter-religious and inter-cultural harmony. Policies promoting mixed settlements, equitable political representation, and socio-economic empowerment are essential to breaking the cycle of division and building a more inclusive Kaduna Metropolis. Strengthening community engagement, peace-building initiatives, and grassroots dialogue between religious and ethnic groups will be crucial in achieving long-term harmony and coexistence in the region.

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