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Education, Trust, and Taboo: How Sociocultural Barriers and Professional Backgrounds Shape Engagement with Digital Breast Cancer Messaging in Islamabad and Rawalpindi

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Abstract

This study examines how sociocultural barriers and professional backgrounds influence engagement with digital breast cancer awareness messaging among urban populations in Islamabad and Rawalpindi, Pakistan. Despite the proliferation of digital health campaigns, significant gaps persist between message exposure and meaningful health behavior change, particularly in contexts where stigma, educational disparities, and trust deficits intersect. Drawing on in-depth qualitative interviews with 40 participants from diverse educational and professional backgrounds ranging from undergraduate students to PhD candidates and healthcare professionals alongside content analysis of digital campaigns from 2022 to 2025, this research investigates how educational attainment, professional expertise, and cultural taboos mediate the reception, interpretation, and credibility assessment of breast cancer awareness messages. Findings reveal that while higher education and medical training facilitate critical engagement with campaign content, cultural taboos and gendered communication norms persistently constrain open dialogue, particularly in family settings. Trust in campaign messages is heavily contingent on institutional credibility, with government-affiliated and established NGO campaigns perceived as more reliable than influencer-driven content. However, even among highly educated groups, stigma and embarrassment create significant barriers to translating awareness into screening behavior. The study further identifies critical gaps in campaign inclusivity, including limited regional language accessibility, absence of male engagement, and lack of year-round visibility. These findings underscore the necessity of culturally attuned, multi-platform, and educationally differentiated health communication strategies that address both knowledge deficits and sociocultural constraints to foster meaningful public health engagement.

Keywords: *Breast Cancer Awareness, Digital Health Communication, Socio-Cultural Barriers, Education, Trust, Stigma, Pakistan, Health Engagement*

1. Introduction

The digital transformation of public health communication has created unprecedented opportunities for disseminating health information across diverse populations. In Pakistan, where breast cancer constitutes a critical public health crisis with one in nine women developing the disease during her lifetime and approximately 40,000 annual deaths, digital platforms have emerged as primary vehicles for awareness campaigns. Organizations including Pink Ribbon Pakistan, Shaukat Khanum Memorial Cancer Hospital and Research Centre, and government health departments increasingly utilize Instagram, YouTube, Facebook, WhatsApp, and Twitter to share educational content, survivor narratives, and screening reminders, particularly during Breast Cancer Awareness Month in October. However, the effectiveness of these digital campaigns is not determined solely by their reach or production quality. Rather, meaningful engagement depends on how diverse audiences shaped by varying educational backgrounds,

professional expertise, and cultural orientations interpret, trust, and act upon the messages they encounter.

In the Pakistani context, where breast cancer discourse remains entangled with cultural taboos, modesty norms, and gendered communication barriers, understanding the interplay between sociocultural factors and audience characteristics becomes essential for designing effective health interventions. This study addresses a critical gap in the existing literature by examining how educational and professional backgrounds intersect with sociocultural barriers to shape engagement with digital breast cancer awareness messaging in Islamabad and Rawalpindi. While prior research has documented general awareness levels, health literacy deficits, and institutional obstacles, limited empirical attention has been paid to how specific educational and professional characteristics influence the reception, credibility assessment, and behavioral translation of digital health messages. Furthermore, the dynamic interaction between cultural taboos particularly shame, modesty, stigma and educational attainment in mediating health communication outcomes remains under-explored in the Pakistani urban context.

From an anthropological perspective, this research contributes to understanding health communication as a culturally embedded process wherein messages are not passively accepted but actively interpreted, negotiated, or resisted based on individual knowledge frameworks, social positioning, and cultural values. In a rapidly digitizing society like Pakistan, where health communication increasingly occurs through screens, understanding how education and cultural norms jointly shape engagement is both timely and necessary for developing effective, equitable, and inclusive public health strategies. The study is guided by two interconnected objectives: first, to investigate how various educational and professional groups understand and are influenced by breast cancer awareness messages disseminated through digital media; and second, to study the sociocultural and technological issues that affect how well these messages are communicated and trusted. By mapping the intersection of educational stratification, professional background, and sociocultural barriers, this research aims to provide actionable insights for health communication practitioners, policymakers, and NGOs seeking to design more effective, culturally sensitive, and accessible digital health campaigns in Pakistan.

2. Literature Review

Breast cancer constitutes a major public health crisis in Pakistan, with incidence and mortality rates among the highest in Asia. The disease accounts for approximately one-third of all female cancers, and Pakistan reports some of the highest breast cancer mortality rates in the region. Despite these alarming statistics, awareness levels remain critically low, and diagnoses frequently occur at advanced stages, significantly reducing treatment efficacy and overall survival. Cultural values, stigma, and gender norms significantly impede early detection and care-seeking behaviors. Qualitative research among breast cancer patients in Punjab revealed multi-layered sociocultural barriers, including fear of societal judgment, cultural modesty expectations, reliance on traditional or spiritual remedies, and reluctance to consult male healthcare practitioners. These barriers frequently result in delayed diagnosis, with 89% of women in one study diagnosed at late stages and nearly 60% presenting with advanced disease. A northern Pakistani study of 315 breast cancer patients found that 39% had delayed symptom presentation, 40.7% first consulted alternative practitioners, and 10.6% cited shyness as a reason for not seeking professional treatment. Socioeconomic status and healthcare infrastructure constraints further compound these challenges, with research finding that 88.8% of breast cancer patients at a Karachi tertiary care hospital delayed medical attention for over three months, with delay significantly correlated with lower educational attainment and economic status. Mammography

and clinical care remain inaccessible, particularly in peri-urban settings, while initial healthcare encounters frequently involve substandard care, discouraging early consultation.

Educational background is a critical determinant of health awareness, information processing, and health-seeking behavior. Quantitative studies reveal substantial gaps in symptom consciousness and preventive behavior across educational strata. A large survey of 1,155 women in Lahore educational institutions found that only 27% demonstrated "good" knowledge of breast cancer, and only 59% had "fair" knowledge, despite 83.7% being under 30 years old and 60% having more than ten years of education. Television was the most frequently cited information source, but it correlated with lower knowledge rates compared to formal educational campaigns. A study of 381 medical and non-medical undergraduate students in Karachi reported that although 97% knew about breast cancer, only 65.4% were aware of its high prevalence in Pakistan. While 78% were aware of breast self-examination, only 43.8% knew how to perform it correctly, and a mere 24.9% practiced breast self-examination regularly. Notably, 44.4% cited social media as an information source, indicating the growing influence of digital platforms. In Islamabad, a cross-sectional survey of 1,000 female students revealed that while 67.5% were aware of breast cancer, knowledge of screening behaviors was alarmingly low: only 12.7% knew when to begin mammograms, 22.6% understood screening intervals, and just 33.2% knew where screening centers were located. This discrepancy between general awareness and actionable knowledge underscores that education alone does not guarantee health literacy without targeted, comprehensible messaging.

Professional background significantly influences how individuals engage with health information. Healthcare professionals and medical students demonstrate different patterns of information processing and credibility assessment compared to non-medical audiences. Research among medical students at King Edward Medical University indicated that even with prolonged medical education, help-seeking barriers remained significant, with embarrassment, fear of judgment, anxiety, and perceptions that accessing care would be shameful commonly reported as hindrances, suggesting that professional knowledge does not automatically overcome sociocultural constraints. Conversely, a quasi-experimental intervention among Karachi pharmacy students demonstrated the effectiveness of digital tools, with lectures and video tutorials disseminated through institutional WhatsApp groups and social media significantly enhancing breast cancer knowledge from approximately 51% to 96.7%, recognition of breast self-examination technique increasing to 94.8%, and screening intent reaching 94.9%. These findings highlight how organized digital content can bridge knowledge gaps among professional groups. Research utilizing Innovation Diffusion Theory and structural equation modeling identified that more educated and younger health professionals were better positioned to utilize platforms such as Facebook and WhatsApp for public health education dissemination, with their online content infographics, local campaign news, and telehealth sessions aiding in bringing credibility to institutional information through peer networks.

Gender is a central factor in constructing health communication, particularly in contexts like Pakistan where both access to health information and health-seeking behaviors are conditioned by sociocultural norms. Evidence indicates that breast cancer awareness campaign effectiveness is commonly mediated by the extent to which they respond to gendered health requirements, beliefs, and communication patterns. Women in patriarchal cultures face additional barriers due to cultural taboos, reduced literacy, and limited digital autonomy. Gendered modesty norms and stigma associated with women's health restrict women from engaging with online breast health content. A study conducted at tertiary care facilities in Rawalpindi found that while 86% of women believed new breast lumps should be evaluated by doctors, only 63% correctly

understood mammography as a diagnostic tool, and 36.6% were non-compliant with screening recommendations. Educational status and occupation were both highly correlated with compliance, suggesting that socioeconomic and educational factors relate to trust and comprehension of clinical advice. In Peshawar, interviews with breast cancer survivors revealed that women initially consulted spiritual healers or homeopaths, and campaign messages perceived as orthodox, oriented toward surgery, medical terminology, or clinical staging seemed foreign and inappropriate in immediate environments. Patients reported greater trust in dialogue with female caregivers or community members than in official communication channels, even from well-established institutions. An Islamabad and Rawalpindi trial of female educators illustrated the strength and limits of education: prior to intervention, only 59% had previously been able to conduct a proper breast self-examination, yet post-intervention, 98% could describe the method, and 85% considered mammography essential. Nevertheless, participants consistently pointed out that previous campaign messages had not been culturally sensitive and had employed strict English medical terminology instead of plain Urdu, lowering initial response.

Trust is a foundational element in health communication effectiveness. Research indicates that although breast cancer campaigns online in Pakistan tend to reach large audiences, the credibility and relevance of such campaigns in the public eye are heavily determined by source and individual context. A cross-sectional survey in Punjab evaluated knowledge, attitude, and perception among 796 women aged 20-60, revealing that while 65.7% acknowledged age as a risk factor, only 59.2% saw mammography as effective, and most respondents observed that education level and family income dramatically influenced credibility impressions, with higher socioeconomic status correlating with greater confidence in official campaigns. Source credibility research on social media indicates that credibility is judged based on perceived expertise of the account, ratio of followers to following, and visual design features, with Pakistani users viewing content from established medical institutions and reputable NGOs as more credible than from unfamiliar or personal accounts. Pakistani health professionals' qualitative interviews regarding hereditary breast cancer communication found intense patient mistrust, with providers reporting patients' resistance to genetic counseling and family history data, frequently dreading stigma or questioning information validity. Findings from a study examining Pakistani women's social media usage of breast cancer information, based on the Comprehensive Model of Information Seeking, indicated that anonymity allowed for increased message credibility among women managing stigma, yet participants suggested that credibility depended on extrinsic cues such as association with esteemed NGOs or hospitals and presence of survivor stories.

Intersectionality accounting for the additive effects of gender, class, age, and geography is crucial to developing inclusive campaigns. According to research, urban-biased breast cancer campaigns do not resonate with rural women due to linguistic, visual, and socioeconomic factors, with online messaging in English or Urdu excluding substantial female populations, especially those speaking regional languages such as Punjabi or Pashto. Gender expectations significantly affect what women think about illness and whether they access care, with qualitative research finding that women tend to overlook initial symptoms due to fear of social exclusion and stigmatization, a fear that increases when online content adopts shocking images or fear-mongering messages. Despite challenges, online campaigns can empower women if developed using a gender-sensitive perspective, with social media campaigns incorporating survivor testimonies and culturally relevant content generating increased engagement rates, particularly among young women, thereby destigmatizing the disease and encouraging self-examination practices.

This study draws on two complementary theoretical frameworks: Critical Discourse Analysis as developed by Norman Fairclough and Teun van Dijk, and intersectionality as articulated by Kimberlé Crenshaw. Critical Discourse Analysis provides tools for examining how language, power, and society interact, revealing how discourses represent and produce social realities. In digital breast cancer campaigns, Critical Discourse Analysis helps uncover taken-for-granted assumptions, normative expectations, and power relations embedded in messages. For example, campaigns urging women to "be strong and get screened" may appear liberating but may quietly impose gendered moral duties without addressing structural barriers to access. Critical Discourse Analysis allows analysis of lexical choices, visual imagery, and narrative streams in which broader ideological structures neoliberal health responsibility, biomedical hegemony, or patriarchal accounts of women's bodies are reproduced. Intersectionality provides a framework for understanding how multiple social identities education, gender, class, age, and geography intersect to create unique experiences of health communication. This lens is particularly relevant in the Pakistani context where educational attainment, professional background, cultural taboos, and gendered norms interact to shape health engagement in complex, non-linear ways. By applying these frameworks, the study examines how participants reproduce or challenge dominant discourses, what discursive themes they affirm, what vocabulary they employ, and how they confront assumptions inherent in campaign messages.

3. Problem Statement

In contemporary Pakistan, digital platforms have become primary vehicles for disseminating breast cancer awareness messages, with government bodies, NGOs, and healthcare institutions actively utilizing social media, websites, and mobile technologies to reach diverse populations. However, despite the proliferation of these digital campaigns and the increasing prevalence of breast cancer with Pakistan reporting some of the highest incidence and mortality rates in Asia awareness levels remain critically low, and diagnoses continue to occur at advanced stages. This persistent gap between message dissemination and health behavior change raises fundamental questions about the effectiveness of current digital health communication strategies. While prior research has documented general awareness levels, health literacy deficits, and institutional barriers, limited empirical attention has been paid to how specific audience characteristics particularly educational background and professional expertise intersect with sociocultural barriers to shape engagement with digital breast cancer messaging. Furthermore, the existing body of work tends to address audiences as passive recipients of information rather than active interpreters who filter messages through individual beliefs, educational frameworks, emotional states, and cultural contexts. The dynamic interaction among educational attainment, professional training, cultural taboos including shame, modesty, and stigma, and trust in digital health messages remains under-investigated in the Pakistani urban context. This is particularly significant in Islamabad and Rawalpindi, where high literacy rates, digital connectivity, and diverse professional populations coexist with persistent cultural norms that constrain open breast health discourse. There is also a notable gap in understanding how different educational and professional groups ranging from undergraduate students to PhD candidates and healthcare professionals critically engage with, assess credibility of, and translate digital awareness messages into health behaviors. Without this differentiated understanding, health campaigns risk employing one-size-fits-all approaches that fail to address the specific needs, concerns, and barriers of diverse audience segments. Therefore, this study addresses the following research problem: How do educational backgrounds and professional expertise interact with sociocultural barriers including stigma, cultural taboos, and gendered communication norms to shape

engagement with, trust in, and behavioral translation of digital breast cancer awareness messages among urban populations in Islamabad and Rawalpindi?

4. Research Objectives

- To investigate how various educational and professional groups understand and are influenced by breast cancer awareness messages spread through digital media.
- To study the sociocultural and technological issues that affect how well breast cancer awareness messages are conveyed and believed.

6. Methodology

This study is grounded in the interpretivist paradigm, which emphasizes that reality is socially constructed and interpreted through shared meanings and experiences. This paradigm is appropriate for investigating how individuals from diverse educational and professional backgrounds subjectively interpret, emotionally respond to, and engage with breast cancer awareness messages, allowing exploration of how cultural norms, educational frameworks, and professional expertise shape the reception and credibility assessment of public health campaigns. The research employs a qualitative exploratory design to investigate the character of public engagement with digital breast cancer awareness campaigns across educational and professional strata, providing flexibility and responsiveness to emerging insights during the research process. While primarily qualitative, the study incorporates supporting quantitative data from secondary sources, including annual breast cancer incidence statistics from Shaukat Khanum Memorial Cancer Hospital, the World Health Organization, and Pink Ribbon Pakistan, for contextual richness.

Forty female respondents were chosen using purposive sampling to ensure diversity across educational levels and professional backgrounds. All participants reside in Islamabad and Rawalpindi, are between the ages of 20 and 30, and hold or are pursuing undergraduate, MPhil, or PhD degrees across diverse disciplines. Participants are regular users of digital platforms. This population was selected due to their propensity to access digital health information, their capacity to offer rich elaborations of meaning, and the diversity of their educational and professional backgrounds. The participant distribution by education level includes 29 undergraduate students, 8 master's students, and 3 PhD candidates. By field of study, 12 participants are from medical and health sciences, 11 from social sciences, 7 from business and management, and 10 from natural sciences.

In-depth semi-structured interviews were conducted in person at universities, workplaces, and public cafes in Islamabad and Rawalpindi, with the language of communication being English or Urdu depending on participant preference. Each interview lasted approximately 20 to 30 minutes. Informed consent was obtained from all participants before recording responses manually. Interview questions explored educational background and professional training, exposure to breast cancer awareness content on digital platforms, comprehension and interpretation of campaign messages, emotional responses to campaign content, trust and credibility assessment of different sources, cultural barriers to engagement and discussion, behavioral translation of awareness messages, and recommendations for improving campaign effectiveness. No audio recordings were made; the researcher recorded responses by hand to maintain accuracy and clarity, and data were anonymized to ensure privacy.

Digital content was collected and analyzed from major social media platforms, including Instagram, YouTube, Twitter, and TikTok. Content was selected from official pages including Pink Pakistan Trust, Pink Ribbon Pakistan, Shaukat Khanum Memorial Cancer Hospital, Rozan, and government verified handles. Campaigns from Breast Cancer Awareness Month October 2022 to

2025, as well as thematic posts disseminated throughout the year, were analyzed for language, visual approach, tone, framing, and public engagement patterns.

Data from interviews and online content were analyzed using thematic analysis and critical discourse analysis approaches. Thematic analysis began with repeated readings of handwritten interview notes to familiarize with the data, followed by coding key points and recurring ideas, which were grouped into overarching themes including educational background and comprehension, professional training and critical evaluation, trust and credibility assessment, cultural barriers, gendered communication patterns, language and accessibility constraints, behavioral translation, and participant recommendations. Critical Discourse Analysis was applied to examine campaign language, visuals, and narrative structures to understand how power relations, normative assumptions, and ideological positions are embedded in digital health messages, involving analysis of lexical choices, visual imagery, narrative streams, and the representation of gender, education, and cultural values.

To ensure findings are reliable and valid, data collected from interviews were triangulated against social media content to ensure consistency across perspectives. Member checking was conducted by asking selected participants to review interpretations of their responses for accuracy. The researcher maintained a reflexive diary throughout the research process, recording personal thoughts, feelings, and potential biases that might influence data interpretation.

This research followed all ethical guidelines set by the Department of Anthropology at Quaid-i-Azam University. Ethical approval was obtained prior to commencing research. Participants were fully informed about the research purpose, how their responses would be used, and their right to withdraw at any time. Informed consent was obtained before recording responses. Participant names were replaced with pseudonyms to protect privacy. All written records were stored securely. Online materials were sourced exclusively from public pages, with all sources clearly cited.

The study was conducted exclusively in Islamabad and Rawalpindi, limiting generalizability to rural areas or smaller cities. Only educated women who use digital media were included. Interview data rely on self-reporting, introducing potential social desirability bias. The demographic focus on students and young professionals aged 20 to 30 limits representation of older groups. Interviews were not audio-recorded, potentially losing emotional tones. Content analysis was limited to messages from 2022 to 2025.

Educational Background and Professional Training in Shaping Comprehension and Critical Engagement

Respondents across different educational levels demonstrated varying degrees of comprehension and critical engagement with digital breast cancer awareness content. Those with medical and health sciences backgrounds exhibited the highest levels of detailed understanding, often critically evaluating the accuracy of campaign information. A 24-year-old medical student explained that in her MBBS batch, they not only interpret the posts but also analyze them, seeing if the advice being offered is correct, and noted that she did not think an illiterate person would be able to do that. Medical students demonstrated ability to identify technical inaccuracies, question oversimplifications, and distinguish between evidence-based recommendations and generalized advice. They expressed confidence in discussing symptoms, interpreting medical terminology, and explaining screening procedures to others. This critical engagement contrasts sharply with participants from non-science backgrounds, who often accepted campaign messages at face value without critical evaluation, with a 22-year-old BBA

student admitting that she just reads what they write and believes it because it is from Shaukat Khanum, without questioning it.

Social sciences students demonstrated intermediate levels of comprehension, often applying their training in media analysis to deconstruct campaign framing and narrative strategies. Several sociology and psychology students noted how campaigns construct gendered expectations or employ emotional appeals strategically. A 23-year-old BS Sociology student observed that as a sociology student, she notices how these campaigns always show women in caring roles such as mothers and wives, suggesting that they are saying women should get screened for their families, not for themselves. This analytical perspective was unique to social sciences students, who applied critical frameworks to understand the social and cultural assumptions embedded in campaign messaging.

Professional background significantly shaped how respondents evaluated campaign credibility and content quality. Healthcare professionals and medical students applied clinical knowledge frameworks, while non-medical professionals relied more heavily on institutional reputation and visual cues. Medical respondents demonstrated sophisticated information evaluation skills, assessing campaign recommendations against clinical knowledge, identifying gaps in evidence, and recognizing when messages oversimplified complex medical information. Several MBBS students noted that while campaign messages are generally accurate, they often fail to provide sufficient nuance regarding risk factors, screening intervals, or treatment options. A 25-year-old MBBS student noted that sometimes the posts say women over 40 should get mammograms, but they do not explain that there are different recommendations for different risk groups such as family history and genetic factors, making the information correct but too general. Medical respondents also expressed greater confidence in persuading family members and peers to seek screening, often acting as informal health educators within their social networks.

Respondents from non-medical backgrounds demonstrated greater reliance on institutional credibility markers such as blue verification ticks, official logos, and association with reputable organizations. They rarely questioned campaign content critically, instead evaluating trustworthiness primarily through source signals. A 22-year-old business student explained that if it is from Shaukat Khanum's official page, she knows it is true because they have doctors and they know what they are saying. This reliance on institutional signaling suggests that non-medical audiences may be more vulnerable to misinformation from unverified sources but also more trusting of established health organizations. Respondents from social sciences and humanities backgrounds demonstrated unique patterns of engagement, often applying analytical frameworks to understand campaign construction and social implications. They were more likely to discuss the cultural assumptions embedded in campaign messages, the representation of gender roles, and the social implications of health communication strategies. A 24-year-old MS Psychology student questioned that while campaigns are well-intentioned, they always frame breast cancer as a women's issue that women must handle alone, asking where the men are in these pictures and why there is not more about family support.

Language accessibility emerged as a significant factor differentiating comprehension across educational groups. While most participants appreciated Urdu content, those with higher education expressed greater comfort with English medical terminology, while respondents with limited English proficiency preferred simplified Urdu explanations. A 23-year-old BS Sociology student explained that if the message is in simple Urdu or regional language, it is easier for people to understand, but if it is all only in Urdu, some people who are not familiar with Urdu may ignore it. Medical students expressed frustration with oversimplified explanations that omitted clinically relevant details, while non-medical students appreciated accessible language that avoided

intimidating medical terminology. A 22-year-old Psychology student noted that some reels were very clear, particularly those that used infographics or step-by-step images, but others included too much technical jargon such as malignant, biopsy, or lumpectomy, which not everybody understands. A key finding was that even highly educated respondents from non-medical backgrounds struggled with technical terminology, suggesting that health literacy is not automatically conferred by general education but requires specific medical knowledge.

Educational attainment correlated with greater likelihood of translating awareness into health behaviors, though significant gaps persisted even among highly educated groups. Medical students and healthcare professionals reported the highest rates of self-examination practice, screening attendance, and health discussions with family members. A 23-year-old MBBS student reported that after learning about breast cancer in their community health rotation, they started doing monthly self-exams and convinced their mother to get screened too. However, several highly educated non-medical respondents admitted they had never performed a self-examination or attended screening, despite awareness of its importance. This discrepancy between knowledge and action suggests that education alone does not guarantee behavioral change without additional motivational and structural supports. A 24-year-old PhD Sociology student confessed that although they know they should do self-exams, they keep forgetting or putting it off and do not really know if they are doing it correctly. This finding underscores the need for campaigns to provide not only information but also practical guidance, reminders, and accessible screening services to bridge the knowledge-behavior gap across educational levels.

Sociocultural Barriers Including Stigma, Gender Norms, and Trust Deficits

Despite the educational diversity of participants, cultural stigma surrounding breast cancer emerged as a universally significant barrier to open engagement. Respondents across all educational and professional backgrounds reported that discussing breast health remains taboo, particularly in family settings and with male relatives. A 25-year-old PhD student explained that while they can discuss breast cancer with friends or in university classes, nobody does in the house, and their mother believes that these things are not shareable topics. This stigma manifests in several ways: avoidance of breast health discussions, reluctance to seek screening for fear of judgment, discomfort with self-examination practices, and hesitation to share campaign content with family members. Even highly educated participants who were knowledgeable about breast cancer and its management reported cultural constraints on open discussion. A 22-year-old Psychology student explained that even if they read a useful video or message, they would not feel at ease showing it to their father or brother.

Several participants noted that stigma is particularly pronounced when discussing breast health with male family members, reflecting deeply embedded gendered communication norms. This gendered constraint significantly limits the reach and effectiveness of awareness campaigns within family networks. Gender expectations significantly affected how respondents engaged with breast cancer messaging and whether they shared information with others. Female participants reported reluctance to discuss breast health with male relatives such as fathers, brothers, and husbands, and often perceived that men were disinterested or dismissive of women's health issues. A 24-year-old MS Psychology student stated that her brother told her it is a woman's issue and that they do not have to speak about it so much, but in truth, men can also help raise awareness. Respondents noted that campaigns predominantly target women, excluding men from awareness efforts. This absence of male engagement reinforces the perception that breast cancer is exclusively a women's concern, limiting the potential for family-based health support and reducing opportunities for men to contribute to early detection through awareness and encouragement.

A participant remarked that awareness should not be only for women and that men should also raise their voice for this cause. However, some respondents noted that younger, more educated men in their social circles were increasingly open to discussions about women's health, suggesting generational shifts in gender norms. A 22-year-old BS Biotechnology student observed that their cousin brother is very supportive, shares awareness posts too, and tells his friends, while it is the older generation that is more conservative. This generational difference suggests potential for evolving gender norms that could facilitate more inclusive health communication in the future.

Modesty norms and embarrassment emerged as significant barriers to health engagement, particularly regarding self-examination practices and clinical screening. Several respondents acknowledged feeling uncomfortable performing self-examinations or discussing breast health even with female friends and healthcare providers. A 23-year-old BS Sociology student admitted that they do not talk about such private matters, even with their mother or sisters, because it feels shameful. This discomfort extends to clinical settings, where some respondents reported reluctance to seek screening due to embarrassment about breast examination, especially when male practitioners were involved. A 21-year-old BBA student explained that it is not easy to discuss such matters with a male doctor because they feel shy. Medical respondents acknowledged that patients frequently express modesty-related concerns, and they emphasized the importance of female healthcare providers for clinical breast examinations. A 24-year-old MBBS student noted that many patients prefer female doctors for breast exams and that more female practitioners are needed to make women feel comfortable.

Trust in campaign messages varied significantly based on institutional source. Respondents across educational levels expressed greater confidence in messages from established healthcare institutions and government bodies than from influencers, personal accounts, or unfamiliar NGOs. A 24-year-old MPhil student explained that if they look at something that has been shared by Shaukat Khanum or posted by a doctor, they trust it because they know it will have the right information. Government-affiliated campaigns were also perceived as credible, though some respondents expressed skepticism about government health communication due to perceived inefficiency or lack of follow-through. A 23-year-old BS Public Health student noted that while government pages are trusted more, sometimes government campaigns are just for show and do not really follow up. The presence of verification badges on Instagram and Twitter was cited as a trust indicator, with participants noting that verified accounts are perceived as legitimate and authoritative. This finding underscores the importance of institutional branding and platform verification in establishing campaign credibility.

Institutional credibility was particularly important for non-medical respondents who lacked the expertise to independently evaluate campaign content. However, even medical respondents expressed greater trust in institutional campaigns, suggesting that institutional affiliation enhances credibility across all educational groups. Language emerged as a critical barrier to engagement, particularly for participants with limited English proficiency. While Urdu-dominant campaigns were appreciated, several respondents noted that technical medical terminology even in Urdu translations remained difficult to understand. A participant commented that every year it is the same pink ribbon and slogans, and they want something new, something that talks about real life. Respondents recommended campaigns use simpler language, avoid medical jargon, and incorporate regional languages for broader accessibility. Visual aids such as infographics, diagrams, and animated videos were preferred for their ability to convey information without relying heavily on text comprehension. A 22-year-old Environmental

Sciences student commented that diagrams are helpful, and if the videos were slower and clearer, it would be easier to understand.

Cultural sensitivity was also important, with respondents noting that campaigns should respect cultural norms of modesty while still effectively communicating screening information. This balance was seen as crucial for reaching diverse audiences without alienating conservative community members. The absence of male engagement was identified as a significant campaign limitation across all educational groups. Breast cancer awareness was perceived as exclusively targeting women, excluding men from the conversation despite their potential roles as supportive family members, decision-makers, and awareness ambassadors. A 25-year-old MBA student emphasized that men need to understand that this is not just a women's issue, that they are part of the family too and should know how to support. Respondents noted that male family members often control household health decisions, particularly regarding healthcare spending, and without male awareness and support, women may face barriers to seeking screening due to financial constraints, transportation limitations, or lack of family encouragement. A 23-year-old BS Public Health student explained that in Pakistani culture, women often need their husband's or father's permission to go for checkups, and if men do not understand why screening is important, women cannot go. Participants recommended targeted campaigns for men that emphasize their role in supporting family health, normalize discussion of breast health as a family concern, and encourage men to accompany female relatives for screening.

Barriers to Effective Communication and Participant Recommendations

Despite participants' universal digital access, they expressed concern about populations excluded from digital campaigns due to technological barriers. Elderly family members, rural residents, and lower socioeconomic groups were identified as particularly vulnerable to digital exclusion. A 21-year-old undergraduate student explained that their grandmother does not own a telephone, so she would not have any idea unless someone explained it to her in person. Participants emphasized that reliance on digital platforms creates significant outreach gaps, as many target audience members lack smartphones, internet connectivity, or digital literacy to access campaign content. This digital divide was perceived as a critical limitation of current campaign strategies. A 23-year-old BS Biochemistry student noted that their family in rural areas does not have internet access and only knows what they hear on TV or from relatives. Participants recommended integrating multiple communication channels such as television, radio, community events, mosque announcements, and healthcare provider interactions to reach digitally excluded populations, noting that health workers and community health volunteers could play critical roles in bridging this gap.

A significant finding was the temporal limitation of awareness campaigns. Most participants recalled encountering campaigns primarily during Breast Cancer Awareness Month in October, with minimal visibility throughout the rest of the year. A participant commented that they do not understand why awareness is only remembered in October and that it should be daily. This seasonal pattern of campaign activity was perceived as limiting sustained engagement and behavioral change, with participants noting that awareness messages fade from memory after October, and the perceived urgency of breast health diminishes without continuous reinforcement. A 22-year-old BPA student observed that after October, they do not see any posts and it is like everyone forgets about breast cancer until next year. Participants recommended year-round campaign visibility through regular social media content, SMS reminders, healthcare provider prompts, and community-based activities, with sustained messaging seen as essential for embedding breast health awareness into routine health practices.

A recurring criticism across educational groups was that campaigns provide awareness without actionable guidance. Participants noted that while messages raise awareness of breast cancer risks and symptoms, they often fail to tell audiences what to do next—how to perform self-examinations, where to access screening services, or how to interpret symptoms. A participant demanded that there should be free tests along with awareness, not just talk but action. Medical professionals echoed this concern, noting that campaigns rarely include practical information about screening facilities, costs, referral pathways, or diagnostic processes. This lack of actionable guidance was seen as a major barrier to translating awareness into health behaviors. A 24-year-old MBBS student noted that patients often ask where to get screened or how much it costs, but the campaigns do not include this information. Participants recommended campaigns include practical information about screening locations, costs, procedures, and referral systems, with links to screening facilities, helplines, and healthcare provider directories suggested as concrete ways to bridge the awareness-action gap.

Across all educational and professional groups, participants expressed frustration that awareness campaigns rarely include information about free or affordable screening services. Cost was identified as a significant barrier, particularly for lower socioeconomic groups. A participant commented that while campaigns say the right things, they do not provide information about where free screening is available and that such information should also be provided. Participants recommended that campaigns explicitly link awareness with accessible healthcare services by providing information about free screening camps, subsidized diagnostic services, and hospital referral pathways. Government and NGO partnerships were seen as critical for making screening accessible and affordable. A 24-year-old MBA student noted that if campaigns just tell people to get screened but do not tell them where or how much it costs, it is not helpful, and practical solutions are needed.

Respondents offered comprehensive recommendations for improving digital breast cancer awareness campaigns. They advocated for grassroots and community-based programs, noting that people need to hear this in person too, not just on Instagram, especially those who do not spend hours online. Workshops at college campuses, community centers, places of worship, and local clinics were suggested to reach those not covered by digital content. Participants recommended campaigns prioritize simple Urdu and regional languages including Punjabi, Sindhi, Pashto, and Balochi, with visuals and voice-overs for broader accessibility, noting that Urdu makes the message more real and easy to understand, and not everyone can understand medical English. Participants expressed preference for authentic survivor testimonials over purely informational content, noting that personal stories are more emotionally engaging and memorable, with one participant explaining that when you hear a woman say she survived breast cancer, and she is from your country speaking your language, it gives hope.

Respondents called for government and NGO-sponsored free screening camps, particularly in collaboration with hospitals like Shaukat Khanum or Indus Hospital, emphasizing that awareness should be accompanied by free tests and that there should be action, not just talk. Participants recommended incorporating breast cancer awareness into school health classes and university orientations for early learning and normalizing health discussions, noting that we should begin discussing it in school biology class, not wait until we have someone we care about who is impacted. Campaigns featuring male physicians, celebrities, or family members supporting patients were suggested to normalize male engagement and reduce stigma, with respondents emphasizing that men need to understand this is not just a women's issue and that they are part of the family too and should know how to support. Participants recommended partnering with credible local influencers, particularly those speaking Urdu and regional languages, to extend

campaign reach and credibility, noting that influencers already have trust and reach among specific audiences and could help normalize the conversation. Sustained, year-round campaign visibility was seen as essential for embedding breast health awareness into routine health practices, with participants noting that awareness should be daily. Participants recommended campaigns include practical information about screening locations, costs, and referral pathways, alongside follow-up reminders and support systems, noting that there is no proper information for follow-up.

7. Discussion

The findings of this study reveal significant variation in comprehension across educational levels. Medical students demonstrated the highest levels of critical engagement, evaluating campaign accuracy against clinical knowledge frameworks. Social sciences students applied media analysis skills to deconstruct campaign narratives and gender representations. Non-medical and non-social sciences students—despite high general education—often accepted messages at face value, relying heavily on institutional credibility markers rather than content evaluation. This finding indicates that general education does not automatically confer health literacy without specific medical knowledge or critical media analysis training. Professional background significantly shapes credibility assessment, with healthcare professionals applying clinical knowledge to evaluate campaign content and often identifying gaps in evidence or oversimplification, while non-medical professionals rely on institutional credibility indicators such as verification badges, official logos, and established organizational reputations. This suggests that campaign credibility strategies should address differentiated audience needs, providing evidence-based content for medically trained audiences while emphasizing institutional trust signals for general audiences.

Cultural stigma, shame, modesty norms, and gendered communication patterns emerged as universal barriers across all educational and professional groups. Despite high education and awareness levels, most respondents reported reluctance to discuss breast health openly, particularly with male relatives. This suggests that educational attainment alone does not overcome deep-rooted cultural taboos, and interventions must address cultural norms directly through destigmatization strategies, family-inclusive messaging, and normalizing breast health discussions across genders. Trust in campaigns was heavily contingent on institutional credibility, particularly among non-medical audiences, with established organizations such as Shaukat Khanum, Pink Ribbon Pakistan, and government health departments perceived as authoritative and reliable. However, even trusted campaigns face limitations when they fail to address cultural taboos or provide actionable guidance, suggesting that trust without cultural sensitivity or practical utility may generate awareness without behavioral change.

Language emerged as a critical accessibility barrier, and while Urdu-dominant campaigns were appreciated, technical medical terminology remained difficult for non-medical audiences. Digital literacy and platform access also constrained reach, particularly for older, rural, and lower socioeconomic populations. Recommendations included regional language translations, visual aids, and multi-platform distribution strategies to enhance accessibility. Translation of awareness into behavior was inconsistent across educational and professional groups, with medical respondents reporting the highest rates of screening and self-examination, followed by other health-related professionals. However, significant numbers of highly educated non-medical respondents acknowledged they had never performed self-examinations or attended screening, despite awareness of their importance. This knowledge-behavior gap underscores the need for campaigns to provide not only information but also practical guidance, accessible services, and behavioral reinforcement.

This research makes significant contributions to scholarship in medical anthropology, digital public health communication, and media studies in the Global South. The study extends intersectionality theory to health communication, demonstrating how educational background, professional training, gender, and cultural norms intersect to create unique patterns of health engagement. By applying Critical Discourse Analysis to digital health campaigns, it reveals how power relations, normative assumptions, and ideological positions are embedded in health messages, often reproducing gendered responsibilities and individualistic health paradigms that may not align with audience realities. The research provides localized, qualitative evidence on how diverse audience segments engage with digital breast cancer awareness campaigns in Pakistan, challenging assumptions that educational attainment alone drives health engagement and demonstrating that cultural barriers persist even among highly educated populations. The study also documents the mechanisms through which trust, credibility, and stigma shape health communication outcomes in the Pakistani context. The combination of content analysis of social media campaigns with qualitative interviews demonstrates the value of mixed qualitative methods for researching public health phenomena, an approach that is replicable in subsequent studies not only in Pakistan but in other low- and middle-income countries where health communication strategies evolve toward digital channels. The research provides evidence-based recommendations for improving digital health communication strategies, emphasizing the need for culturally attuned, educationally differentiated, and service-connected campaigns that address both knowledge deficits and sociocultural barriers.

For health communication practitioners, campaign designers must differentiate content based on audience educational backgrounds and professional expertise, providing accessible, visual content for general audiences while including deeper clinical information for healthcare professionals. For NGOs and health organizations, institutional credibility is critical for campaign trust, and partnerships with established healthcare institutions enhance perceived reliability, while campaigns must be culturally sensitive, addressing taboo topics through destigmatization strategies and involving men as supportive family members. For government health departments, year-round campaign presence is essential, with sustained messaging through multiple channels like digital, television, radio, community events capable of embedding breast health awareness into routine health practices. Government-affiliated campaigns must include practical information about free or subsidized screening services. For educational institutions, integrating breast cancer awareness into school and university curricula can normalize health discussions early, build health literacy, and prepare future generations to engage critically with health information. For media and content creators, survivor stories and emotional narratives are powerful engagement tools, and content should balance emotional appeal with actionable guidance, use simple language, and incorporate visual aids to enhance accessibility.

8. Conclusion

This study examined how sociocultural barriers and professional backgrounds shape engagement with digital breast cancer awareness messaging among urban populations in Islamabad and Rawalpindi, Pakistan. Drawing on in-depth interviews with 40 participants from diverse educational and professional backgrounds and content analysis of digital campaigns from 2022 to 2025, the research provides comprehensive insights into how education, professional training, and cultural norms intersect to influence health communication outcomes. The findings reveal that while higher education and medical training facilitate critical engagement and credibility assessment, cultural taboos, stigma, shame, modesty norms, and gendered communication patterns persist as universal barriers to open engagement across all educational and professional groups. Even highly educated participants reported reluctance to discuss breast

health with male relatives, difficulty performing self-examinations, and limited translation of awareness into screening behaviors, underscoring that educational attainment alone does not overcome deep-rooted sociocultural constraints.

Trust in campaign messages is heavily contingent on institutional credibility, with established healthcare organizations and government-affiliated campaigns perceived as most reliable. However, trust without cultural sensitivity or actionable guidance may generate awareness without behavioral change. Language accessibility, digital literacy, and platform access further shape engagement, with regional language translations and visual content identified as critical for broader reach and comprehension. The study identifies critical gaps in current campaign strategies: exclusive focus on Breast Cancer Awareness Month, absence of male engagement, lack of actionable guidance, and insufficient attention to marginalized populations excluded from digital spaces. Participants recommended year-round campaign visibility, inclusive language strategies, free screening services, survivor storytelling formats, and engagement of men and community influencers.

The research makes significant contributions to scholarship on digital health communication, medical anthropology, and public health policy in Pakistan and the Global South. It challenges assumptions that education alone drives health engagement, demonstrates the centrality of cultural norms in mediating health communication, and provides evidence-based recommendations for improving campaign design and implementation. Ultimately, this study emphasizes that effective digital breast cancer awareness campaigns must do more than disseminate information. They must address the sociocultural contexts in which audiences live, speak to diverse educational and professional needs, and provide practical pathways to translate awareness into health-promoting behaviors. Only through culturally attuned, educationally differentiated, and service-connected strategies can digital health communication fulfill its potential as a tool for public health transformation in Pakistan.

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