HJRS HEC Journal Recognition System Category Y

Vol 2 Issue 3 (April-June 2025)

ISSN (Online): 3006-4740

ISSN (Print): 3006-4732

Demographic Factors Influencing verified climate Information Sharing

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Abstract

This study aims to optimize social media (SM) users' demographics characteristics in verification behavior to enhance the effectiveness of climate information sharing.A survey was distributed among SM users to evaluate their verified information behavior. Through random convenience sampling method, 424 usable responses were collected and analysed using descriptive statistical techniques.The results reveal that the cost of accessing reliable information sources does not pose a significant barrier for individuals with higher earnings, as income substantially reduces this gap. Moreover, the younger population is more active in sharing climate related information. Additionally, this study underscores the importance of enhancing user engagement by providing broader, free access to credible climate resources. Such an approach promotes greater community participation and improves the accessibility of valid climate information.This study focuses exclusively on the demographic influences on verified information sharing, without considering other potential factors.

Keywords: social media (SM); information verification behavior; climate information sharing; user engagement; climate information resources; climate demographic influences

Introduction

Misinformation is defined by Lazer et al. (2018) as inaccurate information spread unintentionally plays a critical role in public discourse around climate change. In contrast, disinformation refers to deliberately misleading content. However, in the context of social media, where the origin and intent behind content are often ambiguous, distinguishing between the two becomes difficult. The distinction between disinformation and misinformation may become even more blurred if this information is later re-shared by others without malicious intent. According to Scheufele et al. (2017), "Scientific Uncertainty" is a narrative that is strongly associated with disinformation and has been identified as a significant factor in climate change communication.

Users frequently confuse weather with climate on social media sites like Facebook, which is a type of misinterpretation of climate change (Martin et al., 2021). The public's reaction to such content, as well as to its correction, varies greatly and seems to be influenced by demographic characteristics such as gender, education level, and employment status. These traits can influence how people participate in the conversation about climate change, assess credibility, and decide whether to share verified or false information.

Literature review

Verified Information and Community-Driven Evaluation

In today's digital environment, platforms like Twitter and Facebook are working with news organizations to fact-check misleading content (Andersen & Søe, 2020). Still, fact-checking is no longer solely the domain of media institutions. Hermida (2012) argue that crowd-sourced vetting of information plays an increasingly central role. This public participation in the verification process is often shaped by users' background characteristics. For instance, those with higher levels of education or higher employment status may be more confident in evaluating sources and asserting corrections, reflecting higher response efficacy.

Corrections on Social Media and Their Influence

In order to mitigate the spread of false information about climate change, corrections are essential. Research by Clayton et al. (2020) suggests that targeted corrections and those issued by experts or multiple users are more persuasive than general warnings. However, demographic

factors influence how people perceive and react to these corrections. For example, gender norms may influence people's openness to public correction; with some individuals potentially perceiving them as argumentative especially if it is happening in a public digital setting.

Moreover, individuals with greater educational qualifications or stable employment may be more familiar with fact-checking practices and thus more likely to accept or disseminate corrections. Nonetheless, the tone and delivery matter and corrections should avoid alienating users. Pennycook (2021) noted that non-confrontational, reflective prompts can be more effective, particularly among users who may be less confident in assessing information accuracy on their own.

Demographic features of the participants

Demographic information refers to the statistical data relating to various characteristics of a population. This important data is used to categorize the trends on the basis of s of people's specific attributes, which can include age, gender, race, ethnicity, marital status, income, education, and employment.

This study aims to explore how demographic characteristics shape engagement with verified climate change information on social media. Two primary factors are under investigation:

1. Gender: Gender differences may influence not only susceptibility to misinformation but also willingness to share verified information or challenge falsehoods. Social norms and communication styles often differ between genders, which could affect how corrections are perceived and how information is disseminated in online networks.
2. Qualification and employment status: Individuals who are employed or hold higher educational qualifications may exhibit greater confidence in identifying credible sources and sharing verified content. This can significantly impact corrective behavior online.

Therefore, the present study formulates the following research objectives:

Research Objectives

1. To determine the relationship regarding gender and verified climate change crises information sharing on social media

2. To see the effect of qualification and employment status on the verified climate change crises information sharing on social media

By analyzing these variables, this research seeks to uncover what demographical element is the most likely to influence sharing verified information. Ultimately, the verified climate change inforamtion support responsible information-sharing behaviors. Understanding these differences is key to crafting effective communication strategies that foster informed public discourse on climate change in the digital age.

Research Design

This research examines the determinants of verified climate change information (VCCI). The study used a quantitative research methodology, including a cross-sectional design and primary data collection through a questionnaire survey. A total of 424 usable responses were collected through simple random sampling. The study used SPSS as the primary statistical tool to examine the demographic relationships among the determinants of VCCI.

RESULTS

Gender

The breakdown of respondents by gender is detailed in Table 1. The data reveals that a larger proportion of participants were male, with 241 responses, accounting for 56.8% of the total. In contrast, female respondents constitute 40.8%, with a total of 173 responses. Only 10 respondents are not willing to tell the gender.

Table 1: Gender

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	173	40.8	40.8	40.8
	Male	241	56.8	56.8	97.6
	Prefer not to say	10	2.4	2.4	100.0
	Total	424	100.0	100.0	

Background

The breakdown of respondents by background is detailed in Table 4.2. The data reveals that a larger proportion of participants are from urban background, with 264 responses, accounting for 62.3% of the total. In contrast, rural background respondents constitute 37.7%, with a total of 160 responses.

Table 2: Background

Background					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	264	62.3	62.3	62.3
	Rural	160	37.7	37.7	100.0
	Total	424	100.0	100.0	

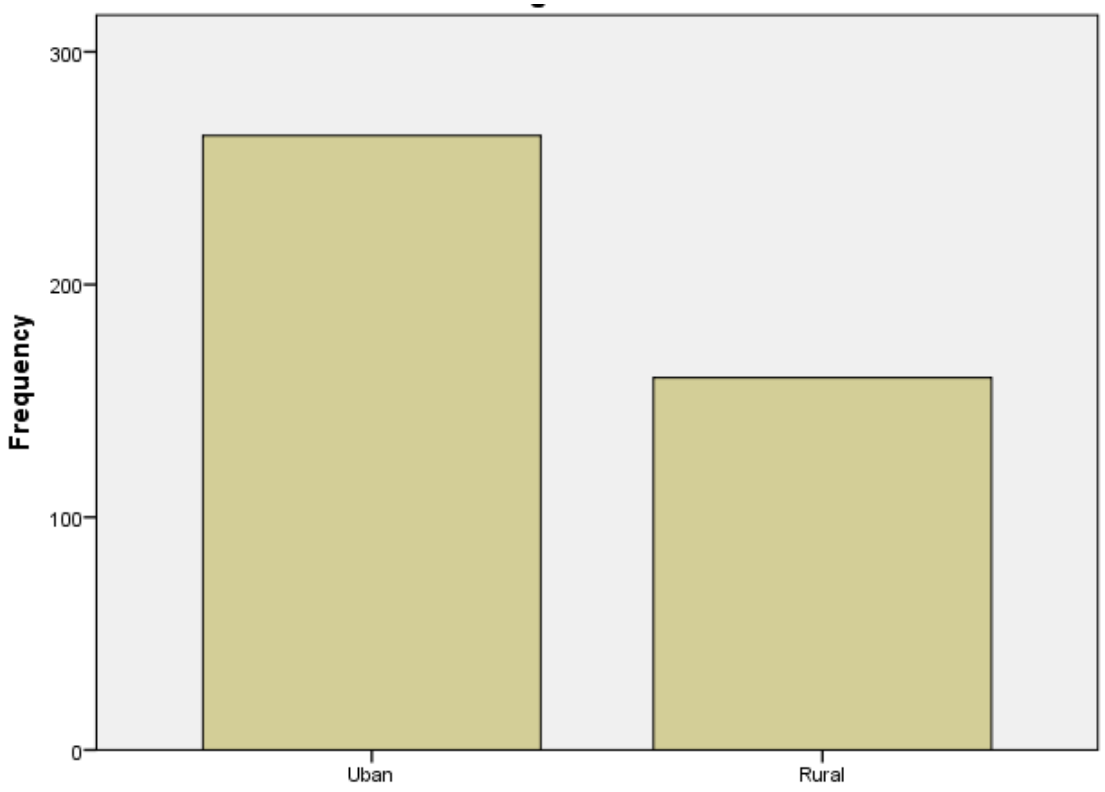

Figure 1: Background

Age

The data indicate that the majority of participants were belong to the age category 29.7% (n=126) from the range of 18 to 24 years, while are 29.0% from 25 to 34 years of age group (n-123), 23.6% (n-102) are from 35 to 44 years' age group, 17.7% (n-102) are from 45 to 54 years' age group were participant in study. The majority of participants (29.7 percent) were born in the 1990s to 2000s as illustrated in Table 3.

Table 3. Age

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 to 24 years	126	29.7	29.7	29.7
	25 to 34 years	123	29.0	29.0	58.7
	35 to 44 years	102	23.6	23.6	82.3
	45 to 54 years	73	17.7	17.7	100.0
	Total	424	100.0	100.0	

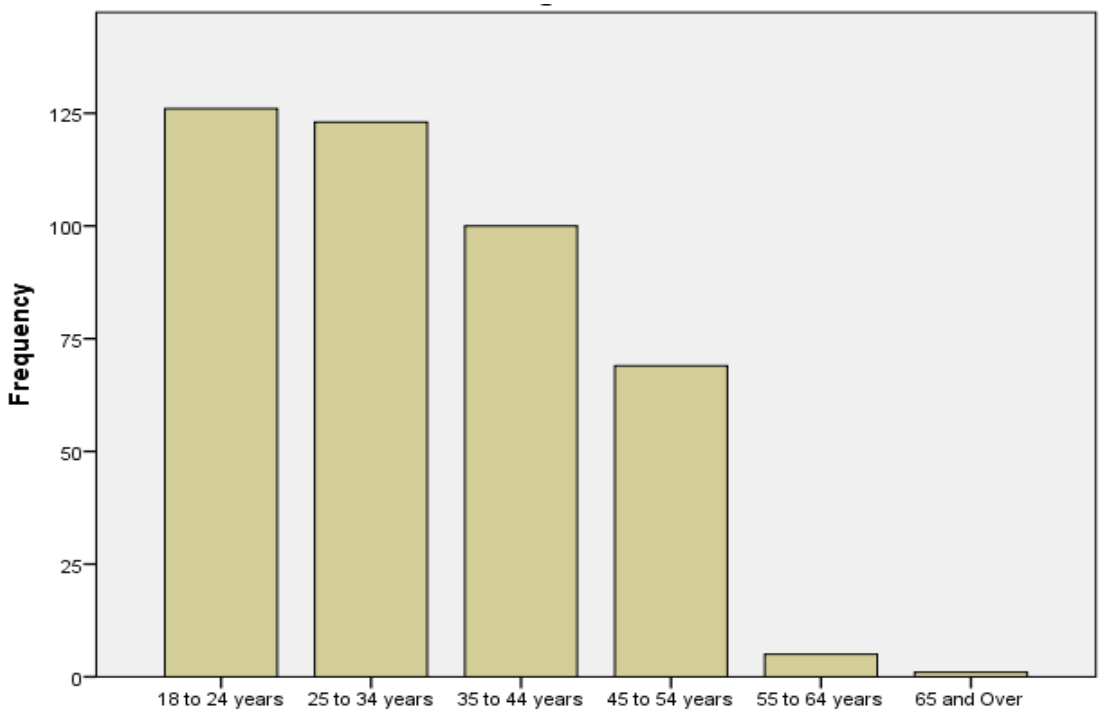

Figure 2: Age

Qualification

Table 4.4 presents the distribution of respondents based on their qualification. The data illustrates that the majority of participants hold the M.Phil, having 24.1 (n=102), 18.2% (n=77) having Ph.D., 8.5% (n=66) having Master, 11.1% (n=47) respondents having vocational education, 9.0% (n=38) respondents have matric qualification, 6.4% (n=27) having intermediate qualification, 4.0% (n=17) having no any formal qualification, only 3.3% (n=14) having other qualifications from the selected respondents (refer to Figure 4).

Table 4: Qualification

Qualification					
		Frequency	Percent	Valid Percent	Cumulative Percent
	PhD	77	18.2	18.2	85.6
Valid	No formal qualifications	17	4.0	4.0	4.0
	Matric	38	9.0	9.0	13.0
	Intermediate	27	6.4	6.4	19.3
	BS	36	8.5	8.5	27.8
	Masters	66	15.6	15.6	43.4
	MPhil	102	24.1	24.1	67.5
	Vocational	47	11.1	11.1	96.7
	Other	14	3.3	3.3	100.0
	Total	424	100.0	100.0	

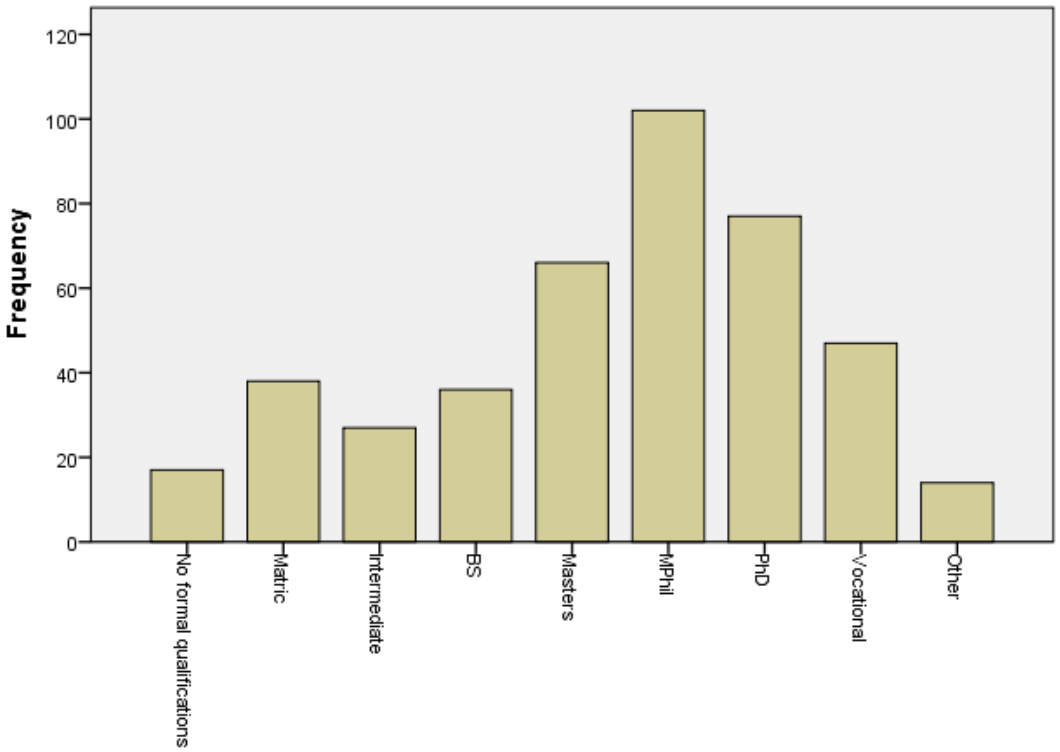

Figure 3: Qualification

Monthly Income

The table provides a detailed breakdown of respondents based on their reported monthly income categories, as well as some statistical measurements such as frequency, percent, valid percent, and cumulative percent. Participants generally had gross annual household incomes of 100,000 and Over (64 percent as per Figure 4).

Table 5: Monthly Income

Monthly Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30,000 - 49,999	21	5.0	5.0	5.0
	50,000 – 69,999	76	17.9	17.9	22.9

	70,000-99,999	98	23.1	23.1	46.0
	100,000 and Over	124	29.2	29.2	75.2
	Prefer not to say	105	24.8	24.8	100.0
	Total	424	100.0	100.0	

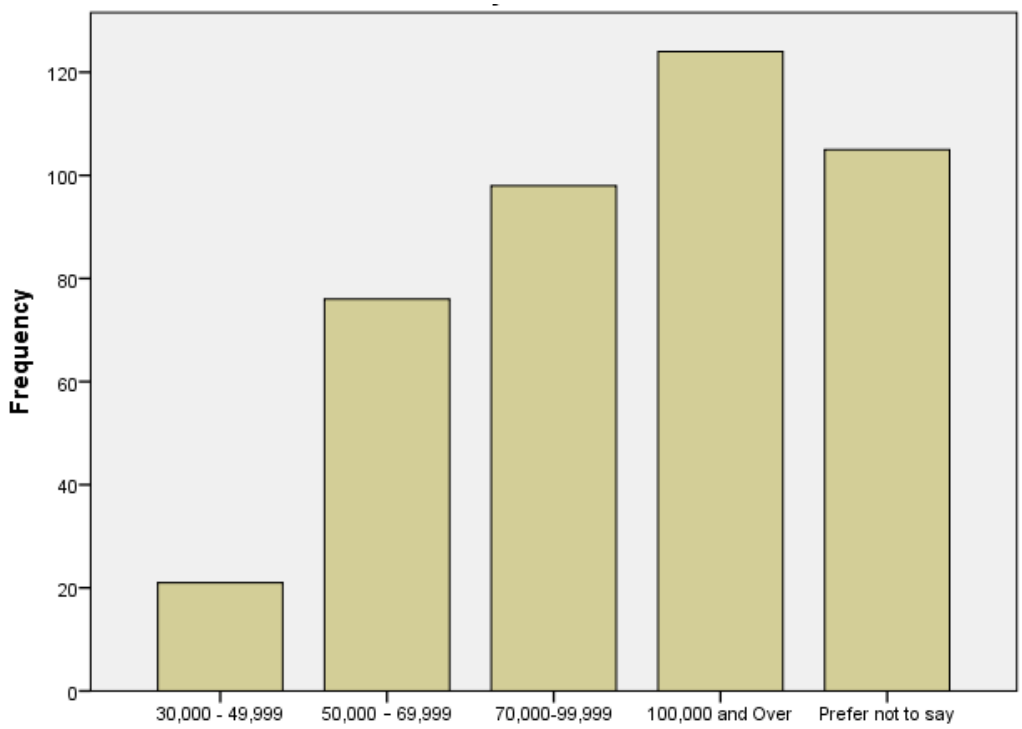

Figure 4: Monthly Income

Current Employment Status

Table 4.7 provides a breakdown of respondents based on their employment status. The data reveals that the majority of respondents fall into the employed 59.9% (n-254), business self-employed 15.6% (n-66), ratio of studying respondents are 11.6% (n-49), retired 6.6% (n=28), job searching respondents are 5.0% (n=21), that the only 1.4% (n-6) respondents are home maker in the study.

Table 4.7: Current Employment Status

Current Employment Status					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Study	49	11.6	11.6	11.6
	Employed	254	59.9	59.9	71.5
	Job searching (unemployed)	21	5.0	5.0	76.4
	Business (Self-employed)	66	15.6	15.6	92.0
	Retired (Rest)	28	6.6	6.6	98.6
	Homemaker	6	1.4	1.4	100.0
	Total	424	100.0	100.0	

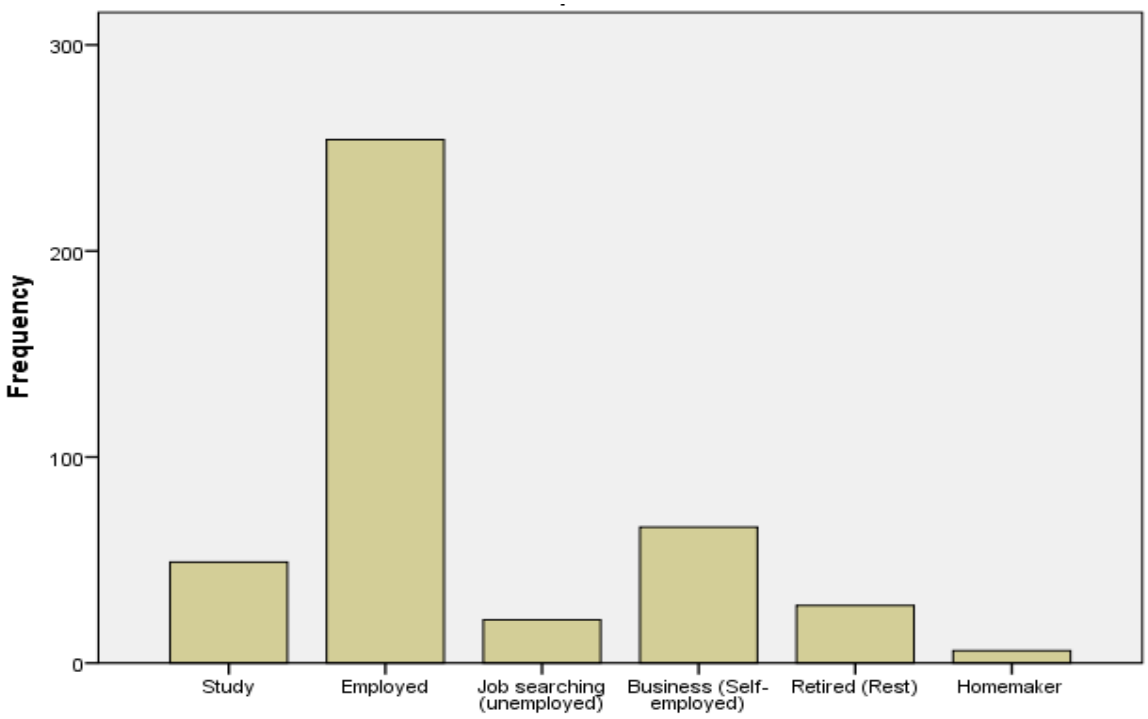

Figure 5: Employment Status

Discussion

The social and economic characteristics of respondents in this study provide important understandings into the motives for verified climate change crisis information (CCCI) sharing on social media. The results offer more support and expand upon present literature (Teng et al.,

2025; Gong et al., 2020) by emphasizing the roles of age, income satisfaction, education level, and urban & rural location as significant predictors of pro-environmental digital behavior.

Age constantly emerges as a major factor. The results support prior studies showing that younger individuals are more more likely to share verified climate information online and more involved in environmental debate (Subiza-Pérez et al., 2020; Gray et al., 2019). According to Cantillo et al. (2025), this tendency is consistent with the growth of youth-led climate initiatives like Fridays for Future and the pervasiveness of young activism on digital platforms. Younger participants are more likely to check and distribute correct climate-related material because they are more digitally literate, have been exposed to online climate narratives more frequently, and feel that climate change is urgent.

Another important demographic factor affecting verified CCCI engagement is income satisfaction. Sharing content about climate change was substantially more common among those who reported being financially stable. This is in line with the findings of Vrselja et al. (2024), who found that higher economic satisfaction promotes increased environmental involvement. Additionally, this study is consistent with Austin's (1997) findings that income has a significant but unequal impact.

Obviously, individuals with higher incomes are often have better access to subscription based digital information resources, all of which facilitate the ability to verify information and distinguish misinformation. Moreover, financial stability may be associated with reduced cognitive stress, enabling individuals to invest more time and attention in socially responsible behaviors such as fact-checking and content moderation online.

Education emerges as another important factor also plays a critical role in verified CCCI sharing, particularly at the postgraduate level. In the current study, a sizable percentage of respondents had an M.Phil. degree (24.1%, n=102), indicating a highly educated sample. High academic qualifications are frequently associated with greater environmental awareness. Stronger critical thinking abilities, increased environmental awareness, and response efficacy, an individual's belief in their capacity to perform effective environmental actions are all commonly linked to better academic credentials (Meyer, 2015, (Meyer, 2015). These factors encourage more responsible online behavior, including sharing only authenticated climate

material. Education gives people the skills they need to analyze sources critically, interpret scientific evidence, and see the broader implications of climate disinformation.

Living in an urban area further distinguishes information sharing behaviors. According to the present study, individuals living in urban areas were more frequent in sharing verified climate information compared to their rural counterparts.

This pattern is supported by Sheasby & Smith (2023) highlighted the role of digital infrastructure and urban living in shaping environmental communication. Often greater exposure to environmental initiatives, higher rates of media consumption, and improved internet access are frequently advantageous for urban residents. These advantages improve their ability to engage with verified CCCI and participate in online climate discussions. In contrast, communities, on, might experience digital marginalization, which would restrict their engagement and increase their vulnerability to false information.

These demographic results show that verified climate information-sharing behaviors are interconnected. Additionally, the age, income, education, and geographical location not only influence individual engagement levels but also reveal highlight universal disparities in environmental communication and digital access. These insights are essential for developing focused communication strategies, especially when it comes to reaching marginalized and vulnerable populations. In order to ensure that younger audiences stay interested, that financially and digitally marginalized populations are included, and that education continues to be a means of promoting climate literacy and responsible online behavior, interventions must be tailored to take these demographic factors into consideration.

Conclusion

This study explored the effects of demographic factors (e.g., gender, age, income and education) on verified CCCI sharing behaviors. These variables could play a critical role in shaping how individuals engage with climate information online.

Currently, digital platforms are essential for learning and sharing information in Pakistan, particularly regarding pressing issues like climate change. Social media accounts serve as essential tools for disseminating information about climate change and the environmental impacts of extreme weather events. People are increasingly using these platforms to learn more about climate news and its effects because of the high internet penetration rate in the nation.

In the global context, where countries with large populations, such as China, is leading in environmental discourse and action, Pakistan is still catching up in terms of scientific literacy on climate issues. Yet, the role of digital networks in shaping public perception is undeniable. Social media accounts are increasingly becoming the source for not just global climate data but also local insights, making it a central space for educating and empowering individuals to respond to climate challenges effectively.

To improve climate change communication and the quality of information circulating online, media literacy programs must evolve. Crucially, demographic factors must be considered in designing such interventions, as different groups may require tailored strategies for credible climate information engagement.

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