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Public Knowledge Regarding Adaptation and Mitigation Measures against Climate Change in Lima, Peru

Conocimiento público sobre medidas de adaptación y mitigación frente al cambio climático en Lima, Perú

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ABSTRACT

Climate change is a current and globally significant issue. Many countries are working together with international agreements, developing strategies to mitigate the impacts it can generate. In Peru, public knowledge regarding climate change adaptation and mitigation measures has been a topic of great national interest but is also somewhat unknown or outdated. The aim of this study was to assess people's level of understanding regarding this subject. The methodology employed was quantitative, using surveys administered to citizens to analyze their perceptions of climate change measures. The results revealed that almost 80% of them have received information about climate change, but 95.9% think that climate change is real, so above 15% of the participants even without getting information about this global issue have a notion about it, 36.6% of the participants did not know about the Peruvian participation in the Paris Agreements as well as the Peruvian law of climate change where around 30% of surveyed are not aware of the regulation gave by Peruvian law, above of 60% of the participants did not know about Peruvian initiatives and actions linked to those measures. Lastly, above 60% of the participants think they are not involved in the adaptation and mitigation process. Also, above 90% of the participants have perceived a temperature rise. Finally, it is advisable to analyze the awareness programs implemented by the government to convey information about climate change adaptation and mitigation measures and keep studying regarding local-level climate change awareness.

Keywords: Climate Change; Awareness; Knowledge; Adaptation; Mitigation; Peru.

RESUMEN

El cambio climático es un problema actual y de importancia mundial. Muchos países están trabajando en conjunto con acuerdos internacionales, desarrollando estrategias para mitigar los impactos que puede generar. En el Perú, el conocimiento público sobre las medidas de adaptación y mitigación del cambio climático ha sido un tema de gran interés nacional pero también algo desconocido o desactualizado. El objetivo de este estudio fue evaluar el nivel de comprensión de las personas sobre este tema. La metodología empleada fue cuantitativa, utilizando encuestas administradas a los ciudadanos para analizar sus percepciones sobre las medidas de cambio climático. Los resultados revelaron que casi el 80% de ellos ha recibido información sobre el cambio climático, pero el 95,9% piensa que el cambio climático es real, por lo que más del 15% de los participantes aún sin obtener información sobre este tema global tiene noción al respecto, el 36,6% de ellos los participantes desconocían sobre la participación peruana en los Acuerdos de París así como la ley peruana de cambio climático donde alrededor del 30% de los encuestados desconocen la regulación dada por la ley peruana, más del 60% de los participantes no conocían Iniciativas y acciones peruanas vinculadas a dichas medidas. Por último, por encima del 60% de los participantes cree no estar involucrado en el proceso de adaptación y mitigación. Además, más del 90% de los participantes ha percibido un aumento de temperatura. Finalmente, es recomendable analizar los programas de concientización implementados por el gobierno para transmitir información sobre las medidas de adaptación y mitigación del cambio climático y seguir estudiando sobre la concientización sobre el cambio climático a nivel local.

Palabras clave: Cambio Climático; Conciencia; Conocimiento; Adaptación; Mitigación; Perú.

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1. Introduction

Forecasting future scenarios to anticipate the environmental, ecological, and social damages caused by climate change poses an unprecedented challenge to humanity. Climate change is the outcome of intricate natural and controversial human-made transformations that have widespread effects both locally and globally (Alvi & Khayyam, 2020).

Also, climate change has emerged as a significant catalyst behind numerous natural calamities. The IPCC (IPCC, 2022) has highlighted the widespread consequences of climate change in the form of occurrences like floods, elevated sea levels, hurricanes, aridity, heatwaves, wildfires, and more, which are being felt globally. The severity of global climate change has affected almost all the inhabitants of the Earth, including plants, animals, and humans, across different continents (Das et al., 2022). Besides, the consequences that will ensue from climate change will worsen existing difficulties concerning access to fundamental human needs, including food, clean water, energy generation, and manufacturing resources (González-Hernández et al., 2023).

Society faces a significant challenge posed by climate change. Hence there is a pressing need for immediate action to enhance resilience and promote adaptation and mitigation measures. However, it first requires a deep knowledge of the context of climate change (Borquez et al., 2017). Gaining insight into people's attitudes toward climate change and how these attitudes influence their behavior is crucial in motivating action toward addressing climate change (González-Hernández et al., 2023). Many authors agree that it is essential to increase the awareness and understanding of potential hazards among inhabitants residing in susceptible communities because to plan for adaptation effectively, it is crucial to comprehend the implementation, methods, and efficacy of specific adaptation measures for reducing risks (González-Hernández et al., 2023).

Moreover, the capacity of social learning to improve adaptability and the difficulties of managing multiple stakeholders must also be taken into consideration, so that all adaptation and mitigation policy measures would work effectively (Lindsay, 2018). As people become more aware of the fundamental and unchangeable alterations to the climate system, there is a growing focus on implementing measures and tactics to adapt to these changes (Ganase & Sookram, 2021). In Latin America where there is a need for progress in this area, efficient measures at all societal levels are necessary to manage and mitigate the impacts of climate change (González-Hernández et al., 2023).

Peru, due to its geographical location, the presence of diverse ecosystems, and a wide range of microclimates make it one of the top 20 countries highly susceptible to the impacts of climate change (Brooks & Adger, 2003). Moreover, there is the phenomenon of El Niño Southern Oscillation (ENSO), which led to widespread floods, landslides, or even droughts across the entire nation (Altea, 2020). However, as a developing country, political and social problems distance people from awareness and knowledge of adaptation and mitigation measures against climate change. That is why it is important to study how much people know about climate change adaptation and mitigation measures, in order to effectively respond to climate change, involving private and public sectors to diminish the effects of unfavorable climate events, which can also be seen as a form of self-insurance (Jørgensen & Termansen, 2016).

2. Knowledge and Awareness of Climate Change

Local knowledge systems are a type of knowledge that is transmitted orally, without formal documentation, and is often combined with new technologies. This combination creates a blend of practical and scientific knowledge, as well as a belief system that is different from traditional ecological knowledge. To establish a valid understanding of climate change, it is necessary to engage in a process that uses local and traditional knowledge, values, and scientific information simultaneously (Khatibi et al., 2021). Knowledge of climate change is an intellectual aspect of risk judgments (Sundblad et al., 2007). Taking a transdisciplinary perspective, the progression from theory to the application through knowledge co-creation necessitates the production of practical and empirical knowledge that can aid in solving, minimizing, or preventing real-world issues (Borquez et al., 2017).

Therefore, understanding the physical signs that precede severe weather or the probability of favorable or unfavorable seasons based on local knowledge would be beneficial in adapting to the existing climate, regardless of whether it is shifting or not (Lebel, 2013).

On the other hand, “awareness of changes in climate come from repeated observations of weather over time, the physical impacts of rainfall and thermal regimes, and biological or ecological indicators” (Lebel, 2013). Further, studies have shown that there is a connection between public awareness of climate change and different types of knowledge. For example, a study in Kenya showed the level of climate change awareness is relatively high, with most households in the area reporting overall changes in climate. Climate change awareness varies significantly across different sub-locations. The study also found that demographic factors such as the age and gender of the household head played a significant role in determining the level of awareness about climate change (Ajuang et al., 2016).

Furthermore, another case in Germany suggests that experiencing unusual or extreme weather events may impact people's climate change awareness (Gärtner & Schoen, 2021). Other authors suggest that having knowledge of the physical signs that indicate extreme weather conditions or the probability of a good or bad season would be valuable for adjusting to the current climate, regardless of whether it was undergoing changes or not (Lebel, 2013).

Over the past few years, several surveys have revealed a substantial increase in public concern regarding climate change. However, most of the research on people's awareness of climate change has been conducted in North America or Europe, with only a small number of global surveys including inquiries about knowledge. Various investigations have indicated a generally low level of understanding of the topic across different countries, despite widespread recognition of the fundamental concept (Vignola et al., 2013).

3. Influencing Factors on Climate Change Awareness

Due to the complexity of climate change awareness, there are distinct differences in public attitudes towards climate change. Based on some studies, it has been shown that there are many factors that could influence awareness of climate change, as gender, age, education level, and residence had significant effects on respondent's awareness of climate change (Ajuang et al., 2016; Mwinkom et al., 2021).

Gender: Both men and women generally share similar views on climate change, with the majority perceiving it as having various effects such as stronger winds, higher temperatures, more frequent droughts, more variable rainfall patterns, and increased flooding (Partey et al., 2020). Nevertheless, in a study conducted in the Amazon of Peru, it was found that gender disparities, such as unequal access to resources, lower levels of education, and exclusion from decision-making, can affect how women perceive and understand climate change. Women may see climate change as something beyond their control, and believe that it is related to divine will (Altea, 2020). However, the findings of (Partey et al., 2020) revealed that awareness of climate change had not a significant difference between men and women.

Age: In an earlier study there was a significant and positive correlation between age and the perception of risk to ecosystems (Lazo et al., 2000). This is consistent with the results of study in the Upper West region of Ghana concurred that age and years of education had significant effect (Mwinkom et al., 2021), and in same line according in a study of Thailand shown that young people who younger than 30 years, had higher scores regarding of knowledge of climate change, than older than 30 years old's people (Rahman et al., 2021). However other studies that revealed the relationship between age and awareness of climate change weren't found significant (Sundblad et al., 2007).

Education level: the higher the education level, the better is their climate knowledge (Das et al., 2022). In a study of Ghana, farmers who have received education are more equipped to understand climate change and its potential hazards. Additionally, education enhances their capacity to learn and reason about contemporary farming technologies, which may encourage them to adopt such practices (Mwinkom et al., 2021). However, according to Sundblad et al. (2007) education has no significant effect on the risk of climate change, another study has shown that education has no significant effect and neither does the farm type (Jørgensen & Termansen, 2016).

Residence: According to Ajuang et al. (2016) there was significant variation in the level of awareness regarding climate change among distinct sub-regions. It could be explained because personal experiences with unusual or extreme weather may affect people's belief in the existence of climate change (Gärtner & Schoen, 2021). Nevertheless, some other study suggests that access to scientific information has geographic barriers, thus in Latin America and the Caribbean there is apparently a dearth of studies on climate change (Iwama et al., 2021)

4. Knowledge and Public Participation on Climate Change Measures

It has been recognized that having knowledge about climate is important for taking action against climate change and understanding the reasons behind it, for instance, it has been found that climate influences people's worries level and response towards it (González-Hernández et al., 2023). However various studies have suggested that it is beneficial to differentiate between types of knowledge, it seems that not all types of knowledge are equally important in encouraging adaptation and mitigation efforts.

In a study of Mexico, only knowledge about how to respond to climate change was found to be positively associated with households' perceived efforts to mitigate its impact, while knowledge about its effects did not appear to have a significant impact. That study suggests that attempts to reduce the impact of climate change will probably occur in households where the inhabitants are environmentally conscious, acknowledge the existence of climate change, view it as a personal risk, and believe that they possess the necessary knowledge to address the issue (González-Hernández et al., 2023).

On the other hand, people who reside in areas susceptible to climatic events possess greater knowledge of mitigation and adaptation measures. However, a study has revealed that those who reside in less vulnerable regions and have not experienced any catastrophic events tend to have little understanding of climate change and lack knowledge about any action or mitigation plan (Ajuang et al., 2016).

Besides, according with that Alvi & Khayyam (2020) suggest for the effectiveness of such actions to alleviate and adapt to climate change still depends on several critical factors including the degree to which the local community recognizes the existence of climate change, personal motivations to apply mitigation and adaptation strategies, a dedicated attitude and a positive shift in both individual and societal behavior as explained in Figure 1.

5. Public Participation on National Commitments

Speaking about Climate Change it is evident that the government alone cannot address this issue, and all citizens bear an equal responsibility (Masud

et al., 2015), the involvement of the public is crucial in enhancing the decision-making process for climate change adaptation.

However, having suitable public knowledge and awareness is essential for garnering public support for climate policies and plans. In a study that focused on volunteer environmental monitoring, it was revealed that heightened personal knowledge and community awareness can have a positive impact on attitudes and behaviors, leading to changes in natural resource management and related policies (Khatibi et al., 2021).

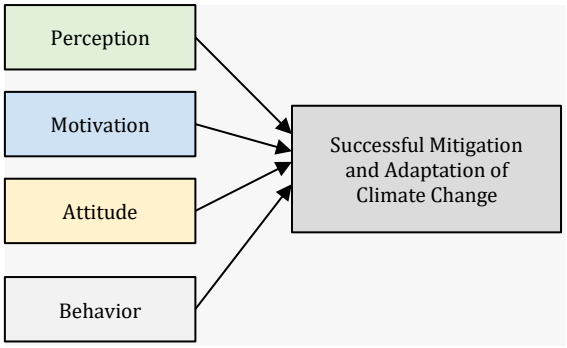

Figure 1. Relevant factor towards climate change action.

According to the document of Nationally Determined Contributions against Climate Change in line with the Paris Agreement, a commitment of Peru by 2030 is to strengthen its mitigation and adaptation policies to the impacts of climate change (UNFCCC, 2015). Therefore, one method to enhance and speed up the execution of measures in practical situations is to integrate strategic communications into governmental planning processes for adaptation. This will also aid local stakeholders in comprehending the various impacts of climate change and the most suitable approaches to address them while striving towards a broader objective of nationwide resilience. Besides, local viewpoints and expertise are valuable information sources for climate change research, as they can provide insight into regional climate changes and their effects at the national level (Altea, 2020).

Active public participation plays a crucial role in government affairs, as they are not only accountable for intelligent action against climate change but also act as valuable allies by providing local information following a climate event. By doing so, it is possible to work collaboratively and propose appropriate measures or solutions for future catastrophic events.

6. Adaptation and Mitigation Measures against Climate Change

Adaptation is anticipating the harmful effects of climate change and taking appropriate measures to prevent or minimize the damage they may cause or taking advantage of the opportunities that may arise. Adaptation can be also understood as the process of adjusting to the current and future effects of climate change (UNDP, 2023).

Likewise, adaptation strategies require long-term horizons, which may not be popular with government systems, which prefer to focus on shorter time frames and 'quick fixes' (Tanner & Horn-Phathanothai, 2014).

Peru has 84 adaptation measures in priority-specific areas, such as water, agriculture, fishing and aquaculture, forests, and health areas (Ministry of Environment, 2022a). The priorities sectors in adaptation measures are explained in Table 1. In addition, tourism and transport sector have been added.

Peru has a National Plan for Adaptation to Climate Change by 2030. The main objectives of this plan are i) Reductions of risk and vulnerability (damage, possible alterations, losses), ii) Protection of river basins, ecosystems, territories, and livelihoods, and iii) Preservation of infrastructure, goods, and services of the country (Ministry of Environment, 2021).

Mitigation is making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gases (GhG) into the atmosphere (UNDP, 2023). Mitigation is widely discussed and successfully applied in various contexts at the international, national, regional, local, and even individual levels. It includes technical and infrastructural investments, renewable energy implementation (to reduce climate change and improve energy security), as well as improving energy efficiency. Mitigation measures can be expansive – at the policy or private-industry level (incorporating Clean Development Mechanisms and technology transfer) or at the individual (behavior) level, with private citizens opting for bicycle transport or turning off a light (Laukkonen et al., 2009).

Table 1
Peruvian Adaptation Sectors

	Water	Agriculture	Fishery & Aquaculture	Forestry	Health
Scope	Supply (resources) and demand (use): direct human consumption, agriculture and livestock, energy, mining and industry. It includes physical and eco-systemic infrastructure.	Protecting the sector and its contribution to the economy. Also, attending the most vulnerable groups (small and subsistence farmers).	Protecting the sector and its contribution to the economy. Also, attending the most vulnerable groups (artisanal fishermen).	Protecting ecosystem services that forests provide and attend the most vulnerable groups (indigenous communities and small forest producers).	Increasing the adaptive capacity of health services to face climate change, and the resilience of vulnerable populations to its effects.

Source: (UNFCCC, 2023).

Peru has 62 mitigation measures focused on the sectors of energy (stationary and mobile combustion); industrial processes and product use; agriculture; land use, land use change and forestry; and waste (Ministry of Environment, 2022b). Which scope is detailed in Table 2.

Moreover, Peru established more ambition targets on its updated Nationally Determined Contribution (NDC) which is a climate action plan to cut emissions and adapt to climate impacts, increasing its mitigation goal from 30% to 40% against the Business as Usual (BAU) scenario in 2030 and indicating an absolute goal number in terms of the amount of CO2 equivalent (not exceeding 179 MtCO2e by 2030) (UNDP, 2022).

7. Peruvian Knowledge and Awareness

To get recent information regarding people's knowledge and awareness regarding climate change and its adaptation and mitigation measures a survey was delivered to different kinds of people who are currently living in Lima, Peru between February and May using an online formulary to get their answers.

7.1. Demographic and socioeconomic profile

More than 60% of the survey participants are females, meanwhile close to 35% are male. This is an initial indicator of females' tendency for environmental issues awareness. Furthermore, almost 2% have defined their gender as non-binary, people who do not recognize themselves as men or women, gender neutral (Hansen & Żółtak, 2022).

According to the age, more than 50% of the participants are between 20 and 30 years old, followed by those between 30 and 40 years old with a bit more than 30%, and the rest under 20, between 40 – 50, and above 50 years old almost equally distributed. It is important to highlight that (Thew, 2018) mention that youth could not be the most impacted by climate change but are those who are inheriting the responsibility to face climate change in order to protect current and future generations.

Finally, around 90% of the participant have a graduate or postgraduate education background, and the other 10% with elementary or high school background. This fact can provide circumstantial information, knowledge, and awareness about the global issue since (Yu et al., 2020) mentions that a higher level of education could lead to a higher understanding of climate change.

7.2. Knowledge about Climate Change and Adaptation-Mitigation Measures

The participants were asked about general knowledge of climate change. Almost 80% of them have received information about climate change at one point in their lives, but 95.9% think that climate change is real, so above 15% of the participants even without getting information of this global issue have a notion about it. (He et al., 2023) refers that people who have experienced or suffered by climate change can get to empirically know about climate change and develop intentions to tackle it.

Regarding Peruvian efforts to tackle climate change, 36.6% of the participants did not know about the Peruvian participation in the Paris Agreements as well as the Peruvian law of climate change where around 30% of surveyed are not aware of the regulation gave by Law N° 30754. Only a third part of the participants got to know the country involvement in climate change issue, so the resilience practice is not efficient to improve social activities against climate change (Ling et al., 2022)

Furthermore, knowledge related to adaptation and mitigation measures evidence that above of 60% of the participants did not know about Peruvian initiatives and actions linked to those measures. Lastly, and also above 60% of the participants think that they are not involved actors in the adaptation and mitigation process. (Zerva et al., 2018) refers that for citizens to take part of adaptation and mitigation measures against climate change it is important to know and interact with different stakeholders in order to establish a trusty and mutual relationship. Table 3 evidence exactly results of knowledge regarding climate change.

Respondents who have received information about climate change got it from different kind of sources as follow: (i) Social network: 40.7%; (ii) School, universities or institutes 33.3%; (iii) Peruvian government 9.8%; (iv) Friends or relatives 2.4%; (v) Others 13.8%. In addition, for those who reply that climate change is real, a further question based on their thought of main cause of this event were evidenced as follow: (i) Energy production: 54.5%; (ii) Transportation: 17.1%; (iii) Natural events: 8.1%; (iv) Construction material production: 8.1%; (v) Agriculture 4.9%; (vi) Cattle-rising: 2.4%; (vii) Does not know: 4.9%. Nevertheless, construction material production is the main cause as (Gates, 2021) refers contributing with 31% to global emissions followed by energy production, agriculture, transportation, and hitting-cooling systems.

Table 2
Peruvian Mitigation Sectors

	Energy	Industrial Processes and Product use	Agriculture	Land use, land use change and forestry	Waste
Scope	Renewable energy provision with an efficiency approach in principle economic sectors.	Clinker replacement & decreased use of refrigerants.	Responsible food production and cuttle-rising feeding systems in order to reduce GhG emissions.	Forest and protected natural areas to keep and increase GhG sinks.	Align to Solid Waste Management Systems using modern technology.

Source: (UNFCCC, 2023).

Table 3
Survey question related to knowledge about climate change

Have you ever received information about climate change?		Do you think climate change is real?		Is Peru a party of the Paris Agreement?		Does Peru have a climate change law?		Do you know what is the difference between adaptation and mitigation measures?		Does Peru have Adaptation and mitigation measures?		Are you an involved actor in the adaptation and mitigation measures?	
Yes	78%	Yes	95.9%	Yes	58.5%	Yes	53.7%	Yes	67.5%	Yes	38.2%	Yes	39.8%
No	6.5%	No	1.6%	No	4.9%	No	15.4%	No	17.1%	No	14.6%	No	20.3%
IDK	15.4%	IDK	2.4%	IDK	36.6%	IDK	30.9%	IDK	15.4%	IDK	47.2%	IDK	39.8%

7.3. Awareness-Perception related on Climate Risk

Global warming naturally led to climate change world-wide. Above 90% of the participants have perceived a temperature rise. Which is a clear indicator of environmental change as (Fei et al., 2023) states that temperature have risen and its change reveal a 0.85°C increase from 1880 to 2012. On the other hand, a bit more than 30% have perceived a precipitation drop or no change, meanwhile 67.5% of surveyed perceived a precipitation rise which is not usual in Lima, location where participants live.

Furthermore, the three events participants mainly perceived are landslides, flood, and sea level rise. Regarding to the most affected sectors due to climate change in Peru, surveyed refers water resources and agriculture with 45.5% and 40.7% respectively. Coincidentally, Arana-Ruedas & Moggiano (2022) mentions that Peruvian priority sectors regarding adaptation measures are linked to water resources and agriculture. Table 4 shows detailed frequencies of participants awareness-perception of climate change. Last question based on if people think their lives has been affected by climate change, 64.2% of them refers to yes meanwhile 35.8% express that no.

8. Critical appraisal

Peru, like many other developing countries, has implemented climate change adaptation and mitigation policies and aims to implement more plans to achieve better environmental outcomes. Considering this trend, curiosity arises regarding citizens' perceptions of these measures (Vignola et al., 2013).

To initiate action among individuals, solid knowledge is necessary. Additionally, as seen in Figure 1, other factors such as perception, motivation, attitude, and behavior are crucial for success in garnering support and participation from citizens in climate change policies (Alvi & Khayyam, 2020).

In response to this, there is a need to understand the actual landscape of knowledge regarding these adaptation and mitigation measures. An online survey was conducted among a considerable number of citizens in Lima, the capital city that attracts people from various parts of Peru. The survey explored only two main topics: knowledge and commitment. However, as an area for improvement, further analysis of other psychosocial aspects related to the research is warranted.

Thus, the study focused on citizens' perception of climate change and the existing measures in the country. Most respondents had heard about climate change topics. As shown in Table 1, Peru has 84 adaptation measures spread across different areas such as agriculture, water, health, among others. Similarly, there are 62 mitigation measures focused on sectors like energy, industrial processes, agriculture, among others.

However, there exists a gap between the measures and the respondents' knowledge of them, as depicted in Table 3. Even though most of the responders know about the climate change, it is also important to know how people could respond against this problem. Some scientists suggest that it is necessary to integrate assertive and effective communication strategies between the government and citizens, while also assessing psychosocial behaviors (Pietras, 2022). Given that Peru is a developing country, many of its citizens have limited environmental interest.

Table 4
Survey question related to awareness-perception of climate change

What kind of change have you perceived in the atmospheric temperature?		What kind of change have you perceived in the precipitation patten?	
Temperature rise	92.7%	Precipitation rises	67.5%
Temperature drop	4.1%	Precipitation drops	11.4%
No change	3.3%	No change	21.1%
Which of the following events have you perceived?		Which sector do you think is the most affected due to climate change in Peru?	
Landslides	35.4%	Water resources	45.5%
Flood	24.1%	Agriculture	40.7%
Sea level rise	18.1%	Health	6.5%
Drought	13.1%	Fishing and Aquaculture	4.1%
Others	9.3%	Others	3.3%

CONCLUSIONS

The Peruvian government contemplates laws and measures for climate change adaptation and mitigation, aiming to extend its percentage targets for climate change adaptation to 2030. As it is known, these adaptation and mitigation measures are directly related to citizen participation.

This study emerged with the idea that it is of vital importance to understand how much citizens know about climate change adaptation and mitigation measures. The conducted survey showed that nearly 80% of the respondents received information about climate change at some point in their lives, with the following sources of information: social media (40.7%), educational institutions (33.3%), and the Peruvian government (9.8%). These latest data raise doubts about the reliability of the media in providing accurate information, as many authors (10) suggest that messages regarding climate change should come from reliable sources and trustworthy individuals to add value to the information.

As mentioned earlier, Peru has Law No. 30754 concerning climate change. However, according to the conducted survey, 30% of the participants are unaware of the law. Additionally, over 60% of the participants are not aware of the initiatives and actions related to climate change mitigation measures by the Peruvian government. This generates a lack of interest in active participation in these plans, reflected in the responses of the surveyed individuals, with over 60% stating that they do not feel involved in the adaptation and mitigation processes. Some authors suggest that authorities should prioritize how they transmit messages or information to citizens. To ensure effective climate communication, it is necessary to pay attention to certain psychological variables of the citizens (Pietras, 2022).

Similarly, to many places around the world, the respondents also reported experiencing irregular changes in temperature, precipitation, and landslides.

Finally, it is advisable to analyze the awareness programs implemented by the government to convey information about climate change adaptation and mitigation measures. In a country where social and economic issues limit environmental interest, there is a lack of knowledge regarding crucial topics. Likewise, it is encouraged to seek more information regarding local-level climate change awareness.

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