

# Climate Change Awareness and Adaptation: The Role and Attitude of Religious Leaders in Jos Metropolis, Plateau State, Nigeria

Dickson Sura Dakur (PhD)., Kim David Istifanus\*

Department of Science and Technology Education, University of Jos, Nigeria

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## ABSTRACT

**Background:** The rising concern about climate change and risks associated with it around the world and locally compared to the disproportionate level of awareness in Jos Metropolis inspired this study. Achieving adaptation to climate change always relies on the level of awareness. Hence effort must be made to intensify awareness. Though religious leaders in the study area have significant followership to positively change the tides of climate change awareness, risk perception, adaptation, and action, the opportunity is not harnessed. The study sought to project the role and attitude of religious leaders in Jos Metropolis in the global climate crisis.

**Methodology:** Through a survey of a systematically drawn sample of 293 religious leaders using the Climate Change Survey Questionnaire (CCSQ), data was gathered to answer questions on climate change awareness, climate risk perception, attitude towards climate change, and the role of religious leaders in fighting the climate crisis. The reliability of the CCSQ was computed using the Cronbach Alpha method to be 0.98 after validation by experts in the field of Geography.

**Findings:** Insights from the data suggest that religious leaders have a superficial awareness but lack meaningful awareness of climate change, giving rise to the shrouded perception of climate risks. Further, their attitude towards climate change issues was found to be positive, but not to the extent of neither taking individual measures to reduce climate change nor accepting organized media communications on climate change as factual. The level of awareness, risk perception, and attitude of the subjects under study were sufficient to inspire acceptance of climate change issues for discussions in churches/mosques and inclusion in their strategic plans. Findings also revealed that though nearly all the religious leaders have never taught in church/mosque on the subject of climate change or taken climate action in their immediate communities, the result shows the willingness of religious leaders to accept informed persons/experts to talk to their members on climate change.

**Recommendations:** Considering the necessity of awareness in combating climate change, it is recommended that the government should seek opportunities to deepen awareness among religious leaders which could have a ripple effect on the Nigerian populace. Religious leaders were advised to teach or create platforms to bring awareness of climate change and its risks to their members. Circulation of climate laws and policies to religious leaders and the public is strongly advocated.

**Keywords:** Climate change, climate awareness, Climate adaptation, Attitude & Religious leaders.

## INTRODUCTION

Countries of the world exists as separate identifiable economic, political, and autonomous sovereign systems, capable of making national economic and political decisions with no, or little consultation with, or interference by neighbouring nations at the very least. However, some elements of the existence of nations cannot be treated in isolation from nation to nation because of their blended nature. For instance, a country can have a migration policy that prevents the immigration of other countries' nationals but cannot micromanage the use and interaction of other nations with the atmosphere which is ultimately blended by the transport and circulation of winds, currents, and pollutants at a global scale. This interaction is created by the complex interrelationship and exchanges between high-low atmospheric pressure cells around the world attributable to both local and global

factors. Hence, elements of climate such as temperature, precipitation, atmospheric pressure, humidity, wind, sunshine, cloud cover, and visibility, and the products of their interaction have increasingly assumed prominence among subjects of the global discussion.

Climate is the long-term pattern of weather in a particular area according to National Geographic Society (NGS, 2024). While the weather can change from hour-to-hour, day-to-day, month-to-month, or even year-to-year, a region's weather patterns, usually tracked for at least 30 years, are considered its climate, NGS added. Therefore, the study of climate involves the protracted collection of data about the weather elements to uncover patterns of behaviour of these elements over a long period. Noticeable deviations from documented patterns of climatic elements are termed climate change.

Climate change is a long-term shift in global or regional climate patterns, often referring specifically to the rise in global temperatures from the mid-20th century to the present (NGS, 2023). United Nations (UN, 2024) averred that climate change refers to long-term shifts in temperatures and weather patterns, resulting from natural causes such as changes in the sun's activity or large volcanic eruptions. The United Nations admits states that since the 1800s, human activities, primarily the burning of fossil fuels like coal, oil, and gas have been the main driver of climate change. Climate change gained prominence in 1972 with the Earth Summit in Sweden, which declared its importance (Jackson, 2007). Since then, it has gained international attention and action, with the UN Governing Council recommending measures to limit chlorofluorocarbon production and sulfur emissions. The UN has coordinated efforts through various programmes and coalitions, including the United Nations Environment Programme (UNEP), Intergovernmental Panel on Climate Change (IPCC), and United Nations Framework Convention on Climate Change (UNFCCC).

Climate change is a global threat characterized by high and low temperatures, global warming, heat waves, ozone depletion, and deforestation (NGS, 2024). It has severe effects on the weather, environment, agriculture, animals, humans, and the future. The Natural Resource Development Council (NRDC, 2022) warns that rising temperatures could lead to crop and fishery collapse, species disappearance, and uninhabitable communities. The compounding effects of wildfires and storms are already felt today. Therefore climate change, if allowed unchecked, poses existential threats to life on our planet. Thus, Climate change has consequential catastrophe for humans and other life forms on earth (Penuelas & Nogue, 2023).

Climate change is potentially catastrophic because it has led to unpredictable weather regimes, including surging temperatures, extreme droughts, hurricanes, and floods (NRDC, 2022). The planet has warmed by  $1.1^{\circ}\text{C}$  in the past 250 years, with the potential to hit  $4^{\circ}\text{C}$  by 2100 if unchecked (IPCC, 2021). Rising temperatures are linked to melting polar icecaps, causing coastal cities and arable lands to submerge. Fatalities from weather events include heat waves, droughts, and wildfires (NRDC, 2022). For instance, the number of large wildfires doubled between 1984 and 2015 in the Western United States, with a 500% increase in the area burned by wildfires annually in California alone between 1972 and 2018 (NRDC, 2022). Warmer air also holds more moisture, making tropical cyclones wetter and stronger. The frequency of severe hurricane storms is expected to increase, with the frequency of extreme precipitation events increasing by 7% for each degree Celsius rise in global temperature (Lindwall, 2023). While some of these devastating conditions might be remote to some readers of this article, everyone living on our planet has received a fair share of the impact of climate change on our local weather conditions.

There is a reported large-scale disturbance of ecosystems from the cold poles to the hot tropics. Slight shifts in temperatures can cause significant changes with cascading effects on feeding pathways and ecological balance (Lindwall, 2023). Lindwall asserted the effects of climate change are most apparent in the world's coldest regions (polar region), With the Arctic heating up twice as fast as anywhere else on earth, leading to rapid melting of glaciers and polar ice sheets, thereby heightening the possibility of rapidly losing the ice sheets, culminating in sea level rise. In the next 15 years, the Arctic could be entirely ice-free in the summer (IPCC, 2023). The rise in sea level will damage infrastructure like roads, sewage treatment plants, and power plants and submerge beaches, coastal ecosystems, freshwater inland aquifers, homes, and coastal cities by 2050, IPCC stressed.

Climate change has significantly raised the temperatures and acidity of the giant water bodies (oceans and seas) resulting in some form of marine heat waves. This follows the oceans' absorption of 93% of the heat trapped in

greenhouse gases and 30% of carbon dioxide (CO<sub>2</sub>) emitted from the burning of fossil fuels (NRDC, 2022). The resultant effect is the migration or death of fish and other marine life sensitive to temperature and pH such as corals, oysters, and mussels. On terrestrial ecosystems, climate change is likely to increase the outbreaks of pests, invasive species, and pathogen infections, thereby destroying or changing the kinds of plants and animal species that can thrive in given regions. This builds ecosystems that are increasingly less resilient, with lesser capacity to adapt to changing conditions over time.

As temperature continues to rise globally, cultivating crops and raising livestock sensitive to extreme weather becomes increasingly difficult. In Kansas, USA, a heat wave in June 2022 resulted in thousands of cows being wiped out (NRDC, 2022). Climate change, particularly extreme heat and precipitation changes can degrade soil quality, leading to biodiversity loss and food shortages, particularly in developing countries, stressed NRDC

Humans are as affected by climate change as every other element of the ecosystem. Stable climates have been crucial for human development, but global climate change threatens this balance, leading to widespread diseases like malaria, Lyme, and zika to mention but a few (Lindwall, 2023). In Europe, heat waves caused thousands of deaths in 2022, posing a threat to millions of people worldwide. The threat of extreme weather events and the escalating threat of diseases like Zika underscore the urgent need for global action. NRDC has also argued that the climate crisis continues to worsen existing inequality between wealthy and poor people as well as nations.

In the face of global inequalities, climate crisis tends to worsen the situation. Greenhouse gases, particularly carbon dioxide (CO<sub>2</sub>) - by far the most potent of all greenhouse gases with about 100-200 years atmospheric residence period (Istifanus et al., 2024; Robert et al., 2007), are not released equally across the world. Lindwall (2023) highlights the disproportionate contribution of wealthy nations to the climate crisis, as they are the giant contributors to greenhouse gases. Despite their significant emissions, developing countries may lack the resources to adapt and bear the burden of the climate crisis, Lindwall added. Small-scale disparities within wealthy nations exist, with some citizens able to control climate change effects while others cannot, making achieving equality and equity difficult or impossible.

Economies of the world also stand to face devastating setbacks owing to the crisis resulting from climate change. Countries of the world pay dearly for the impact of climate change. In some cases, countries voted large chunks of budgets that could have been use for meaningful development to assuage the devastations suffered from climate change. In Nigeria for instance, the Federal Ministry of Environment (FME, 2010) submitted a report to the UN on their future strides for mitigating the impact of climate change for 2020-2050. The report had it that the country projected expenditure of \$35.3billion for the period on water resources, livestock production, fish production, forest and forestry, coastal areas, human health, energy, and sensitization. That amount is 96% of the Country's 2024 budget, not putting into consideration the reality of the economy today as compared to the year 2010. This does not include the \$307 million spent on flood-related issues (usually exacerbated by climate change) on an annual basis in Nigeria (Ikiriko & Gbarabe, 2024). Also, in the U.S., climate change costs \$500 billion annually according to the 2018 National Climate Assessment, apart from impacts on human health and the potential collapse of local industries and the economic support they provide (Lindwall, 2023). Such budgetary votes could have been used for interventions that had a direct impact on the people rather than dealing with a climate crisis.

In the face of the imminent danger and risk of climate change globally, preparation should be the least response by regional, national, and local governments and even individuals. British Columbia (BC, 2024) advocates implementing climate preparedness measures to protect ecosystems and communities from climate change. This approach ensures lower costs and increased safety. This includes building infrastructure, planting native trees, and enacting policies to reduce the impact of climate change on society and ecosystems.

Where the risks and impact of climate change have maintained an upward course in the past 50 years, it is imperative that governments of regions, nations, localities, communities, corporations, medium, small, and micro enterprises, and individuals should pursue sustainable adaptation strategies. Climate change adaptation suggests actions taken to reduce the vulnerability of social systems and ecosystems to climate change (Dietz et al., 2024). This is in reality the fact that the past cannot be undone but strategic preparations can be made now

to adapt and reduce the impact of climate change in the future, since evidence that the climate is changing is overwhelming (Fussel, 2009).

Achieving great results in dealing with climate change and all its elements remains a far cry if the greater, if not all the people inhabiting the earth today are not meaningfully aware. Climate change and climate risk unawareness are as fatal as the climate change itself. Awareness is the springboard of discussions on preparedness, adaptation, and mitigation, hence the crucial role of bringing meaningful awareness on climate change and its risks. It has been reported that 40 percent of the world's population of adults (2 billion people) have never heard of climate change (Leiserowitz, 2015). Also based on data from a 2007-2008 Gallup World Poll conducted in 119 countries, 90 percent of climate change awareness and risk perception is attributed to contrast between developed and developing countries. Europe, North America, and Japan are among the developed countries with over 90 percent public awareness of climate change, while developing countries have a higher level of unawareness (65 percent), raising concerns about climate justice and subsistence farmers' capacity to adapt.

It was reported by Statista (2021) that as of early 2020, more than 69 percent of Nigerians had not heard about the topic of climate change, indicating that only about 30 percent declared they had heard about this topic. The awareness differed by about 9 percent between urban and rural areas but in favour of urban settlers. This data raises serious concerns about climate action in Nigeria and the world. Considering the imminence of climate issues in global discussions today, bridging the gap of ignorance has become imperative. There is therefore a contemplation that a strong religious affiliation of Nigerians could be leveraged for the common good.

According to a U.S. Department of State report (DOS, 2022), 98 percent of Nigerians were either Christian or Muslim, while 2 percent belonged to other or no religious groups. The report shows that 50 percent of Nigerians are Muslims while 48.1% are Christians. The Alder Church Report shows that 90.9 percent of Nigerian Christians attend church at least once a week (Alder, 2023). Also, 48.1 percent of those Christian adherents attend church meetings at least twice weekly. On the other hand, 87 percent of Nigerian Muslims attend mosque service at least once a week says a 2009-2012 report ("Mosque," 2024). This again is a large chunk of the Islamic adherents. These Christian and Muslim demographics appear weekly to hear from their clerics, giving the clerics enormous power to influence these adherents through their teachings and information released.

Though climate change poses a threat to human existence, sadly, these life-threatening consequences remain perhaps imperceptible to the greater majority of the populations of the world and the study area. It is worrisome that even religious establishments that have access to meet the majority of Nigerians on almost a daily basis may not be sufficiently aware of climate change discussions globally. The power these clerics wield to inform their followers is of importance in this study. The researcher believes the opportunity can be harnessed to bring more, if not most Nigerians, to meaningful awareness of the realities of climate change. The questions the research seeks to answer surround issues including climate change awareness among religious leaders, climate change risk perception, and climate change adaptation. The study also focused on the role and attitudes of religious leaders towards climate change discussions and action in Plateau State, Nigeria.

## LITERATURE REVIEW

Climate change awareness, which entails making people mindful of climate change through education, holds the key to success in the fight against climate change. However, the larger portion of the world's population is not aware of the threats of climate change (Leiserowitz, 2015). Marshal et al., (2013) have also suggested improving climate change awareness highlighting the significance of its role in combating climate change. Climate change awareness has also been argued to improve peoples' ecological worldviews (Lee, 2014). In Nigeria, climate change awareness remains very low among citizens both in rural and urban areas. According to a 2020 survey, 69 of Nigerians had not heard of climate change in both rural and urban areas (Statista, 2021). The difference in awareness according to the source is 9 percent between the two location types in the country. This was confirmed by Odjugo (2013) whose study revealed that the majority of the respondents either in the rural or urban areas have limited knowledge about climate change. Onyekuru and Marchant (2017), though revealed that the subjects in their study carried out in Nigerian communities had some form of climate change awareness, but this is not sufficient in invoking the required action. The respondents in the current study are not exempted from these

global and local statistics, hence the need for climate change among religious leaders to better equip them to educate their followers.

The capacity to adapt to climate change differs from person to person. Adaptation to climate change varies greatly across the world (Lee et al., 2015), suggesting that, while some people can take action against and reduce the devastating consequences of climate change, others cannot. Effective adaptation requires a holistic response (Onyekuru & Marchant, 2017), which cannot be achieved by this kind of variation. The capacity to adapt had partly been associated with poverty and low technological development in Nigeria (Odjugo, 2013) or even a level of awareness as suggested by Marshal (2013). In a study of Nigerian farmers, Ifeanyi-obi and Nnadi (2014) gathered that most of the respondents were not prepared to adapt to the changing climate. This leaves several of them vulnerable and poses the threat of food shortages. There is no exemption to climate change adaptation in order to reduce vulnerability. The current study seeks to stimulate adaptation by increasing awareness as revealed in the review.

Religious leaders especially of the two major religions in the study area are perceived to be instrumental in achieving climate change awareness and adaptation. Therefore their positive attitude is required. Lee et al. (2015) suggest that attitude can yield desired climate literacy and actions, and recommended improving basic education on climate change. A study of university students has shown that attitude can be influenced by climate change education (Walter et al., 2023). Furthermore, Walter et al. showed students with little awareness had a negative attitude. Thus there was a strong relationship between attitude and level of climate awareness. Ojomo et al. (2015) report a negative attitude toward climate change in a study carried out in Nigeria, attributing the attitude to climate risk perception. In this study, pollution and over-population ranked higher than climate change as environmental problems. Therefore, religious leaders can play a pivotal role in closing the gap in climate change awareness which would result in better risk perceptions, adaptation, and action. The researchers seek to stir a positive attitude in the religious leaders toward the subject of climate change.

## Research Questions

The study collected data to answer the following questions:

1. To what extent are religious leaders in Plateau State aware of climate change?
2. What is the climate change risk perception of religious leaders in Plateau State, Nigeria?
3. What is the attitude of religious leaders in Plateau State towards climate change?
4. What are the roles of religious leaders in climate change awareness and adaptation in Plateau State, Nigeria?

## METHODOLOGY

The study was designed to take a survey approach, with data basically consisting of the opinions of the target respondents. The population consisted of all religious leaders in the Jos Metropolis consisting of 331 churches and 152 mosques (Smartscrapers, 2024), making the population 483. The sample consisted of 182 Christian and 111 Muslim religious leaders making up 293 religious leaders drawn using a systematic sampling technique. Yamane's formula was used in calculating the sample to be contributed by each group of religious leaders. Data was collected using a Climate Change Survey Questionnaire (CCSQ) of 31 items with structured responses and three sections (A-D), collecting information on climate change awareness, risk perception, attitude, and role of religious leaders respectively. The instrument was validated by three experts who were professors in Geography, with a reliability coefficient of 0.97 using the Cronbach Alpha method. The questionnaire was administered electronically and physically depending on the proximity and convenience of the respondent. Data was analysed using percentages and mean scores.

## RESULTS

Table 1 Climate Change Awareness of Religious Leaders in Jos Metropolis.

Item	n	Yes	Maybe	No	Total (%)	Answer
Have you heard about climate change before?	293	181(62%)	39(13%)	73(25%)	100	Aware
Do you know what climate change is?		84(29%)	42(14%)	167(57%)	100	Unaware
Do you know the role of carbon dioxide in climate change?		78(27%)	54(18%)	161(55%)	100	Unaware
Do you know what global warming is?		119(41%)	36(12%)	138(47%)	100	Unaware
Do you know what a greenhouse gas is and can mention at least one example?		72(25%)	36(12%)	185(63%)	100	Unaware
Do you know about the rising sea levels?		101(34%)	49(17%)	143(49%)	100	Unaware
Do you believe human activities contribute significantly to climate change?		108(37%)	152(52%)	33(11%)	100	Unaware
Is surging temperature an effect of climate change?		98(33%)	142(48%)	53(18%)	100	Unaware
Is the failure of government the major cause of climate change?		135(46%)	92(31%)	66(23%)	100	Unaware
Have you noticed any changes in weather patterns in your local area over the last decade?		241(82%)	26(9%)	26(9%)	100	Aware
Have you noticed any changes in natural disasters in your local area over the last decade?		212(72%)	39(13%)	42(14%)	100	Aware

*Note:*  $\geq 50\%$  affirms the question, while  $< 50\%$  refutes the question.

Data from a survey of 293 respondents on the level of awareness of climate change is presented in Table 1. The results show that 62 percent, 82 percent, and 72 percent of the respondents affirmed that they have heard of climate change before, have noticed changes in weather patterns in their local areas over the last decade, and have witnessed changes in natural disasters in their local areas over the last decade respectively. These responses show that the religious leaders have some level of awareness of climate issues.

The data also shows that 57 percent, 55 percent, 47 percent, 63 percent, 49 percent, 11 percent, 19 percent, and 23 percent of the respondents do not know what climate change is, do not know the role of carbon dioxide in climate change, do not know what global warming is, do not know what a greenhouse gas is, do not know about the rising sea level, do not believe human activities contribute significantly to climate change, do not understand the link between surging temperatures and climate change, and do not understand the link between climate change and failure of government in that order. This reveals that the respondents largely do not have a meaningful awareness of climate change-related issues.

Table 2 Climate Change Risk Perception of Religious Leaders in Jos Metropolis.

Item	n	True	Maybe	Not true	Total (%)	Answer
Climate change issues are important to me.	293	201(69%)	36(12%)	56(19%)	100	Right
Climate change is affecting or going to affect me, personally.		74(25%)	75(26%)	144(49%)	100	Wrong
Something can be done to tackle climate change.		103(35%)	41(14%)	149(51%)	100	Wrong
Climate change will affect me or my family in the next ten years.		92(31%)	124(42%)	77(26%)	100	Wrong
I prefer using public transport instead of my car to reduce climate change.		47(16%)	76(26%)	170(58%)	100	Wrong
I would prefer to walk or ride a bicycle if it will reduce climate risk.		35(12%)	33(11%)	225(77%)	100	Wrong
I am concerned about the impacts of climate change on my daily life.		198(68%)	68(23%)	27(9%)	100	Right
Climate change does not directly affect my daily living.		158(54%)	47(14%)	88(30%)	100	Wrong

Note:  $\geq 50\%$  affirms the statement, while  $< 50\%$  refutes the statement.

Table 2 presents survey results on climate change risk perception by religious leaders in the study area. The data revealed that 69 percent and 68 percent of the respondents accepted that climate change issues are important to them and are concerned about the impacts of climate change on their daily lives respectively. Those responses suggest they rightly perceive the risk of climate change.

The minority of the respondents (25 percent) believe that climate change is affecting or will affect them personally, 35 percent agreed that something can be done to tackle climate change, and 31 percent believe that climate change will affect them or their family in the next decade, suggesting a negative attitude toward climate change among religious leaders. More respondents also hold a wrong risk perception of climate change, where only 16 percent and 12 percent said they would use public transport instead of personal cars or walk/ride bicycles respectively, if that would reduce climate risks. Furthermore, 54 percent believe climate change does not directly affect their daily living, thus sharing a wrong perception.

Table 3 The Attitude of Religious Leaders towards Climate Change in Jos Metropolis.

Item	n	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	$\bar{x}$	Answer
There is nothing we can do as individuals to reduce the effects of climate change.	293	103	85	41	32	32	3.67	Negative
Making changes in my life cannot reduce the effects of climate change.		106	81	41	33	32	3.67	Negative

Churches and/or mosques have nothing to contribute to climate change discussions.		41	42	15	66	129	2.32	Positive
The impact of climate change is not as serious as the media communicates it.		72	99	24	66	32	3.39	Negative
It is not worth doing things to help reduce climate change if others don't do the same.		43	47	15	59	129	2.37	Positive
I am much concerned about climate change, which is sometimes referred to as "global warming".		105	82	23	51	32	3.60	Positive

Note: A mean of  $\geq 3.0$  affirms the statement, while  $< 3.0$  refutes the statement.

The data displayed in Table 3 is the results gathered on the attitude of religious leaders toward climate change. The respondents agreed that nothing can be done individually to reduce the effect of climate change ( $\bar{x} = 3.67$ ), making changes in one's life cannot reduce the effect of climate change ( $\bar{x} = 3.67$ ), and the impact of climate change is not as serious as media communicates it ( $\bar{x} = 3.39$ ). These mean values suggest a negative attitude of religious leaders toward climate change. In their responses, they confirmed that nothing can be done by individuals and that changing one's life cannot reduce the effects of climate change. Also, it is their opinion that climate change is not as serious as the media communicates it. All this suggests negative dimensions of the respondents' attitudes toward climate change.

In contrast, the respondents refuted the statements that churches/mosques have nothing to contribute to climate change discussions ( $\bar{x} = 2.32$ ), it is not worth doing things to help reduce climate change if others will not do the same ( $\bar{x} = 2.37$ ), and affirmed that they are much concerned with global warming dimension of climate change ( $\bar{x} = 3.60$ ). By these three responses, the respondents reveal that it is their opinion that churches/mosques have something to contribute to climate change discussions, a person can make efforts to reduce climate change even if others do not do the same, and share concerns about the global warming aspect of climate change. The responses suggest that religious leaders could initiate climate discussions in their church/mosque, take climate-friendly actions even if others do not do so, and care about global warming. These all report a positive attitude of religious leaders regarding these items.

Table 4 Role of Religious Leaders in Climate Action in Jos Metropolis.

Item	n	True	Maybe	Not true	Total (%)	Answer
Climate change can be discussed in church/mosque.	293	228(78%)	24(8%)	41(14%)	100	Affirmed
I talk to congregation/members in church/mosque about climate change.		21(7%)	18(6%)	254(87%)	100	Refuted
My church/mosque has taken climate action in our immediate community before.		30(10%)	12(4%)	251(86%)	100	Refuted
I have organized and taught members about climate change and how it affects them.		14(5%)	10(3%)	269(92%)	100	Refuted



It is important to bring an informed person/expert to talk to my church/mosque members on climate change.		228(78%)	46(16%)	19(6%)	100	Affirmed
Churches and mosques should integrate climate action discussions in short-term and long-term plans.		212(72%)	52(18%)	29(10%)	100	Affirmed

Note: ≥50% affirms the statement while <50% refutes the statement.

On the roles of religious leaders towards climate action in Jos Metropolis, results are presented in Table 4. The Table clearly shows that 78 percent of the respondents affirmed that climate change can be discussed in church/mosque, 78 percent supported that it is important to bring informed persons/experts to talk to the members on climate change, and 72 percent reinforced that churches and mosques should integrate climate action discussions in their short-term and long-term plans. Evidence shows that only 7 percent of the religious leaders have ever talked to their congregation/members in church/mosque about climate change, 10 percent have ever taken climate action in the immediate community before as a church/mosque, and 5 percent have organised and taught their members on climate change as well as how it affects them.

## DISCUSSION

Results of the study proved that religious leaders in Jos Metropolis, Plateau state were not aware of climate change. This indicates they constitute part of 40 percent of the world’s adult population (Leiserowitz, 2015) and over 69 percent of Nigeria’s population (Statista, 2021), who have never heard about the topic of climate change. This outcome of the study also aligned with Lee et al. (2015) who posited that climate risk concepts such as global warming, sea level rise, and surging temperature are unfamiliar to the majority of the population. They do not also affirmatively know that human activities significantly contribute to climate change, further sharing the empirical opinion of Lee et al., which holds that anthropogenic causes of climate change are not well understood though it is the single strongest predictor of climate change risk perception. A meaningful awareness of climate change and its elements will strengthen the fact that failure of government is not a direct lead cause of climate change as gathered in the study. This level of climate change awareness among religious leaders needs to be deepened through deliberate climate literacy to climax in improved public awareness since the majority of Nigerians attend church or mosque at least once a week (Alder, 2023; “Mosque,” 2024).

The study gathered that religious leaders largely displayed a wrong risk perception of climate change. The subjects consider climate change issues important and are concerned about the impacts of climate change on their daily lives in synchrony with Adodo and Imoudu (2023) in a study that shows that people, especially farmers, perceived issues relating to climate change as imperative and have impacted their socioeconomic wellbeing. In sharp contrast and to contradict Adodo and Imoudu, the greater numbers of them are not persuaded that climate change is affecting or will affect them personally or their family in ten years to come and that something can be done to tackle climate change. In another study (Elum & Snijder, 2022), findings also contradict the current study, where farmers in the coastal communities of Bayelsa, Nigeria, perceived climate change to be highly risky and have taken up multiple adaptation strategies in response to it, including changing planting times, mulching their land and digging irrigation pits. The opposing perception of religious leaders in this study is perhaps because their role does not predispose them to the direct impact of climate change as farmers, especially in coastal communities that are faced with concerns of sea level rise. In addition, climate change is perceived not to directly affect the daily living of religious leaders or is it much doubted that it does. This shared perception of religious leaders undermines Odey (2012), who reported that scientific evidence has revealed that climate change is an all-encompassing threat and is considered the most serious ecological threat to the survival and sustainable development of humanity. Any human who has this understanding would not need much persuasion to take favourable climate actions or make daily decisions to reduce climate risks.

The findings also showed that religious leaders displayed neither a positive nor negative attitude toward climate change. The evidence holds that something can be done as individuals and as churches/mosques to reduce the effect of climate change and valuably contribute to climate change discussions, thus displaying a positive

attitude. In corroboration with this outcome, Ilevbare (2019) suggested that actions can be taken to combat climate change such as increased awareness of relevant agencies and the general public. The majority, in agreement with Ilevbare, stood against the statement that it is not worth doing things to help reduce climate change if others will not do the same. Ilevbare, in concordance with this, averred that efforts in combating the impact of climate change should involve everyone, perhaps because all humans cause and are affected by it. The results also supplied that it was the estimation of religious leaders that the media communicated climate change to be more serious than it is, reflecting a negative attitude. The subjects hold this position though the U.S. Department of Defense (2014) and IPCC (2014) ranked climate change as one of the most serious threats to society, capable of amplifying existing risks and creating new ones for humans.

On the roles of religious leaders towards climate action in Jos metropolis, the study found that it is a prevalent view that climate change can be discussed in churches/mosques, could bring an informed person/expert to talk to their members on climate change and moved for the integration of climate action discussions in the short-term and long-term plans of churches and mosques. It was however found that religious leaders have not taken the role of teaching members, organizing for members to be taught, and taking climate action in their local communities. In support of this finding, Rahman et al. (2024) found that mosques were not only used for religious worship but also as an avenue to teach Malaysian Muslims about climate change and how it affects them. In practice, evidence is overwhelming that religious leaders do not talk to their congregation/members in churches/mosques about climate change, never took a climate action in their immediate communities before as a church/mosque, and never organised and taught their members on climate change and the ways it affects them as individuals and the world at large in concurrence with Hearn et al. (2024). Rahman et al. also collected, as opposed to this study that mosques and their leadership committees did not stop at teaching the worshipers about climate change, but took climate actions that culminated in the concept of 'Green mosques'. This enhanced climate change adaptation and mitigation strides locally and globally.

## CONCLUSION

Although the attitude of religious leaders towards climate change was positive, this did not translate into climate change actions in churches and mosques in Jos Metropolis, Plateau State of Nigeria. Thus, while religious leaders had positive attitudes towards climate change, their climate change risk awareness, perception, and mitigation role and actions were rather poor and thus left much to be desired from religious leaders.

## RECOMMENDATION

The study's recommendations include:

1. The government should seek avenues for deepening climate change awareness among religious leaders as a way of joining the global community in mitigating the climate crisis. Deliberate and strategic teaching by climate experts or informed persons can be sponsored by the government for religious leaders to be trained to meaningfully understand climate change and how it affects everyone. The training would help them see the need to pursue the same course in their churches or mosques.
2. Religious leaders should occasionally invite experts to give special talks to their members on the causes and effects of climate change. This could also be communicated as an equally important issue that concerns the followers and humankind. Churches/mosques could slot climate related topics in the lineup of programmes in order to accord the required importance to it.
3. The government should make available existing laws, policies, and treaties on climate change to religious leaders to help them know the right actions to take in which respect. This would ensure climate change discussions go beyond written documents and translate into specific climate actions. These climate policies and laws and other communications could be circulated the same way the government circulates information on health issues and vaccinations, which usually is communicated to churches/mosques in formal writing. This could throw the required weight on climate discussions in such settings.

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