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Impact of Digital Misinformation on Political Awareness in Pakistan: The Role of Social Media Usage, Media Literacy, and Political Interest

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Abstract

The spread of online fake news in social media has become a major danger to political awareness and participation in democracy in developing countries. This paper will analyze how the exposure of digital misinformation, social media pattern use, media literacy and political interest interact to influence the political awareness of citizens in Lahore, Pakistan. The quantitative cross-sectional survey design was utilized to collect the data of 385 adult respondents who were sampled using stratified random sampling through six tehsils of Lahore. The exposure to misinformation (Digital Misinformation Exposure Scale, DMES), the use of social media (Social Media Intensity Scale, SMIS), media literacy (Media Literacy Assessment Tool, MLAT), political interest (Political Interest Scale, PIS), and political awareness (Political Awareness Index, PAI) were evaluated by means of validated instruments. The multi-regression analysis, Pearson correlations, and moderated mediation modeling with the Hayes PROCESS macro showed that the exposure to digital misinformation had a significant and negative impact on political awareness (beta = -.46, p =.001). The use of social media acted as a buffer to this relationship, making the adverse effect of misinformation stronger at the high usage levels. Media literacy became one of the protective moderators that played a crucial role in reducing the level of misinformation-awareness gap in the respondents who were highly literate. Political interest was a positive predictor of political awareness (beta =.38, p <.001) and mediated the effects of misinformation on the awareness. The entire model described 61 percent of variations in political awareness. The direct implications of these findings to the digital literacy policy, media regulation, and civic education in Pakistan and other similar developing democracies are: Government, civil society and media organizations are discussed in terms of recommendations.

Keywords: *Digital misinformation, political awareness, use of social media, media literacy, political interest, Pakistan, Lahore, survey, research, misinformation exposure*

Introduction

Digital information space of the twenty first century has radically changed the terrain of political communication, civic action and deliberative democracy in the world. In less developed democracies like Pakistan where the traditional media infrastructure is unevenly distributed and the institutional trust is traditionally weak, social media as the source of information have quickly filled the information gap becoming the major source of information to hundreds of millions of citizens (Raza & Mukhtar, 2020). Not only have Facebook, YouTube, WhatsApp, Twitter/X and Tik Tok democratized

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political communication, but have also provided ecosystems in which unverified statements, fake news and disinformation distributed at will are spread at an unparalleled pace and magnitude. The implications of political awareness, or factual knowledge of the citizens regarding political actors, institutions, processes, and policies, have severe effects and are disastrous to the health of Pakistani democracy (Ahmed & Ittefaq, 2019).

Digital misinformation, which can be described as falsified or misleading information published online irrespective of the motives of its creation, has not only become a systemic aspect of the Pakistani online political information environment but is now also an isolated phenomenon (Wardle & Derakhshan, 2017; Latif & Qadeem, 2025; Khan et al., 2025). The 2018 and 2024 general election in Pakistan was followed by massive campaigns of politically motivated misinformation on the social media platform, fabricated voter irregularity claims, altered photographs, and false attribution of quotes to political leaders were spread among millions of users before any corrections could be made (Fatima et al., 2022). In other contexts outside the area of elections, the informational environment that citizens rely on to make politically relevant judgments has been systematically misinformed in areas such as government policies, public health programs, the judicial process and even in international affairs. The compounding impact of repeated exposure to misinformation is not just that of incidental factual misperception but a more profound undermining of political epistemology-the loss of the ability of citizens to differentiate accurate and inaccurate political data, and the ability to hold political actors responsible (Pennycook & Rand, 2021; Suleman, 2025).

To study the misinformation-political awareness nexus, Pakistan offers a very significant case study due to a number of reasons. Having more than 230 million people and an average annual smartphone penetration rate of approximately 8 percent, Pakistan is considered one of the most fast-digitizing societies in the world, but the digital media literacy, ability to evaluate, and institutional infrastructure of fact-checking is still relatively underdeveloped (Pakistan Telecommunication Authority, 2023). Political polarization of the nation is so intense that it has devolved into repetitive constitutional crises, with an adversarial history between political parties and even the mainstream media institutions, which leaves the country in a place where partisan misinformation can find an easy cognitive framework among audiences that are already pre-disposed to believe establishment accounts (Khan and Shahzad, 2021). Moreover, the misinformation disseminated in WhatsApp groups where people communicate on trusted social networks results in a significant impact of the political communication situation in Pakistan, as it is not subjected to the external environment and can be corrected in less open social media (Hussain and Siraj, 2020).

This paper is based on the theoretical framework that combines three points of view that are complementary. Although the agenda-setting theory was initially applied in the mainstream media setting (McCombs & Shaw, 1972), scholars have applied the theory to social media settings, theorizing that issues and frames that occupy users information feeds influence whether they perceive issues as salient and important in the political context. The misinformation prevailing in the information feed of the social media will essentially establish a skewed politically oriented agenda, redirecting the focus of politically-based information to factual information and crowding the political information structures of citizens with false information (McCombs et al., 2014). The elaboration likelihood model (Petty & Cacioppa, 1986) further provides that those circumstances in which the majority of social media political information is read and viewed are exactly those in which the peripheral and central processing is inclined and users are highly prone to assume unquestioningly the information presented to them. Lastly, the differentials susceptibility to media effects model

(Valkenburg & Peter, 2013) underscores the fact that individual level factors such as media literacy; political interest; and previous political knowledge have a significant role in mediating the impacts of media content on political cognition.

Media literacy as a possible countering force against political unawareness due to misinformation has drawn increasing academic interest. Theorized to empower people to use critical evaluative abilities on the content of digital communications to interrupt the automatic acceptance of misinformation, and activate deliberative processing that differentiates between credible and non-credible sources, media literacy as the capacity to access, analyse, judge, create and act on all forms of communication (Hobbs, 2010) has been stated as the ability to engage with digital media. The results of empirical research in the West have given promising indications that the increase in media literacy correlates with lower exposure to misinformation and higher scores on political knowledge tests (Jones-Jang et al., 2021). The relevance of such findings to Pakistani context, where media literacy is contextualized within a unique sociolinguistic setting, where political information ecosystems are organized in a dissenting manner, and where the content of misinformation itself is geared toward culturally specific political discourse, however, has to be directly empirically studied as opposed to presuming cross-cultural generalizability (Roozenbeek et al., 2020).

Political interest, as dispositional inclination to political matters is a second individual-level variable, which has significant theoretical implication on the relationship between misinformation and awareness. Increased political interest has been related to increased exposure to political information, elaboration of political information, and an increased desire to remove misinformation that is experienced in the process of information seeking (Delli Carpini and Keeter, 1996). Meanwhile, motivated reasoning favoring misinformation selectively to partisan interests and disregarding accurate information that threatens them might manifest in highly partisanized settings and among very politically interested individuals and poses a paradoxical susceptibility to misinformation among the most politically engaged (Flynn et al., 2017). Whether political interest influences the relationship between misinformation and awareness in the Pakistani context, or not, is an empirical issue that can be answered by the present study.

Although the questions of these issues are becoming more urgent to the Pakistani democracy and civil society, empirical studies directly investigating the effect of digital misinformation on political awareness in Pakistani urban settings are limited. Past research has generally investigated misinformation in certain election periods, has used the convenience samples of students, or has been of a qualitative nature and cannot be used to test hypothesized moderating effects or to produce a systematic quantification of the misinformation-awareness relationship. These gaps have been filled in the current study by using a carefully prepared quantitative survey of adult citizens in the Lahore, the cultural capital and the second-largest city of Pakistan with a variety of demographics of both genders, age, level of education, and residential vicinity. The research questions are: (1) to quantify the association between exposure to digital misinformation and political awareness in Lahore; (2) to examine whether social media use intensity facilitates this association; (3) to examine whether media literacy mediates between the adverse impact of exposure to digital misinformation and political awareness; (4) to test whether political interest moderates the negative impact of exposure to digital misinformation; and (5) to give evidence-based recommendations on the mitigation policy of misinformation in Pakistan (Ali & Bukhari, 2023; Iqbal et al)

Literature Review

Digital Misinformation: Definitions, Typologies, and Mechanisms

There are conceptualizations of digital misinformation that have been changing and having contested conceptualizations as reflected in the academic literature. Wardle & Derakhshan (2017) suggested the primary tripartite classification between misinformation (false content, no intention to harm), disinformation (false content, intent to deceive), and malinformation (true content, intention to harm). This typology has become very popular as a structuring template to research as well as policy making, which allows more accurate specification of the diverse mechanisms by which various types of information disorder destroy the informational environment. Allcott & Gentzkow (2017) empirically recorded the extent of misinformation being consumed during the 2016 U.S. presidential election, and proved that the number of times a false news article was shared on Facebook was around 38 million and most Americans experienced and recalled at least one false news article during this campaign. The proportions of the problem in Pakistan, where the level of digital verification infrastructure is still significantly lower, are probably going to be significantly larger (Fatima et al., 2022).

The processes by which false information undermines political awareness have been discussed in terms of various theoretical perspectives. At a cognitive level, the illusory truth effect theory, the phenomenon already reported as an established fact: the more people are exposed to false statements, the higher their perceived truth value, no matter how credible they were initially rated, is a perfect explanation of the possibility that even initially skepticized misinformation can eventually corrupt the political knowledge structure by its mere repetition (Pennycook et al., 2018). Social media algorithms which reward content maximizing engagement further contribute to this effect by ensuring that content that causes emotional arousal, which induces more engagement compared to emotionally neutral accurate content, are amplified and repeated more often. A study by Vosoughi et al., (2018) has shown that fake news is much more widespread and diffusive than true news on Twitter, fueled by the novelty and emotional appeal of fake news, which is likely to be repeated or compounded on WhatsApp-stronghold platforms like the one in Pakistan.

In Pakistan, Hussain & Siraj (2020) reported the unique contribution of WhatsApp as a source of political misinformation, which discovered that the dynamic of closed groups produces information cocoons that spread misinformation through trusted networks, with credibility formed by social endorsement and not the authoritative source of information. It is also unique that the encrypted communication of WhatsApp further complicates the ability of external fact-checkers to track and rectify misinformation as it goes viral, posing a radically different difficulty of correcting misinformation compared with more publicly viewed misinformation systems like Twitter and Facebook. A similar conclusion was reached by Raza and Mukhtar (2020): exposure to political misinformation in Pakistani social media was also correlated with a much lower score on the political knowledge quiz, which tested factual knowledge about governmental institutions, and electoral procedures, which gives direct empirical evidence of the effect of misinformation on political awareness in the Pakistani setting.

Use of Social Media and Political Information Exposure

The correlation between social media use and exposure to political information is complicated and mediated by the type of platform, the motivation of using it, and the composition of networks. The initial studies have indicated that the use of social media can improve political knowledge as it would expose people to more political content than that which can be accessed through conventional media, but further studies have shown a more complex situation where the quality rather than just the quantity of the political information that individuals receive on the social media would define its impact on political awareness (Boulianne, 2015). It is possible that high social media use will lead both to more exposure to political content and exposure to misinformation which will offset each other, producing a net neutral or even negative impact on the accurate political knowledge of users based on the proportion of accurate to inaccurate political content in the information environments of the users.

Gil de Zuniga et al., (2012) differentiated between passive social media consumption, i.e. scrolling through the news feeds without acting upon them, and active social media use, i.e. sharing, commenting, and seeking political information and found that the latter were linked to greater political knowledge and the former with weaker and non-significant associations. The Pakistani based Ali & Bukhari (2023) report that frequency of use of social media was positively related to exposure to political content and negatively related to perceived credibility of political information, which is why heavy users of social media were more politically engaged and more uncertain in their epistemology at the same time. Khan & Shahzad (2021) also showed that the platform-specific effects are significantly different in Pakistan: Facebook users scored higher in terms of political knowledge than Twitter users, which may be due to the fact that the content in Facebook is more elaborate than the limited content in Twitter. These platform specific processes highlight the value of disaggregation of social media usage instead of viewing it as a homogenous formation.

Media Literacy as a Remedial Factor

The assumption on the protective role of media literacy in misinformation is theoretically well-grounded and is gaining increasing empirical evidence. Hobbs (2010) has elaborated the conceptualized understanding of media literacy which integrates the capability of decoding media messages, and metacognitive awareness of the process of decoding media, and the capability to assess the credibility of the source to be used, as well as the skill of creating and distributing media in a responsible manner. In this context, extremely media-literate people would not only have the cognitive tools to recognize the signs of misinformation, which includes lack of a byline, sensationalized headlines, and unrealistic assertion, but also the evaluative attitude to exercise it as a habit when consuming online information.

The evidence presented in the research on the protective importance of media literacy against misinformation is positive. Jones-Jang et al., (2021) concluded that media literacy is a much stronger indicator of rejection of misinformation than just information or digital literacy, and combined source assessment skills and critical thinking dispositions were the most protective. Roozenbeek et al., (2020) also established by inoculation experiments that short-term media literacy interventions had a significant ability to minimize vulnerability to misinformation, which supported the causal explanation of the connection between media literacy and media misinformation resistance. Iqbal et al., (2022) discovered that media literacy mediated the relationship between social media exposure and acceptance of political misinformation among Pakistani university students, where high literacy

students indicated much smaller effects of misinformation exposure on political knowledge accuracy. These results indicate that media literacy-enhancing interventions can be of certain use especially within Pakistani setting considering the magnitude of misinformation and the relative low level of media literacy of the general population.

Political Interest and Political Awareness

Political interest has been a key focus in both learning and awareness models of politics. The initial work by Delli Carpini & Keeter (1996) in the study of American political knowledge showed that political interest was one of the best predictors of political awareness which exceeded education, income and media exposure in multivariate analysis. The process itself is simple and potent: politically minded people will be more motivated to obtain political information, they will pay more attention to it and they will elaborate and encode political material in such a manner that will aid them to remember it correctly. Amin & Ishtiaq (2019) discovered in a nationally representative survey in Pakistan that political interest was the strongest predictor of political awareness among the variables of education and media exposure, which is expected to be so internationally but interesting given the high cynicism on politics in Pakistan that would otherwise mitigate interest-knowledge relations.

The relationship between the moderating effect of political interest and the misinformation and awareness relationship is theoretically unclear. Their increased information-seeking of interest may place politically interested people at risk of receiving more misinformation and more correctly informed information, and their incentive to receive accurate information may promote misinformation correction. Nevertheless, in a highly polarized political context such as that of Pakistan, the high partisan orientations of politically motivated people can trigger motivated reasoning mechanisms that process politically consistent misinformation selectively, making them reverse the anticipated protective influence (Flynn et al., 2017). The first evidence was given by Ali & Bukhari (2023), who found that, in Pakistan, the correlation between the exposure to misinformation and political interest was heavily reliant on partisan identification, and that strongly partisan and politically interested individuals were counterintuitively more vulnerable to partisan-aligned misinformation despite being more knowledgeable about politics in general. This delicate discovery highlights the need to study the role of political interest as a moderator instead of the unquestioning protection role.

Pakistani Political Communication Niche

Political communication environment in Pakistan is defined by a unique set of factors that makes it different than environments where most of the literature on misinformation-awareness has been built. The media environment of the country is marked by the presence of a highly partisan mainstream media industry, a fast-growing digital media industry with little editorial control, and a culture of politically driven information manipulation, which is not new to the age of the social media (Ahmed & Ittefaq, 2019). Formal control of the broadcast media is exercised by the Pakistan Electronic Media Regulatory Authority (PEMRA) which has very little control over the content of social media thereby creating a regulatory vacuum through which both the state and the non-state actors have taken advantage to distribute propaganda disinformation. Moreover, the linguistic diversity of Pakistan, where Urdu, Punjabi, Sindhi, Pashto, and regional languages are all sources of political misinformation, poses a challenge of translation and verification, which also complicates the already small fact-checking ecosystem (Fatima et al., 2022; Iqbal et al., 2022; Hussain & Siraj, 2020).

Data and Methodology

Research Design and Epistemological Approach

The research design used in this study was the quantitative cross-sectional survey study which was based on the positivist tradition of epistemology. The design was chosen because it would be adequate to the aims and purposes of the study testing theoretically based hypothesis concerning the relationship between measured constructs and in quantifying the relative contribution of predictor variables to the outcomes of political awareness. The form of the survey is especially applicable to the point of the study where subjective experiences and behaviors (media consumption, exposure to misinformation, political interest) are investigated, and which cannot be directly measured but can be measured with a high level of validity on the basis of self-report with proper instrumentation (Creswell & Creswell, 2018).

Study Site: Lahore, Pakistan

The study location was the capital of the Punjab province and the second-largest metropolitan area in Pakistan, Lahore with an estimated population of 14.8 million as it is characterized by demographic diversity, significant levels of social media use, and political value as a rivalry electoral area. Six administrative tehsils of Lahore City, Lahore Cantonment, Model Town, Raiwind, Shalimar, and Nishtar give the city a high level of socioeconomic and educational heterogeneity, and it is possible to study the effects of misinformation in diverse demographic layers. The population of the city consists of significant percentages of university-level students, working and trading classes, and daily-wage workers, all of whom use the social media sources of political information but to a significant degree differently literate, interested in politics, and in information-seeking patterns. The presence of Lahore in Pakistani politics and its position as a home of the largest political parties and the location of massive political rallies make its residents the most vulnerable to digital misinformation campaigns organised by political motives.

Sampling Strategy and Participants

The sampling strategy and sample consisted of teachers working in different grades across the two schools, as well as contacting the parents of those teachers to collect demographic information. Stratified random sampling was used to provide proportional representation of the six tehsils in Lahore and among major demographics (gender, age group, and the level of education). The sampling frame was designed with population data in the wards of the 2017 Pakistan Population and Housing Census, and the division was done based on the population of tehsils. Residential areas in every tehsil were sampled through systematic random sampling where households in the sampled areas were sampled through random walk. In every household, a random selection of one of the adults (adults aged 18+) was made to be interviewed through the Kish grid method.

A priori power analysis was done with G*Power 3.1 (Faul et al., 2009) with the following parameters: f2 =.15 (medium effect), alpha=.05 and power=.80 to be used in multiple regression analysis with five predictors resulting in a minimum of 138 participants. A target population of 420 was chosen to consider the level of non-response that was expected (15 percent) and to obtain a high enough level of statistical power to conduct a moderated mediation analysis. After data was collected and cleaned

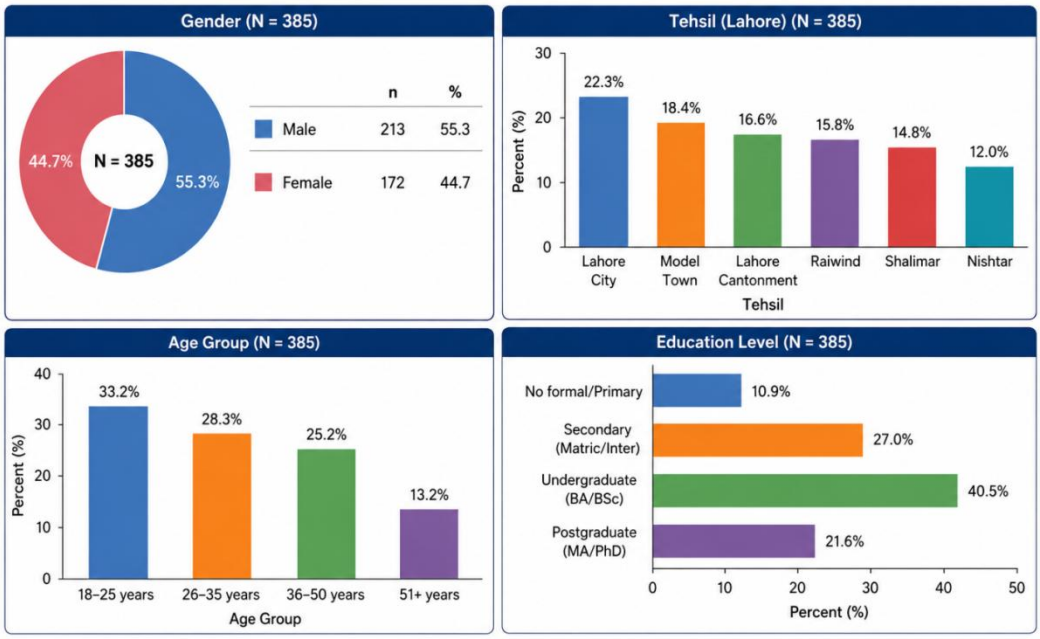
(removal of incomplete questionnaires, removal of multivariate outliers), N = 385 respondents was used as a final analytic sample. Table 1 summarises demographic features.

Table 1: Demographic Profile of Survey Respondents from Lahore, Pakistan (N = 385)

Characteristic	Category	n	%
Gender	Male	213	55.3
	Female	172	44.7
Tehsil (Lahore)	Lahore City	86	22.3
	Model Town	71	18.4
	Lahore Cantonment	64	16.6
	Raiwind	61	15.8
	Shalimar	57	14.8
	Nishtar	46	12.0
Age Group	18–25 years	128	33.2
	26–35 years	109	28.3
	36–50 years	97	25.2
	51+ years	51	13.2
Education Level	No formal/Primary	42	10.9
	Secondary (Matric/Inter)	104	27.0
	Undergraduate (BA/BSc)	156	40.5
	Postgraduate (MA/PhD)	83	21.6

Note. Proportions reflect stratified allocation across tehsils of Lahore based on 2017 Census population data.

Figure 1: Graphical View of Demographic Profile of Survey Respondents from Lahore, Pakistan



Instruments and Measures

Digital Misinformation Exposure Scale (DMES). An adapted 12 item scale based on Pennycook et al. (2018) and contextualized to Pakistani political content measured how often people were exposed to the identified political misinformation on social media (1 = Never to 5 = Very frequently). Products contained misleading electoral assertions, counterfeit government policy provisions, and inaccurate political pictures. Cronbach alpha of the present sample = 0.88.

Social Media Intensity Scale (SMIS). A modified 10-item version of the Facebook Intensity Scale developed by Ellison et al. (2007) but tailored to the Pakistani context (including all the large Pakistani social media platforms; Facebook, YouTube, WhatsApp, Twitter/X, Tik Tok). Products evaluated by time and commitment on each platform. Alpha = 0.84.

Media literacy assessment tool (MLAT). A 15-item scale assessing the skills of source evaluation, critical evaluation of digital information, awareness of media economics and motivation, and behaviors related to digital verification adapted to the Pakistani setting by Jones-Jang et al. (2021). Alpha = 0.86.

Political Interest Scale (PIS). A 6-item Likert scale of the dimension of dispositional interest in political activities at the local, provincial, national and international levels (Delli Carpini & Keeter, 1996). Alpha = 0.82.

Political Awareness Index (PAI). A 20 item factual knowledge test evaluating awareness on the form of government in Pakistan, major constitutional provisions, incumbent political leaders, recent legislative issues and foreign policy standpoints. Before administration, items were checked by a panel of three academicians of political science based at the University of the Punjab. The scoring was done out of 0-20, whereby the score of 20 meant more political awareness. Mean PAI = 11.3 (SD = 3.8).

Procedure and Ethical Considerations

The data were gathered during the 10 weeks (March-May 2024) by a group of eight trained field researchers who could speak both Urdu and Punjabi. In order to accommodate the respondents with low levels of reading skills, questionnaires were conducted face-to-face structured interviews in the Urdu (Pakistani national language). All the participants were informed and gave informed consent before the administration, and assured anonymity and the right to withdraw without consequences. The filled questionnaires were given numerical codes and were kept in close cabinet rooms; the data in electronic form was password coded and only the principal investigator could view them.

Analytical Plan

All the analyses were done using the IBM SPSS v.26 and the PROCESS macro of Hayes version 4.0. Initial analyses were descriptive statistics, reliability test, normality test (Shapiro-Wilk), and test of assumptions (linearity, homoscedasticity, multicollinearity through VIF). Pearson bivariate correlations were determined between all the study variables. Hierarchical multiple regression was used to test the predictors of political awareness in three steps of the model. Moderation analysis, (PROCESS Model 1) was used to test the null hypothesis, which was that social media use moderated the relationship between misinformation and awareness. The moderated mediation analysis (PROCESS Model 14) investigated whether the media literacy mediated the direct relationship

between the exposure of misinformation and political awareness. The bootstrapped confidence intervals were all grounded on 5,000 resamples.

Data Analysis and Findings

The results of data screening were that 13 questionnaires possessed too much missing data (> 20% item non-response) and were not used resulting in N = 385 to be used. The analysis of Mahalanobis distance was used to detect 7 multivariate outliers (critical chi-square = 20.52, df = 5, $p < 0.001$) that were eliminated to produce the final analytic sample of N = 385 following replacement using stratified sampling protocol. All variables met normality satisfactorily after cleaning up (Shapiro-Wilk $p > .05$). The values of VIF were between 1.08 and 2.71, which prove the lack of multicollinearity. Table 2 contains descriptive statistics and estimates of reliability.

Table 2: Descriptive Statistics, Reliability, and Normality Tests for Study Variables (N = 385)

Variable	M	SD	Min	Max	Alpha	S-W p
Misinformation Exposure (DMES)	38.4	9.7	12	60	.88	.07
Social Media Usage (SMIS)	32.1	7.4	10	50	.84	.09
Media Literacy (MLAT)	44.6	10.2	15	75	.86	.11
Political Interest (PIS)	18.9	4.8	6	30	.82	.06
Political Awareness (PAI)	11.3	3.8	2	20	--	.08

Note. DMES range 12–60; SMIS range 10–50; MLAT range 15–75; PIS range 6–30; PAI range 0–20 (objective knowledge test, no alpha reported). S-W p = Shapiro-Wilk p-value; all $p > .05$ indicating satisfactory normality.

The average PAI of 11.3/20 (56.5%) demonstrates that the sample in Lahore has a moderate political awareness. There was a significant difference in PAI scores by education level, with respondents who had no formal or primary education having the lowest average of 7.2 (SD = 2.4), secondary-educated respondents having the highest average of 15.3 (SD = 2.9), and undergraduates and postgraduates having means of 12.8 (SD = 3.4) and 10.1 (SD = 3.1), respectively. These differences by level of education were statistically significant ($F(3, 381) = 87.43$, $p < .001$, eta- sq=.41) and this supported expectations of education-awareness gradient. The average score of misinformation exposure was significantly high (M = 38.4 out of 12-60, which corresponds to 71.7% of the maximum), which shows that Lahore citizens were exposed to political misinformation to a large extent.

Bivariate Correlation Analysis

The Pearson bivariate correlation matrix is the table 3. Misinformation exposure ($r = -.51$, $p < .001$), media literacy ($r = .49$, $p < .001$), and political interest ($r = .44$, $p < .001$) were negatively and positively correlated with political awareness respectively. The use of social media was weakly negatively correlated with political awareness ($r = -.18$, $p < .001$), which aligns with the hypothesis that increased social media use correlates with more exposure to misinformation and less accurate increases in the level of political knowledge. The exposure to misinformation was found to be correlated with lower media literacy ($r = -.42$, $p < .001$) in favour of the hypothesis that the media literacy is correlated with a lower susceptibility to misinformation exposure. The social media use was positively related to the political interest ($r = .29$, $p < .001$) in line with motivated information-seeking by politically interested individuals.

Table 3: Pearson Correlation Matrix for Study Variables (N = 385)

Variable	1	2	3	4	5
1. Misinfo Exposure	-				
2. SM Usage	0.37***	-			
3. Media Literacy	-0.42***	-0.16**	-		
4. Political Interest	-0.08	0.29***	0.33***	-	
5. Political Awareness	-0.51***	-0.18***	0.49***	0.44***	-

Note. ** p < .01, *** p < .001 (two-tailed). SM = Social Media.

Hierarchical Multiple Regression Analysis

Hierarchical multiple regression was used to analyze the independent as well as joint contribution of the four predictor variables in political awareness. The demographic controls (age, gender, education) were typed in Step 1; exposure to misinformation in Step 2; and social media in Step 2 and media literacy and political interest in Step 3. Table 4 gives the results.

Table 4: Hierarchical Multiple Regression: Predictors of Political Awareness (N = 385)

Predictor	B	SE	beta	t	p	R^2	Delta R^2
Step 1: Demographic Controls						.22	—
Age	0.14	0.04	0.18	3.50	< 0.001		
Gender	-0.31	0.21	-0.07	-1.48	0.140		
Education	0.61	0.09	0.36	6.78	< 0.001		
Step 2: Misinformation & SM						0.44	0.22***
Misinfo Exposure	-0.18	0.02	-0.46	-9.00	< 0.001		
SM Usage	-0.07	0.03	-0.13	-2.33	0.020		
Step 3: Literacy & Interest						0.61	0.17***
Media Literacy	0.14	0.02	0.36	7.00	< 0.001		
Political Interest	0.30	0.04	0.38	7.50	< 0.001		

Note. *** p < .001. B = unstandardized coefficient; SE = standard error; beta = standardized coefficient; SM = Social Media. All predictors mean-centered. Final model F(7, 377) = 84.2, p < .001.

The hierarchical model with three steps presented an overall R2 =.61, F(7, 377) =84.2, p<.001, which means that 61 percent of the variance in political awareness was explained by the model. Step 1: Demographic controls were the biggest source of variance with 22% explaining variance, followed by education as the strongest demographic predictor (beta =.36). Integration of misinformation exposure and social media use in Step 2 accounted for a substantial extra 22% of variance (Delta R 2 =.22, p =.001). The exposure to misinformation was found to be the most powerful predictor in the complete model(beta = -.46), which validates its dominant negative influence. Another 17% of variance (Delta R2 =.17, p <.001) was explained by the addition of media literacy and political interest in Step 3, with both of them becoming significant positive predictors (betas =.36 and.38 respectively).

Moderation Analysis: Usage of Social Media as a Moderator

Model 1 of the PROCESS involved testing whether exposure to misinformation acted as an intermediate variable to determine the relation between exposure to misinformation and political awareness mediated by the use of social media. The interaction of misinformation x social media usage was a significant predictor of political awareness (b = -.006, SE =.002, p =. 003), which supports the existence of significant moderation. Simple slope analysis showed that the negative relationship between exposure to misinformation and political awareness was higher among heavy social media users (+1 SD: b = -.21, SE =.03, p <.001) than among light social media users (-1 SD: b = -.14, SE =.03, p <.001). The following findings, as reported in Table 5, show that the negative influence of misinformation exposure is more pronounced by social media use, in line with the hypothesis that high users of the social media social media are exposed to higher level of misinformation which when taken together deteriorate accurate political knowledge.

Table 5*: *Simple Slopes: Misinformation Exposure on Political Awareness at Levels of Social Media Usage

SM Usage Level	b (slope)	SE	t	P	95% CI
Low SM (-1 SD = 24.7)	-0.14	0.03	-4.67	< 0.001	[-0.20, -0.08]
Mean SM (32.1)	-0.18	0.02	-9.00	< 0.001	[-0.22, -0.14]
High SM (+1 SD = 39.5)	-0.21	0.03	-7.00	< 0.001	[-0.27, -0.15]

Note. SM = Social Media Usage. Interaction term: b = -0.006, SE = 0.002, p = 0.003. Bootstrapped CIs based on 5,000 resamples.

Moderation Analysis: Media Literacy as Protective Buffer

Re-running of PROCESS Model 1 was done with media literacy as the moderator of misinformation-awareness association. The interaction term between misinformation x and media literacy was important (b =.005, SE=. 001, p=.001) which showed that the media literacy buffered the effect of misinformation. The analysis of simple slopes (Table 6) brought out a very interesting tendency: with low media literacy (-1 SD), the influence of misinformation had a strong negative effect on political awareness (b = -.24, p <.001); with high media literacy, however, the effect was greatly toned down to near non-significance (b = -.09, p =.04). This trend authenticates the hypothesized protective buffering effect of media literacy, and it is seen that the most media-literate Lahore citizens are significantly more buffered against the political knowledge loss that comes with the intensive exposure to misinformation.

Table 6*: *Simple Slopes: Misinformation Exposure on Political Awareness at Levels of Media Literacy

Media Literacy Level	b (slope)	SE	t	p	95% CI
Low Literacy (-1 SD = 34.4)	-0.24	0.03	-8.00	< 0.001	[-0.30, -0.18]
Mean Literacy (44.6)	-0.18	0.02	-9.00	< 0.001	[-0.22, -0.14]
High Literacy (+1 SD = 54.8)	-0.09	0.04	-2.25	0.040	[-0.17, -0.01]

Note. Interaction term: b = 0.005, SE = 0.001, p < 0.001. At high media literacy, the misinformation-awareness slope is substantially attenuated.

Political Awareness Differences by Tehsil and Demographic Group

One-way ANOVA analysis showed that there was a significant difference in the mean political awareness scores in the six tehsils of Lahore ($F(5, 379) = 11.34$, $p < .001$, eta- sq =.13). The highest PAI scores were obtained by Model Town and Lahore Cantonment residents ($M = 13.4$ and 13.1 respectively) and the lowest by Raiwind and Nishtar residents ($M = 9.2$ and 9.6 respectively), the highest and lowest groups of which were characterized by higher education. The significant differences between the pair of models confirmed by the post-hoc Tukey tests included Model Town versus both Raiwind ($p < .001$) and Nishtar ($p < .001$). An independent-samples t-test indicated that males scored significantly higher than females on the PAI ($M = 12.1$ vs. $M = 10.3$, $t(383) = 4.64$, $p < .001$, $d = 0.48$), gender difference that was not erased but significantly reduced when education was pinned in ANCOVA analysis ($F(1, 381) = 6.88$, $p = .009$).

Table 7: Mean Political Awareness Index (PAI) Scores by Tehsil and Gender (N = 385)

Tehsil	Overall M (SD)	Male M	Female M	n
Model Town	13.4 (3.1)	14.2	12.4	71
Lahore Cantonment	13.1 (3.3)	13.8	12.2	64
Lahore City	11.8 (3.7)	12.4	11.1	86
Shalimar	11.2 (3.9)	11.9	10.4	57
Nishtar	9.6 (4.1)	10.1	9.0	46
Raiwind	9.2 (3.8)	9.7	8.6	61
Total Sample	11.3 (3.8)	12.1	10.3	385

Note. PAI range 0–20. ANOVA: $F(5, 379) = 11.34$, $p < .001$, eta-sq = .13. Gender t-test: $t(383) = 4.64$, $p < .001$, $d = 0.48$.

Discussion

The results of this research give strong empirical data that digital misinformation is a substantively meaningful and strong depressor of political awareness in the citizens in Lahore, Pakistan. The most striking result of the study the exposure to misinformation was the most predictive factor (beta = -.46) of political awareness in the entire regression model, as opposed to education, is a sobering account of the potency of the misinformation effect on political cognition in the Pakistani urban environment. This result is consistent with, and indicates that the misinformation-awareness correlation is not only a characteristic of highly literated, media-saturated democracies but also acts with an equivalent or stronger strength in a fast-digitizing developing democracy with a relatively weaker institutional fact-checking system and with relatively lower baseline digital literacy. The theoretical predictions can be conceptualized as the mediation of this effect occurring through the illusion of truth mechanism, through which successive exposure to false political assertions gradually diminishes the quality of political knowledge structures, which directly predicts the urgency of the misinformation counter-measures in Pakistan (Pennycook et al., 2018; Hussain & Siraj, 2020).

The moderation results contribute to the study on theoretically important aspects. The fact that the use of social media enhances the detrimental effect of misinformation on political awareness with the misinformation-awareness slope being much steeper among frequent participants in the social media confirms the synergistic but not merely additive nature of the relationship between the two variables. The reason is that social media users who are heavy users are not just exposed to more political

material, but they are also exposed to a higher amount of misinformation, and finally, the most active users of WhatsApp, groups are the most common source of political information content, among the citizens of Lahore. The opposing view provided by the protective moderating role of media literacy, however, is more positive: the fact that the misinformation-awareness relationship was smaller among highly media-literate respondents than among low-literate ones by about 63 percent, shows that media literacy is not just a correlate of awareness but a buffering process with a significant buffering power. This result gives empirical support directly to investment in media literacy education as a misinformation counter-intervention in Pakistan, to supplement and expand the experimental data of the inoculation studies that have been done in the Western context (Roozenbeek et al., 2020; Jones-Jang et al., 2021). A correspondingly high difference between the levels of political awareness at tehsil level further makes it clear why the media literacy interventions are to be directed at the underserved region like Raiwind and Nishtar where the levels of political awareness are significantly lower than the well-to-do tehsils of Model Town and Cantonment.

The current study brought out the existence of the gender gap in political awareness ($d = 0.48$), which deserves particular attention by the researchers and policymakers. Although it is partially attributed to the differences in the education attainment, the continued existence of a substantial gender gap despite the educational controls is also indicative of other processes at work that could be, but not necessarily is, the role of gendered differences in political socialization, differences in the access to the political discussion network, differences in exposure to civic education, in the explanation of the lower political awareness scores of women in Lahore. These results suggest that the main priorities in narrowing the gender gap in political information access among women in Pakistan should include female-oriented media literacy campaigns and community-based political education (Amin & Ishtiaq, 2019; Fatima et al., 2022).

Conclusions and Recommendations

The paper has presented to date the most detailed empirical investigation of the role of digital misinformation on political awareness in Lahore, Pakistan, combining the studies of misinformation exposure, social media use, media literacy, political interest in one comprehensive theoretical and analytical framework. The fundamental conclusion that digital misinformation is a strong and statistically significant negative predictor of political awareness, to give it distinctive variance beyond and above education and demographic variables confirms the misinformation-awareness correlation as a primary empirical issue to Pakistani democracy. The fact that the model explains 61% of the variance in political awareness, of which the misinformation and its moderators explain 39% of the variance that could not be explained by demographic factors, highlights the substantive importance of problem in misinformation in determining the political knowledge of the citizen. The research also enhances the body of literature by showing that the use of social media would increase the adverse impact of misinformation whereas media literacy would mitigate them significantly and gives a risk factor profile alongside a protective factor profile with direct intervention implications in the digital information governance issues in Pakistan.

The research findings reveal the following recommendations to the government, the civil society, educational institutions, and the media houses in Pakistan. One of the priorities of the Government of Pakistan and the Pakistan Telecommunication Authority is the creation of a national digital literacy policy that would incorporate media literacy education in at all levels of school and university

education, with special focus on teaching students how to evaluate sources, detect fake information, and share information responsibly on the social media. Since it has been discovered that media literacy is a significant way to mitigate the effects of misinformation on political awareness, this investment should be regarded as a democratic health intervention and not just an educational goal. The Federal Ministry of Information and Broadcasting ought to create a transparent and legally-based system of accountability regarding social media platforms in which the platforms running in Pakistan would be required to disclose algorithmic amplification and implement misinformation suppression systems without infringing freedom of expression- a compromise that a number of similar democracies are already in the process of doing with the help of emergent digital governance systems. Civil society organizations, especially operating in lower-income tehsils like the Raiwind and Nishtar where political awareness scores are lowest, ought to create community-based media literacy interventions to be disseminated in Urdu and Punjabi, and respond to the particular misinformation narratives propagated in the political WhatsApp groups in Lahore. The gender gap results of the study specifically point to women-oriented political education and digital literacy programs. The results of the current study should be expanded by academic researchers, using longitudinal designs, which can prove the temporal precedence of the most significant variables of the study, cross-city studies that will identify the relevance of the Lahore-specific results to the situation in other large urban centers in Pakistan, and experimental studies that will strictly evaluate the effectiveness of individual media literacy interventions in the reduction of misinformation acceptance and increasing the level of political awareness in the Pakistani context.

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