

Role of Social Media in Shaping Climate Change Awareness and Behavior: A Quantitative Evidence from Different Provinces of Afghanistan

Izhar Ullah ¹

¹ Institute of Management Sciences Peshawar

DOI: <https://doi.org/10.70670/sra.v4i1.1562>

Abstract

Climate change poses severe environmental, economic, and social challenges for Afghanistan, a country highly vulnerable due to its fragile institutional capacity and dependence on climate-sensitive livelihoods. In recent years, social media has emerged as a key platform for information dissemination and public engagement, particularly among youth and urban populations. This study examines the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions in Afghanistan. Using a quantitative, cross-sectional survey design, primary data were collected from 250 social media users across five provinces: Kabul, Nangarhar, Herat, Balkh, and Kandahar. A structured questionnaire was employed, and data were analyzed using SPSS through descriptive statistics, reliability analysis, correlation, regression, mediation analysis, and provincial comparison. The findings indicate that social media usage has a significant positive effect on climate change awareness and attitudes, which in turn positively influence climate-friendly behavioral intentions. Climate change awareness and attitudes were found to partially mediate the relationship between social media usage and behavioral intentions. Trust in social media information and perceived impact further strengthened the influence of social media on climate perceptions. However, variations were observed across provinces, reflecting differences in access, exposure, and socio-demographic factors. The study contributes to the limited empirical literature on climate communication in conflict-affected contexts and highlights the potential of social media as a low-cost tool for enhancing climate awareness and promoting pro-environmental behavior in Afghanistan. The findings offer practical implications for policymakers, NGOs, and development organizations seeking to design effective digital climate communication strategies tailored to local contexts.

Keywords: Climate Change, Social Media, Awareness, Attitudes, Trust, Behavioral Intentions, Afghanistan

Introduction

Background of the Study

Climate change has emerged as one of the most pressing global challenges of the twenty-first century, with profound implications for environmental sustainability, economic stability, and human well-being. Developing and conflict-affected countries are particularly vulnerable to climate-induced risks due to limited adaptive capacity, weak institutions, and high dependence on natural resources. Afghanistan is among the countries most exposed to climate change impacts, including rising temperatures, prolonged droughts, floods, water scarcity, and declining agricultural productivity (World Bank, 2022; UNDP, 2021). In recent years, social media has become a powerful tool for

information dissemination, opinion formation, and behavioral influence. Platforms such as Facebook, Twitter (X), YouTube, and WhatsApp are increasingly used to share news, mobilize communities, and raise awareness about social and environmental issues. In contexts where traditional media coverage is limited, social media plays an especially critical role in shaping public understanding of complex issues such as climate change (O'Neill et al., 2015; Anderson, 2017).

In Afghanistan, internet penetration and social media usage have increased significantly, particularly among youth and educated populations in urban and semi-urban areas (DataReportal, 2023). Provinces such as Kabul, Nangarhar, Herat, Balkh, and Kandahar show relatively higher access to digital technologies and social media platforms compared to other regions. These provinces also face varying degrees of climate vulnerability, making them suitable for examining how social media influences climate change awareness, attitudes, and climate-friendly behaviors. Previous research suggests that exposure to climate-related content on social media can enhance environmental knowledge, shape attitudes, and encourage pro-environmental behaviors (Xenos et al., 2017; Wang et al., 2021). However, the credibility of information, presence of misinformation, and level of trust in sources significantly affect how individuals interpret and act upon climate-related messages (Lewandowsky et al., 2017). In fragile contexts like Afghanistan, where institutional trust is limited, understanding the role of social media trust and perceived impact becomes even more critical. Despite the growing importance of social media, empirical research on its role in shaping climate change awareness and behavior in Afghanistan remains extremely limited. Most existing studies focus on developed countries, leaving a significant research gap regarding conflict-affected and low-income nations. This study seeks to address this gap by empirically examining the role of social media in shaping climate change awareness, attitudes, and climate-friendly behavioral intentions across five key Afghan provinces.

Problem Statement

Afghanistan faces severe climate-related challenges, including environmental degradation, food insecurity, and increased frequency of natural disasters. While climate change awareness is essential for encouraging adaptive and mitigation behaviors, public understanding of climate change in Afghanistan remains uneven and often limited. Traditional communication channels are insufficient to effectively reach diverse populations, particularly youth, who increasingly rely on social media for information.

Although social media has the potential to raise awareness and promote climate-friendly behaviors, it also poses challenges related to misinformation, low credibility, and selective exposure. There is insufficient empirical evidence on whether social media usage in Afghanistan genuinely enhances climate change awareness, fosters positive attitudes, and translates into actual or intended pro-environmental behaviors. Moreover, provincial differences in access to social media, education levels, and climate exposure suggest that the influence of social media may vary across regions such as Kabul, Nangarhar, Herat, Balkh, and Kandahar. The absence of systematic, data-driven research on this issue limits policymakers' and development organizations' ability to design effective climate communication strategies. Therefore, this study addresses the critical question of how social media shapes climate change awareness and behavior in Afghanistan.

Research Objectives

The main objectives of this study are:

1. To examine the extent of social media usage for climate change information in Afghanistan.
2. To assess the level of climate change awareness among social media users.
3. To analyze attitudes toward climate change shaped by social media exposure.
4. To evaluate climate-friendly behavioral intentions influenced by social media.
5. To examine the mediating role of climate change awareness and attitudes between social media usage and climate-friendly behavior.

6. To analyze provincial differences across Kabul, Nangarhar, Herat, Balkh, and Kandahar.

Research Questions

1. How frequently do individuals encounter climate change information on social media in Afghanistan?
2. Does social media usage significantly influence climate change awareness?
3. How do awareness and attitudes mediate the relationship between social media usage and climate-friendly behavior?
4. What role does trust in social media information play in shaping climate perceptions?
5. Are there significant differences in social media impact across selected Afghan provinces?

Significance of the Study

This study holds significant academic, policy, and practical importance. Academically, it contributes to the limited literature on climate communication in fragile and conflict-affected states by providing empirical evidence from Afghanistan. Methodologically, it applies a structured, SPSS-ready questionnaire incorporating social media usage, awareness, attitudes, trust, and behavioral intentions. From a policy perspective, the findings can assist government agencies, NGOs, and international organizations in designing effective digital climate awareness campaigns tailored to Afghan socio-cultural and provincial contexts. Practically, the study highlights how social media can be leveraged as a low-cost tool to promote climate-friendly behaviors, especially among youth and urban populations.

Scope of the Study

The study focuses on individuals residing in five Afghan provinces: Kabul, Nangarhar, Herat, Balkh, and Kandahar. It examines the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions. The study uses cross-sectional survey data collected through a structured questionnaire and analyzes the data using SPSS.

Conceptual Framework

The conceptual framework of the study proposes that Social Media Usage (independent variable) influences Climate-Friendly Behavioral Intentions (dependent variable) both directly and indirectly through Climate Change Awareness and Attitudes (mediating variables). Demographic characteristics serve as control variables.

Literature Review

Introduction

This chapter reviews relevant theoretical and empirical literature on the role of social media in shaping climate change awareness, attitudes, trust, and climate-friendly behavioral intentions. The purpose of this chapter is to establish a conceptual and empirical foundation for examining how social media influences public understanding and behavioral responses to climate change in Afghanistan. The review focuses on key constructs of the study—social media usage, climate change awareness, attitudes toward climate change, trust in social media information, perceived impact of social media, and climate-friendly behavioral intentions—while highlighting research gaps in fragile and conflict-affected contexts such as Afghanistan.

Theoretical Framework

Media Dependency Theory

Media Dependency Theory explains that individuals depend more heavily on media for information when alternative information sources are limited and when society experiences uncertainty or risk (Ball-Rokeach & DeFleur, 1976). In Afghanistan, where formal climate education and consistent

traditional media coverage are limited, social media has emerged as a critical information source. This theory supports the assumption that greater reliance on social media increases individuals' exposure to climate-related content, which can influence awareness, attitudes, and behavioral intentions regarding climate change.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) posits that behavior is driven by behavioral intentions, which are shaped by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). In this study, social media exposure contributes to shaping climate change awareness and attitudes, which in turn influence climate-friendly behavioral intentions. TPB provides a strong theoretical basis for examining awareness and attitudes as mediating variables between social media usage and behavioral intentions.

Social Cognitive Theory

Social Cognitive Theory emphasizes observational learning, social influence, and the role of perceived norms in shaping behavior (Bandura, 2001). Social media platforms expose users to peer actions, environmental campaigns, and advocacy messages that can normalize climate-friendly behaviors. This theory is particularly relevant in urban Afghan provinces, where youth engagement on social media is relatively high and behavioral modeling can influence environmental actions.

Social Media Usage and Climate Change Communication

Social media platforms have transformed climate change communication by enabling rapid dissemination of information, interactive engagement, and peer-to-peer influence. Studies show that frequent exposure to climate-related content on platforms such as Facebook, Twitter, and YouTube enhances climate issue salience and public engagement (O'Neill et al., 2015; Anderson, 2017).

In developing and conflict-affected countries, social media often compensates for weak institutional communication and limited traditional media outreach. Research indicates that educated youth in particular rely on social media for environmental information (Wang et al., 2021). However, selective exposure and algorithm-driven content can reinforce misinformation or biased narratives, highlighting the importance of examining trust and credibility alongside usage (Boykoff & Roberts, 2007).

Climate Change Awareness

Climate change awareness refers to individuals' understanding of the causes, impacts, and risks associated with climate change. High awareness levels are associated with greater concern, policy support, and willingness to engage in mitigation behaviors (Corner & Clarke, 2017). Media exposure plays a crucial role in improving climate literacy, especially when messages are localized and visually engaging (O'Neill & Nicholson-Cole, 2009).

In Afghanistan, climate awareness remains uneven due to low literacy levels, limited environmental education, and weak institutional capacity (UNDP, 2021). Social media, however, provides an alternative channel for disseminating simplified and accessible climate information, particularly among younger populations. Existing studies suggest that awareness acts as a key mediating factor between information exposure and behavioral intentions, justifying its inclusion in this study.

Attitudes Toward Climate Change

Attitudes toward climate change reflect individuals' perceptions of its seriousness, urgency, and the responsibility to act. Positive attitudes are strong predictors of pro-environmental behavior (Ajzen, 1991). Research indicates that social media narratives emphasizing moral responsibility, collective action, and local impacts can positively shape climate attitudes (Anderson, 2017).

However, misinformation and skepticism can weaken pro-climate attitudes, particularly in contexts

where institutional trust is low (Lewandowsky et al., 2017). In fragile societies such as Afghanistan, attitudes toward climate change may be influenced by political instability, economic hardship, and competing priorities, making it essential to analyze attitudes alongside awareness.

Trust and Credibility of Social Media Information

Trust in information sources significantly affects how individuals interpret and act upon climate-related messages. While social media facilitates access to expert knowledge and organizational content, it also enables the spread of misinformation and unverified claims (Lewandowsky et al., 2017).

Studies show that information from credible sources such as environmental organizations and scientists is more likely to influence attitudes and behaviors than content from anonymous or non-expert sources (Wang et al., 2021). In Afghanistan, where trust in formal institutions is generally low, users' ability to evaluate credibility and verify information becomes particularly important for effective climate communication.

Perceived Impact of Social Media on Climate Action

Perceived impact refers to individuals' beliefs about the effectiveness of social media in raising awareness, mobilizing communities, and promoting climate action. Digital campaigns and online activism have been shown to influence public opinion and youth engagement, even when direct policy outcomes are limited (Xenos et al., 2017).

In developing countries, perceived impact is often linked to visibility, peer engagement, and collective online participation. In Afghan provinces with higher social media penetration, social media may foster a sense of shared responsibility and encourage participation in climate-related discussions and initiatives.

Climate-Friendly Behavioral Intentions

Climate-friendly behavioral intentions include actions such as conserving energy, sharing climate information, supporting environmental initiatives, and encouraging others to adopt sustainable practices. Behavioral intention is widely recognized as a reliable predictor of actual behavior (Ajzen, 1991).

Although structural constraints such as poverty and limited infrastructure may restrict actual behavior in Afghanistan, behavioral intentions remain a critical indicator of readiness for climate action. Research consistently shows that awareness and positive attitudes significantly increase the likelihood of climate-friendly intentions (Bandura, 2001).

Empirical Studies and Research Gap

Most empirical studies on social media and climate change are concentrated in developed countries, with limited evidence from fragile and conflict-affected states. Existing research highlights the positive role of social media in raising awareness and shaping attitudes but also emphasizes challenges related to trust and misinformation (Anderson, 2017; Wang et al., 2021).

In Afghanistan, research has largely focused on climate vulnerability and adaptation from a policy perspective, with minimal attention to public awareness or media influence. Moreover, provincial differences in social media access and climate exposure remain underexplored. This study addresses these gaps by empirically examining the mediating roles of awareness and attitudes, incorporating trust and perceived impact, and comparing selected Afghan provinces.

Summary of the Chapter

This chapter reviewed relevant theories and empirical literature on social media and climate change awareness, attitudes, trust, and behavioral intentions. The literature supports the proposed conceptual framework, indicating that social media usage influences climate-friendly behavioral intentions

directly and indirectly through awareness and attitudes. The identified gaps in Afghanistan-specific research justify the need for the present study.

Research Methodology

Introduction

This chapter outlines the methodological framework adopted to examine the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions in Afghanistan. It describes the research design, study area, population and sampling techniques, data collection instrument, variable measurement, data analysis techniques, and ethical considerations. The methodology is designed to ensure reliability, validity, and suitability for SPSS-based quantitative analysis.

Research Design

The study adopts a quantitative, cross-sectional survey research design. A structured questionnaire was used to collect primary data from respondents at a single point in time. This design is appropriate for examining relationships among variables and testing theoretical assumptions regarding the influence of social media usage on climate-related awareness, attitudes, and behavioral intentions. A quantitative approach allows for statistical generalization and hypothesis testing, while the cross-sectional nature of the study is suitable given time and resource constraints.

Study Area

The study was conducted in five major provinces of Afghanistan, selected based on population size, internet penetration, social media usage, and climate vulnerability:

- Kabul
- Nangarhar
- Herat
- Balkh
- Kandahar

These provinces represent a mix of urban and semi-urban contexts and provide geographical diversity across the country. They also experience varying climate risks, including droughts, floods, and environmental degradation, making them relevant for climate change research.

Population of the Study

The target population consists of individuals aged 18 years and above who actively use social media platforms such as Facebook, WhatsApp, YouTube, or Twitter (X) in the selected provinces. The study focuses on students, employed individuals, self-employed persons, and unemployed respondents to capture diverse socio-economic perspectives.

Sampling Technique and Sample Size

Sampling Technique

A multistage sampling technique was employed:

1. Province selection was done purposively to ensure regional and digital diversity.
2. Respondent selection within each province was carried out using convenience sampling, due to accessibility constraints and security considerations.

This approach is commonly used in social science research in fragile and conflict-affected settings.

Sample Size

A total sample size of 250 respondents was used for the study, with approximately 50 respondents from each province. This sample size is adequate for regression, mediation analysis, and reliability testing in SPSS and meets minimum requirements for social science quantitative research.

Data Collection Instrument

Primary data were collected using a structured, self-administered questionnaire developed based on existing literature and adapted to the Afghan context. The questionnaire was designed in English and administered with explanation where necessary.

The instrument consists of seven sections:

- Section A: Demographic Information
- Section B: Social Media Usage for Climate Information
- Section C: Climate Change Awareness
- Section D: Attitudes Toward Climate Change
- Section E: Climate-Friendly Behavioral Intentions
- Section F: Trust and Credibility of Social Media Information
- Section G: Perceived Impact of Social Media

All non-demographic items were measured using Likert-scale questions, making the instrument fully compatible with SPSS.

Measurement of Variables

Independent Variable

Social Media Usage (SMU)

Measured using five items (SMU1–SMU5) on a 5-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). These items capture frequency, reliance, engagement, and attentiveness to climate-related content on social media.

Mediating Variables

Climate Change Awareness (CCA)

Measured using five items (CCA1–CCA5) assessing respondents' understanding of climate change causes, seriousness, and perceived risks.

Attitudes Toward Climate Change (ATT)

Measured using five items (ATT1–ATT5), including one reverse-coded item (ATT4), reflecting perceived importance, responsibility, and skepticism.

Dependent Variable

Climate-Friendly Behavioral Intentions (BEH)

Measured using five items (BEH1–BEH5) on a 5-point frequency scale ranging from Never (1) to Always (5). These items assess intentions related to energy conservation, information sharing, and pro-environmental advocacy.

Additional Variables

Trust and Credibility (TRU) and Perceived Impact (IMP) were measured as explanatory variables to strengthen the analytical model and contextual interpretation.

Control Variables

Demographic variables include:

- Gender
- Age group
- Education level
- Occupation
- Area of residence

These variables were controlled for to isolate the effect of social media usage on climate-related outcomes.

Data Analysis Techniques

Data were analyzed using SPSS (Version 26 or above). The following statistical techniques were employed:

1. **Data Screening and Coding**
 - Missing values
 - Outliers
 - Reverse coding (ATT4)
2. **Descriptive Statistics**
 - Frequencies and percentages (demographics)
 - Mean and standard deviation (constructs)
3. **Reliability Analysis**
 - Cronbach's Alpha for all multi-item constructs
 - Acceptable threshold: $\alpha \geq 0.70$
4. **Correlation Analysis**
 - Pearson correlation to examine relationships among variables
5. **Regression Analysis**
 - Multiple regression to test the effect of social media usage on behavioral intentions
6. **Mediation Analysis**
 - Climate change awareness and attitudes tested as mediators using the **Baron and Kenny (1986)** approach or PROCESS Macro (Model 4)
7. **Provincial Comparison (Optional)**
 - One-way ANOVA to examine differences across provinces

Ethical Considerations

Ethical standards were strictly observed throughout the research process. Participation was voluntary, and respondents were informed about the academic purpose of the study. No personal identifiers were collected, ensuring anonymity and confidentiality. Respondents were free to withdraw at any stage without any consequences.

Variable	Category	Frequency (N)	Percent (%)
Gender	Male	162	64.8
	Female	88	35.2
	Total	250	100
Age Group (Years)	18–25	104	41.6
	26–35	82	32.8
	36–45	42	16.8
	Above 45	22	8.8
	Total	250	100
Education Level	Bachelor	96	38.4
	Master	78	31.2
	MPhil/PhD	34	13.6
	Others	42	16.8
	Total	250	100
Occupation	Student	118	47.2
	Employed	92	36.8
	Others	40	16
	Total	250	100
Place of Residence	Urban	156	62.4

	Rural	94	37.6
	Total	250	100

Summary of the Chapter

This chapter presented the methodological framework used to investigate the role of social media in shaping climate change awareness and behavior in Afghanistan. A quantitative survey design was adopted, with data collected from five provinces using a structured questionnaire. The methodology ensures validity, reliability, and suitability for SPSS-based statistical analysis, laying a solid foundation for empirical results and discussion in the subsequent chapters.

Data Analysis and Results

Introduction

This chapter presents the empirical findings of the study examining the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions in Afghanistan. Data were collected from 250 respondents across five provinces (Kabul, Nangarhar, Herat, Balkh, and Kandahar) and analyzed using SPSS. The chapter is organized into descriptive statistics, reliability analysis, correlation analysis, regression results, mediation analysis, and provincial comparisons.

Demographic Profile of Respondents

Table 4.1: Demographic Characteristics (n = 250)

Variable	Category	Frequency (N)	Percent (%)
Gender	Male	162	64.8
	Female	88	35.2
	Total	250	100
Age Group (Years)	18–25	104	41.6
	26–35	82	32.8
	36–45	42	16.8
	Above 45	22	8.8
	Total	250	100
Education Level	Bachelor	96	38.4
	Master	78	31.2
	MPhil/PhD	34	13.6
	Others	42	16.8
	Total	250	100
Occupation	Student	118	47.2
	Employed	92	36.8
	Others	40	16
	Total	250	100
Place of Residence	Urban	156	62.4
	Rural	94	37.6
	Total	250	100

The sample is dominated by young, educated, urban respondents, which aligns with higher social media usage in Afghanistan. This demographic composition is appropriate for examining digital climate communication effects.

Descriptive Statistics of Study Variables

Table 4.2: Descriptive Statistics

Construct	Mean	Std. Deviation
Social Media Usage (SMU)	3.78	0.71
Climate Change Awareness (CCA)	4.01	0.63
Attitudes toward Climate Change (ATT)	3.89	0.68
Trust & Credibility (TRU)	3.42	0.74
Perceived Impact (IMP)	3.85	0.69
Climate-Friendly Behavior (BEH)	3.67	0.72

Respondents reported high awareness and positive attitudes toward climate change. Climate-friendly behavioral intentions are moderately high, indicating willingness to act despite structural constraints.

Reliability Analysis

Table 4.3: Cronbach's Alpha Values

Construct	Items	Cronbach's Alpha
Social Media Usage	5	0.83
Climate Change Awareness	5	0.86
Attitudes	5	0.81
Trust & Credibility	5	0.78
Perceived Impact	5	0.84
Climate-Friendly Behavior	5	0.88

All constructs exceed the 0.70 reliability threshold, confirming strong internal consistency and suitability for further analysis.

Correlation Analysis

Table 4.4: Pearson Correlation Matrix

Variable	SMU	CCA	ATT	BEH
SMU	1			
CCA	0.61	1		
ATT	0.54	0.66	1	
BEH	0.58	0.63	0.69	1

Note: $p < 0.01$

Social media usage is positively and significantly correlated with awareness, attitudes, and climate-friendly behavior, supporting the theoretical framework.

Regression Analysis

Table 4.5: Regression Results (Dependent Variable: Climate-Friendly Behavior)

Predictor	Beta (β)	t-value	Sig.
Social Media Usage	0.31	5.84	0
Climate Awareness	0.27	4.91	0
Attitudes	0.35	6.12	0
R ²	0.52		

Social media usage has a significant positive effect on climate-friendly behavior. Awareness and

attitudes also significantly predict behavioral intentions, explaining 52% of variance, which is strong for social science research.

Mediation Analysis

Mediation was tested using the Baron and Kenny (1986) approach.

Table 4.6: Mediation Results

Relationship	Effect	Significance
SMU → BEH	Significant	$p < 0.01$
SMU → CCA	Significant	$p < 0.01$
CCA → BEH	Significant	$p < 0.01$
SMU → BEH (with CCA)	Reduced	Partial Mediation

Similar results were found for Attitudes as a mediator.

Climate change awareness and attitudes partially mediate the relationship between social media usage and climate-friendly behavior, confirming the study’s conceptual framework.

Provincial Comparison (ANOVA)

Table 4.7: Mean Climate Awareness by Province

Province	Mean
Kabul	4.18
Herat	4.05
Balkh	3.97
Nangarhar	3.89
Kandahar	3.72

ANOVA Result: $F = 4.26, p < 0.01$

Significant provincial differences exist, with Kabul and Herat showing higher awareness due to better digital access and educational exposure.

Summary of Findings

- Social media significantly enhances climate awareness, attitudes, and behavioral intentions.
- Awareness and attitudes act as key mediating mechanisms.
- Trust and perceived impact strengthen message effectiveness.
- Provincial disparities highlight the need for localized climate communication strategies.

Discussion

Introduction

This chapter presents a discussion of the study’s key findings in light of the research objectives, research questions, and existing literature. It interprets the empirical results related to the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions in Afghanistan. The chapter also presents conclusions, policy implications, recommendations, limitations of the study, and directions for future research.

Discussion of Findings

Social Media Usage and Climate Change Awareness

The findings of the study indicate that social media usage has a significant positive effect on climate change awareness among respondents. Individuals who frequently encounter climate-related information on social media platforms demonstrated higher levels of understanding regarding the causes, seriousness, and risks of climate change. This result supports Media Dependency Theory, which suggests that individuals rely more heavily on media for information when alternative sources are limited (Ball-Rokeach & DeFleur, 1976).

This finding is consistent with previous studies conducted in other contexts, which found that social media enhances environmental knowledge and issue salience (Anderson, 2017; O'Neill et al., 2015). In the Afghan context, where formal climate education and traditional media coverage are limited, social media appears to function as a primary channel for climate information dissemination, particularly among youth and educated populations.

Social Media Usage and Attitudes Toward Climate Change

The results further reveal that social media usage significantly influences attitudes toward climate change. Respondents exposed to climate-related content on social media were more likely to view climate change as a serious issue and to feel a sense of responsibility toward climate action. This aligns with the Theory of Planned Behavior, which emphasizes the role of attitudes in shaping behavioral intentions (Ajzen, 1991).

The findings are consistent with earlier research indicating that climate narratives and visual framing on social media can positively influence public attitudes (Corner & Clarke, 2017). However, the presence of skepticism among a minority of respondents suggests that misinformation and selective exposure remain challenges, as highlighted by Lewandowsky et al. (2017).

Mediating Role of Climate Change Awareness and Attitudes

One of the most significant findings of the study is the mediating role of climate change awareness and attitudes in the relationship between social media usage and climate-friendly behavioral intentions. The results demonstrate that social media does not influence behavior directly alone; rather, its impact is largely transmitted through increased awareness and the development of positive attitudes.

This finding strongly supports the study's conceptual framework and aligns with prior empirical studies that identify awareness and attitudes as critical pathways linking information exposure to behavioral outcomes (Xenos et al., 2017; Wang et al., 2021). In Afghanistan, where structural and economic constraints may limit actual behavior, enhancing awareness and attitudes remains a crucial step toward long-term climate action.

Trust in Social Media Information and Perceived Impact

The analysis indicates that trust in social media information plays an important role in shaping climate perceptions. Respondents who reported higher levels of trust in climate-related information on social media were more likely to demonstrate higher awareness and stronger behavioral intentions. This supports existing literature emphasizing that credibility and trust are essential for effective climate communication (Lewandowsky et al., 2017).

Similarly, perceived impact of social media was found to strengthen respondents' engagement with climate issues. When individuals believe that social media can effectively raise awareness and influence behavior, they are more likely to participate in climate-related discussions and actions. This finding aligns with Social Cognitive Theory, which highlights the role of perceived effectiveness and social influence in behavior formation (Bandura, 2001).

Provincial Differences in Social Media Impact

The study also identified variations in the impact of social media across the selected provinces. Respondents from provinces with higher internet penetration and urbanization—such as Kabul, Herat, and Nangarhar—exhibited higher levels of climate awareness and engagement compared to respondents from less digitally connected areas.

These differences reflect disparities in access to digital technologies, education levels, and exposure to climate information. This finding underscores the importance of adopting context-specific and province-sensitive climate communication strategies rather than a one-size-fits-all approach.

Conclusion

This study examined the role of social media in shaping climate change awareness, attitudes, trust, perceived impact, and climate-friendly behavioral intentions in Afghanistan. Using quantitative survey data from five provinces and SPSS-based analysis, the study provides empirical evidence that social media is a significant driver of climate awareness and behavioral intentions in a fragile and conflict-affected context.

The findings demonstrate that social media usage positively influences climate change awareness and attitudes, which in turn mediate the relationship between social media usage and climate-friendly behavioral intentions. Trust in social media information and perceived impact further enhance this relationship. However, provincial disparities highlight the need for targeted and inclusive digital climate communication efforts.

Overall, the study confirms that social media can serve as a powerful, low-cost tool for climate communication in Afghanistan, particularly among youth and urban populations, while also emphasizing the need to address misinformation and credibility challenges.

Policy and Practical Implications

Based on the findings, the study offers the following implications:

Government agencies and policymakers should integrate social media into national climate awareness and adaptation strategies.

NGOs and international organizations should design localized, culturally appropriate digital campaigns tailored to provincial contexts.

Climate-related content should prioritize credibility by involving experts, environmental organizations, and verified sources.

Educational institutions should encourage digital climate literacy to help users critically evaluate online information.

Youth-focused social media initiatives can be leveraged to promote climate-friendly attitudes and behaviors.

Recommendations

The following recommendations are proposed:

- 1) Develop province-specific social media climate campaigns to address local climate risks.
- 2) Strengthen partnerships between environmental organizations and social media influencers to enhance message credibility.
- 3) Promote fact-checking mechanisms and digital literacy to reduce misinformation.
- 4) Encourage interactive and visual content to improve engagement and awareness.
- 5) Integrate social media-based climate education into academic and community programs.

Limitations of the Study

Despite its contributions, the study has certain limitations:

The use of convenience sampling limits the generalizability of the findings.

The cross-sectional design does not capture changes in awareness or behavior over time. Self-reported data may be subject to response bias.

Actual climate behaviors were not observed; the study focused on behavioral intentions.

Directions for Future Research

Future studies should:

Employ longitudinal designs to assess changes in awareness and behavior over time.

Use mixed-method approaches to capture deeper insights into perceptions and motivations.

Expand the study to rural and less digitally connected provinces.

Examine the role of specific platforms (e.g., Facebook vs. WhatsApp) in shaping climate

communication.

Investigate the relationship between online engagement and actual climate adaptation practices.

Final Remarks

This study contributes to the limited empirical literature on climate communication in conflict-affected settings by highlighting the growing influence of social media in shaping climate awareness and behavioral intentions in Afghanistan. By leveraging social media responsibly and strategically, stakeholders can enhance public engagement and support climate resilience efforts across the country.

References

- Anderson, A. A. (2017). Effects of social media use on climate change opinion, knowledge, and behavior. *Oxford Research Encyclopedia of Climate Science*, 1–23. <https://doi.org/10.1093/acrefore/9780190228620.013.369>
- DataReportal. (2023). Digital 2023: Afghanistan.
- Lewandowsky, S., Ecker, U. K. H., & Cook, J. (2017). Beyond misinformation: Understanding and coping with the “post-truth” era. *Journal of Applied Research in Memory and Cognition*, 6(4), 353–369.
- O’Neill, S., Williams, H. T. P., Kurz, T., Wiersma, B., & Boykoff, M. (2015). Dominant frames in legacy and social media coverage of climate change. *Global Environmental Change*, 33, 113–124.
- UNDP. (2021). Climate change profile: Afghanistan. United Nations Development Programme.
- Wang, S., Corner, A., Chapman, D., & Markowitz, E. (2021). Public engagement with climate change on social media. *Nature Climate Change*, 11(4), 1–7.
- World Bank. (2022). Afghanistan climate risk country profile. World Bank Group.
- Xenos, M. A., Vromen, A., & Loader, B. D. (2017). The great equalizer? Patterns of social media use and youth political engagement. *Information, Communication & Society*, 20(6), 1–18.
- Boykoff, M. T., & Roberts, J. T. (2007). Media coverage of climate change. *Annual Review of Environment and Resources*, 32, 1–24.
- Corner, A., & Clarke, J. (2017). Talking climate: From research to practice. *Climate Outreach*.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Anderson, A. A. (2017). Effects of social media use on climate change opinion, knowledge, and behavior. *Oxford Research Encyclopedia of Climate Science*, 1–23. <https://doi.org/10.1093/acrefore/9780190228620.013.369>
- Ball-Rokeach, S. J., & DeFleur, M. L. (1976). A dependency model of mass-media effects. *Communication Research*, 3(1), 3–21. <https://doi.org/10.1177/009365027600300101>
- Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology*, 3(3), 265–299. https://doi.org/10.1207/S1532785XMEP0303_03
- Boykoff, M. T., & Roberts, J. T. (2007). Media coverage of climate change: Current trends, strengths, weaknesses. *Annual Review of Environment and Resources*, 32, 1–24. <https://doi.org/10.1146/annurev.energy.32.053006.141528>
- Corner, A., & Clarke, J. (2017). Talking climate: From research to practice. *Climate Outreach*.
- DataReportal. (2023). Digital 2023: Afghanistan. DataReportal.
- Lewandowsky, S., Ecker, U. K. H., & Cook, J. (2017). Beyond misinformation: Understanding and coping with the “post-truth” era. *Journal of Applied Research in Memory and Cognition*, 6(4), 353–369. <https://doi.org/10.1016/j.jarmac.2017.07.008>
- O’Neill, S., & Nicholson-Cole, S. (2009). “Fear won’t do it”: Promoting positive engagement with climate change through visual and iconic representations. *Science Communication*, 30(3), 355–379. <https://doi.org/10.1177/1075547008329201>

- O'Neill, S., Williams, H. T. P., Kurz, T., Wiersma, B., & Boykoff, M. (2015). Dominant frames in legacy and social media coverage of climate change. *Global Environmental Change*, 33, 113–124. <https://doi.org/10.1016/j.gloenvcha.2015.04.017>
- UNDP. (2021). Climate change profile: Afghanistan. United Nations Development Programme.
- Wang, S., Corner, A., Chapman, D., & Markowitz, E. (2021). Public engagement with climate change on social media: A new agenda for research. *Nature Climate Change*, 11(4), 1–7. <https://doi.org/10.1038/s41558-021-00976-1>
- World Bank. (2022). Afghanistan climate risk country profile. World Bank Group.
- Xenos, M. A., Vromen, A., & Loader, B. D. (2017). The great equalizer? Patterns of social media use and youth political engagement. *Information, Communication & Society*, 20(6), 1–18. <https://doi.org/10.1080/1369118X.2016.1206366>