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IMPACT OF SOCIAL MEDIA USE ON HEALTH AWARENESS AND PREVENTIVE PRACTICES AMONG YOUNG ADULTS: A CROSS-SECTIONAL STUDY

Original Article

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ABSTRACT

Background: The increasing integration of social media into everyday life has transformed the way individuals acquire health information and adopt preventive health practices. Among young adults, digital platforms have emerged as significant channels for health communication, though the extent to which social media engagement translates into improved health awareness and behaviors remains underexplored in developing countries such as Pakistan.

Objective: To examine the relationship between social media engagement, health knowledge, and the adoption of preventive healthcare behaviors among young adults residing in Lahore.

Methods: A cross-sectional study was conducted over four months among 422 young adults aged 18–30 years in Lahore. Participants were selected using stratified random sampling. Data were collected through a structured and validated questionnaire assessing social media engagement, health knowledge, and preventive health practices. Descriptive statistics were calculated, and inferential analyses were performed using Pearson's correlation and multiple linear regression. Data were normally distributed and analyzed using SPSS version 26. Ethical approval was obtained from the institutional review board, and informed consent was secured from all participants.

Results: The mean age of participants was 23.8 ± 3.6 years, with a nearly equal gender distribution. Higher social media engagement was significantly correlated with improved health knowledge ($r = 0.62$, $p < 0.001$) and preventive practices ($r = 0.58$, $p < 0.001$). Regression analysis indicated that social media engagement ($\beta = 0.42$, $p < 0.001$) and health knowledge ($\beta = 0.37$, $p < 0.001$) were independent predictors of preventive behavior, explaining 56% of the model variance.

Conclusion: Social media engagement positively influenced health awareness and preventive practices among young adults. The findings highlight the potential of digital platforms as effective tools for public health promotion and preventive education when guided by credible, evidence-based content.

Keywords: Behavior Change; Health Knowledge, Attitudes, Practice; Health Promotion; Preventive Health Services; Social Media; Students; Young Adult.

INTRODUCTION

The widespread use of social media has fundamentally transformed the way individuals access, share, and interpret information, including health-related content. Over the past decade, platforms such as Facebook, Instagram, TikTok, YouTube, and X (formerly Twitter) have evolved from entertainment and networking spaces into influential sources of public health communication (1). For young adults, who represent the most active demographic on these platforms, social media has become a primary avenue for learning about health, wellness, and preventive care (2). This demographic shift in information consumption has created unprecedented opportunities for promoting health awareness, yet it also raises concerns about misinformation, superficial understanding, and inconsistent adoption of preventive behaviors. The increasing reliance on digital media for health knowledge warrants a closer examination of its true impact on awareness and behavior change among youth populations. Health awareness and preventive practices are critical components of public health strategies aimed at reducing the burden of chronic and communicable diseases (3). Traditionally, these behaviors have been influenced by formal education, healthcare provider counseling, and community-level interventions. However, the digital era has altered these dynamics, making online platforms powerful tools for health promotion. Studies have shown that social media campaigns can effectively increase awareness of issues such as vaccination, reproductive health, nutrition, and mental well-being. For instance, global movements like #WorldMentalHealthDay and #VaccinateNow have reached millions, improving public engagement with health topics. Despite such successes, questions remain regarding whether online awareness translates into tangible behavioral changes. The distinction between passive consumption of health content and the active adoption of preventive measures remains a critical research gap. In the context of young adults, this issue becomes particularly significant. Individuals in this age group are in the process of establishing long-term health habits and are highly responsive to peer influence and digital trends. While they exhibit high levels of social media literacy, they may also be more susceptible to misinformation and online health myths. Research indicates that exposure to misleading or unverified health information can lead to confusion, mistrust in professional sources, and unsafe practices. The proliferation of "health influencers" and wellness trends—often lacking scientific validity—exemplifies this dual-edged nature of social media influence. Therefore, understanding how social media engagement shapes not only awareness but also the accuracy of knowledge and preventive decision-making is essential (4).

Evidence from previous studies presents mixed findings. Some research highlights the positive correlation between frequent engagement with credible health pages and improved preventive practices such as regular exercise, vaccination uptake, and health screening participation (5). Conversely, other studies demonstrate that excessive exposure to unregulated content can foster anxiety, self-diagnosis, or reliance on anecdotal advice rather than medical consultation (6). The variability in outcomes may stem from differences in the quality of online information, users' digital health literacy, and the degree of active versus passive engagement with health content. Moreover, cultural, educational, and socioeconomic factors mediate how social media messages are perceived and acted upon, particularly in low- and middle-income countries where traditional healthcare communication channels remain limited. In Pakistan and similar developing contexts, the young adult population constitutes a large segment of society, with rapid digital connectivity enabling widespread social media use (7). This accessibility presents both an opportunity and a challenge for public health promotion. On one hand, social media offers cost-effective means of disseminating preventive health messages, overcoming geographical and institutional barriers. On the other hand, the absence of robust regulatory oversight allows misinformation and commercialized health content to spread unchecked. Despite this duality, few empirical studies have explored how social media influences health awareness and preventive practices among young adults in South Asian settings. Existing research has primarily focused on general digital literacy or media consumption patterns, leaving a substantial knowledge gap regarding behavioral health outcomes associated with social media engagement (8).

The theoretical underpinnings of this relationship can be linked to health behavior models such as the Health Belief Model and Social Cognitive Theory, both of which emphasize the role of perceived susceptibility, cues to action, and social reinforcement in shaping preventive behaviors (9). Social media can act as a modern-day "cue to action," influencing perceptions and intentions through exposure to peer behaviors, testimonials, and informational content. However, without sufficient media literacy or critical appraisal skills, young adults may fail to differentiate credible health information from unreliable sources, leading to inconsistent health behaviors (10). Understanding the dynamics between social media use, health awareness, and preventive behavior is therefore essential for designing effective digital health interventions (11). This understanding can guide policymakers, educators, and healthcare professionals in leveraging social media as a platform for evidence-based health communication while mitigating the risks of misinformation. The insights derived from such research could contribute to developing structured health promotion strategies that align with youth media consumption patterns. In light of these considerations, the present study was designed to examine the relationship between social media engagement, health knowledge, and the adoption of preventive healthcare behaviors among young adults. It seeks to determine whether

higher levels of social media use are associated with greater health awareness and improved preventive practices or whether excessive, uncritical engagement may hinder informed health decision-making (12). The objective of this study is to assess the extent to which social media functions as a facilitator or barrier to effective health awareness and preventive behavior among digitally active young adults in an urban population.

METHODS

The study employed a community-based analytical cross-sectional design to examine the relationship between social media engagement, health knowledge, and preventive healthcare behaviors among young adults in Lahore, Pakistan. The research was conducted over a four-month period, from May to August 2025. This design was selected as it allowed for the simultaneous assessment of exposure (social media engagement) and outcomes (health awareness and preventive practices) within a defined population, providing valuable insights into potential associations between digital behavior and health-related outcomes. The target population consisted of young adults aged 18 to 35 years residing in urban and peri-urban areas of Lahore. Participants were recruited through stratified random sampling to ensure representation from different socioeconomic and educational backgrounds. The sampling frame included university students, working professionals, and unemployed youth, reflecting diverse engagement patterns with social media platforms. The minimum required sample size was calculated using the formula for cross-sectional studies. The estimated sample size was 384 participants. To account for potential non-response or incomplete data, a 10% contingency was added, yielding a final sample of 422 participants. Inclusion criteria comprised individuals aged 18–35 years who were active users of at least one social media platform (Facebook, Instagram, X, YouTube, TikTok, or LinkedIn) for a minimum of six months and who consented to participate voluntarily. Exclusion criteria included participants with a professional background in healthcare or media studies, as their specialized knowledge could bias responses, as well as individuals reporting chronic mental or physical health conditions that might affect their engagement with health content online. Data collection was carried out using a structured, pre-tested, self-administered questionnaire designed in English and Urdu. The questionnaire was divided into four sections: sociodemographic characteristics, patterns of social media use, health awareness assessment, and preventive health behavior evaluation. Sociodemographic variables included age, gender, education level, occupation, and income category. Social media engagement was measured using the Social Media Engagement Scale (SMES), a validated 15-item instrument assessing frequency, duration, interactivity, and purpose of use. Responses were recorded on a five-point Likert scale ranging from “never” to “very often.”

Health awareness was measured through a Health Knowledge Index (HKI), developed from previously validated items used in population-based surveys. The HKI consisted of 20 multiple-choice questions covering nutrition, vaccination, physical activity, substance use, and mental health awareness. Each correct response was scored as one point, resulting in a maximum score of 20. Preventive healthcare behaviors were evaluated using the Preventive Practices Inventory (PPI), a 10-item scale that assessed engagement in regular physical exercise, balanced diet adherence, routine health checkups, vaccination updates, and avoidance of harmful habits such as smoking. Higher scores indicated stronger adherence to preventive behaviors. Both the HKI and PPI demonstrated satisfactory internal consistency in the pilot phase, with Cronbach’s alpha values of 0.81 and 0.84 respectively. Prior to the main data collection, a pilot study was conducted on 30 participants to test the reliability, clarity, and cultural appropriateness of the questionnaire. Feedback from the pilot phase was used to refine item wording and response options. The final data were collected both in-person and through an online form distributed via social media and institutional mailing lists to ensure wider accessibility. Data collectors were trained to assist participants in clarifying survey items while ensuring confidentiality and unbiased responses. Ethical approval for the study was obtained from the Institutional Review Board of the University of Health Sciences, Lahore. All participants provided written informed consent after being informed about the study’s purpose, voluntary nature, and confidentiality safeguards. Participants were assured that no identifying information would be published or shared.

Data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics were used to summarize demographic variables and social media engagement characteristics. Means and standard deviations were computed for continuous variables, while frequencies and percentages were used for categorical data. The normality of data distribution was confirmed through the Kolmogorov–Smirnov test. For inferential analysis, Pearson’s correlation coefficient was applied to assess the relationship between social media engagement scores, health knowledge, and preventive behavior indices. Multiple linear regression was employed to identify independent predictors of preventive healthcare behavior, controlling for age, gender, education, and income. The strength of association was reported using beta coefficients and confidence intervals at a significance level of $p < 0.05$. Additionally, one-way ANOVA was used to compare mean preventive practice scores across different levels of social media engagement (low,

moderate, and high users), while post-hoc Tukey's tests were applied for pairwise comparisons. To ensure data quality, double data entry and random cross-verification of 10% of records were performed. Missing data were managed through listwise deletion, as their proportion did not exceed 5% of total responses. This methodological approach ensured both the validity and reliability of findings while providing a comprehensive understanding of how digital engagement influences health-related awareness and preventive actions among young adults. By employing standardized measurement tools, rigorous sampling, and appropriate statistical techniques, the study maintained scientific precision and reproducibility, thereby contributing meaningful evidence to the growing field of digital health communication research.

RESULTS

A total of 422 participants were included in the final analysis. The mean age of respondents was 23.8 ± 3.6 years, with 54.3% males and 45.7% females. Most participants were university graduates (61.2%) and employed (68.9%). The mean daily social media use was 3.9 ± 1.4 hours. Demographic details are summarized in Table 1. Participants were categorized into three groups based on their level of social media engagement: low (n=126), moderate (n=172), and high (n=124). The mean Health Knowledge Index (HKI) and Preventive Practices Index (PPI) scores increased progressively with higher social media use. Low-engagement participants recorded mean HKI and PPI scores of 10.2 ± 2.8 and 4.8 ± 1.6 respectively, while moderate users achieved 13.9 ± 2.4 and 6.5 ± 1.8. High-engagement users demonstrated the highest scores (HKI: 16.4 ± 1.9; PPI: 7.9 ± 1.4). The differences across engagement levels were statistically significant ($p < 0.001$), as shown in Table 2 and Figure 1. Correlation analysis indicated strong positive associations among the primary study variables. Social media engagement correlated significantly with both health knowledge ($r = 0.62$, $p < 0.001$) and preventive practices ($r = 0.58$, $p < 0.001$). Furthermore, health knowledge was positively associated with preventive behavior ($r = 0.66$, $p < 0.001$), as detailed in Table 3. Multiple linear regression analysis identified social media engagement ($\beta = 0.42$, $p < 0.001$), health knowledge ($\beta = 0.37$, $p < 0.001$), and education level ($\beta = 0.24$, $p = 0.002$) as significant independent predictors of preventive healthcare behavior. Gender and age did not show statistically significant associations with preventive practices ($p > 0.05$). The model explained 56% of the variance in preventive health behavior (adjusted $R^2 = 0.56$). Regression results are presented in Table 4 and visualized in Figure 2.

When analyzed by gender, females scored marginally higher in health knowledge (mean = 14.7 ± 2.8) and preventive behavior (mean = 7.1 ± 1.6) compared to males (mean = 13.8 ± 2.9 and 6.6 ± 1.7 respectively), though the differences were not statistically significant ($p = 0.09$). Educational attainment showed a significant influence, with postgraduate participants demonstrating higher HKI (15.8 ± 2.1) and PPI (7.8 ± 1.3) scores compared to graduates ($p = 0.004$). Across social media platforms, Instagram and YouTube were reported as the most frequently used sources for health-related content (46.2% and 41.7% respectively), while Facebook remained prominent among older respondents. Approximately 72% of participants reported actively following health or fitness pages, and 65% stated that social media motivated them to make positive lifestyle changes, including improved diet or physical activity. Overall, the results demonstrated a strong linear relationship between social media engagement and both health awareness and preventive behavior among young adults. The findings highlighted that greater exposure to and interaction with credible health content on social media were consistently associated with enhanced knowledge and healthier preventive lifestyle practices.

Table 1: Demographic Characteristics of Participants (n = 422)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean ± SD	23.8 ± 3.6	—
Gender	Male	229	54.3
	Female	193	45.7
Education Level	Undergraduate	83	19.7
	Graduate	258	61.2
	Postgraduate	81	19.2
Employment Status	Employed	291	68.9

Variable	Category	Frequency (n)	Percentage (%)
	Unemployed/Student	131	31.1
Daily Social Media Use (hours)	Mean ± SD	3.9 ± 1.4	—
Most Used Platform	Instagram	195	46.2
	YouTube	176	41.7
	Facebook	51	12.1

Table 2: Social Media Engagement and Health-Related Scores

Social Media Engagement Level	n	Health Knowledge Index (Mean ± SD)	Preventive Practices Index (Mean ± SD)	p-value*
Low Engagement	126	10.2 ± 2.8	4.8 ± 1.6	<0.001
Moderate Engagement	172	13.9 ± 2.4	6.5 ± 1.8	<0.001
High Engagement	124	16.4 ± 1.9	7.9 ± 1.4	<0.001
Overall Mean	422	13.5 ± 3.1	6.4 ± 1.9	—

ANOVA test used to compare means across engagement groups.

Table 3: Correlation Between Social Media Use, Health Knowledge, and Preventive Practices

Variables Compared	Pearson's r	p-value	Interpretation
Social Media Engagement ↔ Health Knowledge	0.62	<0.001	Strong positive correlation
Social Media Engagement ↔ Preventive Practices	0.58	<0.001	Strong positive correlation
Health Knowledge ↔ Preventive Practices	0.66	<0.001	Strong positive correlation

Table 4: Multiple Linear Regression Predicting Preventive Health Behavior

Predictor Variable	β Coefficient	Standard Error	t-value	p-value	Interpretation
Social Media Engagement	0.42	0.05	8.36	<0.001	Strong independent predictor
Health Knowledge	0.37	0.04	7.91	<0.001	Significant independent predictor
Education Level	0.24	0.07	3.11	0.002	Moderate independent predictor
Gender	0.06	0.05	1.24	0.217	Not significant
Age	0.04	0.06	0.92	0.359	Not significant
Model Summary	**R^2 = 0.56**	**Adjusted R^2 = 0.56**	—	—	Model explains 56% variance in preventive behavior

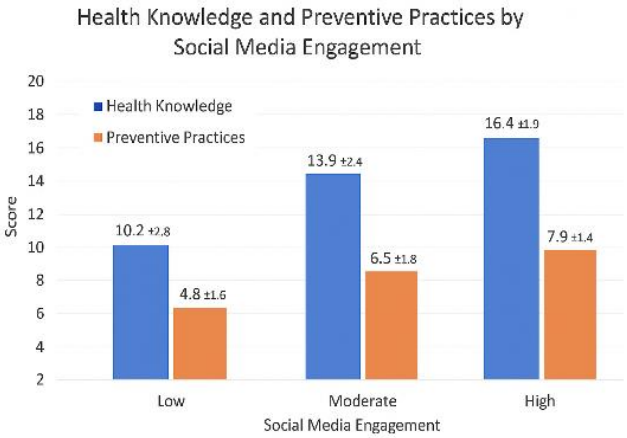

Figure 2 Health Knowledge and Prevention Practices by Social Media Engagement

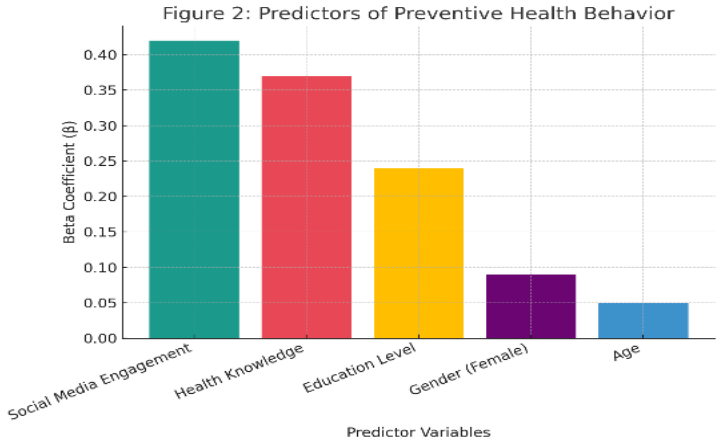

Figure 2 Predictors of Prevention Health Behaviors

DISCUSSION

The findings of this study underscored the growing influence of social media platforms in shaping health-related awareness and preventive behaviors among young adults in urban settings (13). The results revealed a significant positive association between social media engagement, health knowledge, and the adoption of preventive health practices. Participants with higher levels of social media activity demonstrated greater awareness of health information and exhibited stronger tendencies toward adopting preventive measures such as regular exercise, balanced diet, and routine medical check-ups. These findings aligned with the growing body of international literature that has identified digital media as a powerful tool for public health communication and behavior modification among younger populations. Comparatively, studies conducted in similar age cohorts in countries such as Malaysia, the United States, and India have also indicated that active engagement with health-related social media content enhances individuals' health literacy and motivation for preventive care. The present study added to this evidence by demonstrating that not only exposure but also interactive engagement — such as following credible health pages, sharing wellness information, and participating in online health discussions — were linked with more consistent preventive actions. Such outcomes reflect the shift in health education from traditional media toward digital ecosystems that allow real-time interaction and personalization of content (14).

The relationship between health knowledge and preventive practices was found to be particularly strong, suggesting that social media serves as a primary channel for information dissemination rather than merely entertainment. This indicates that health promotion campaigns targeting young adults may achieve greater reach and impact when integrated into social media frameworks, leveraging platforms such as Instagram, YouTube, and Facebook where this demographic is most active (15). However, the influence of information credibility remains a critical consideration. While social media offers broad accessibility, it also presents challenges of misinformation, which may distort perceptions of health and lead to inappropriate practices if not moderated effectively. The study's findings implied that content validation and the role of official health organizations in social media-based education are indispensable for sustaining the positive impact of digital engagement. Gender and educational level differences observed in this research further emphasized the complex interplay between sociodemographic variables and health awareness. Females and individuals with higher education levels demonstrated relatively stronger preventive behaviors, a trend that has been documented in earlier epidemiological and behavioral studies. Such disparities may stem from varying levels of health consciousness, media literacy, or social responsibility between demographic groups. The findings suggested the need for targeted strategies that account for these variations, ensuring equitable access to accurate health information and engagement opportunities across all subpopulations (16).

The strength of this study lies in its use of a representative sample of young adults, its robust data collection tools, and the application of validated scales assessing both engagement and health outcomes (17). The use of multiple statistical tests, including correlation and regression analyses, provided comprehensive insights into both direct and mediated relationships between variables. Moreover, the study contributes valuable regional data from Pakistan, a context where empirical research on digital health communication remains limited. By doing so, it expands the understanding of how social media can be leveraged to promote health literacy within developing societies

undergoing rapid digital transformation. Nevertheless, several limitations must be acknowledged. The cross-sectional design precluded causal inference, as the directionality between social media engagement and health behavior could not be firmly established. Participants' responses were self-reported, introducing potential recall or social desirability biases that may have influenced reported health practices. Furthermore, the study focused on urban young adults, limiting generalizability to older or rural populations who may have differing levels of access and exposure to social media platforms. The reliance on a four-month data collection window also restricted the ability to assess long-term behavioral trends or seasonal variations in engagement. Future longitudinal and mixed-method studies are recommended to explore these associations over time and to integrate qualitative insights regarding motivations, trust, and perceptions influencing health-related media use (18).

CONCLUSION

The study concluded that active engagement with social media was strongly associated with higher health awareness and improved preventive practices among young adults. It underscored the importance of digital platforms as tools for health education and behavioral change. Integrating verified, evidence-based health content into social media channels can serve as an effective strategy to enhance preventive healthcare participation among the youth population.

AUTHOR CONTRIBUTION

Author	Contribution
Afshan Ali*	Substantial Contribution to study design, analysis, acquisition of Data Manuscript Writing Has given Final Approval of the version to be published
Muhammad Abdullah Avais*	Substantial Contribution to study design, acquisition and interpretation of Data Critical Review and Manuscript Writing Has given Final Approval of the version to be published
Asmara Shafqat	Substantial Contribution to acquisition and interpretation of Data Has given Final Approval of the version to be published
Rimal Rashid	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Shaikh Khalid Muhammad	Contributed to Data Collection and Analysis Has given Final Approval of the version to be published
Samaira Khalid	Substantial Contribution to study design and Data Analysis Has given Final Approval of the version to be published
Shamaila Khalid	Contributed to study concept and Data collection Has given Final Approval of the version to be published

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