

Health Misinformation Literacy and Its Association with Self-Medication Practices among Young Adults in Pakistan: A Cross-Sectional Study.

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Abstract

Background: Digital media is now widely used to access health information and is also a source of health misinformation. Often young adults will turn to the web for health-related choices, including trade in medications that are not always appropriate. Young adults are often turning to online health resources to make choices, including improper self-medication. But very little has been known about health misinformation literacy among young adults in Pakistan while self-medication practices. The purpose of this study was to evaluate the level of health misinformation literacy and its correlation with self-medication practices among young adults (18-30 years) in Pakistan.

Methodology: It is quantitative analytical cross-sectional study, with several participants in the study was 196 young adults aged 18-30 years with convenience sampling technique. Structured self-administered questionnaires for health misinformation literacy, health misinformation susceptibility, self-medication practices, and the impact of health information online were used to collect data. IBM SPSS Statistics v.27 was used to analyze the data. Descriptive statistics, Pearson's correlation and multiple linear regression analyses were performed.

Results: The participants exhibited moderate health misinformation literacy, health misinformation susceptibility, self-medication practices, and influence of online health information. Self-medication practices was significantly and negatively related to misinformation literacy ($r = -0.254$, $p < 0.001$) and was the only significant independent predictor of misinformation literacy ($\beta = -0.238$, $p = 0.001$). Both health misinformation susceptibility and sociodemographic factors were not significant predictors.

Conclusion: Positive relationships were found between health misinformation literacy and self-medication practices for the study's samples. The promotion of responsible medication use, curbing the impact of health misinformation, and increasing medication safety among young adults in Pakistan may be achieved by strengthening the digital health literacy among them through various educational interventions and evidence-based health communication.

Keywords: Health misinformation literacy; Self-medication; Young adults; Digital health literacy; Health misinformation; Pakistan; Cross-sectional study.

Introduction

The rapid advancement of digital technology has transformed the way individuals' access and utilize health information. As instances of using social media, search engines, and online health-related resources for information have grown among the younger generation, so have their applications in acquiring health, disease, and treatment information (Nagata, Huang et al. 2024). Digital health tools have led to a proliferation of health information and the adoption of digital self-care into everyday health care practice, and yet at the same time, the internet has become a source of misinformation and inaccurate health information which can be rapidly spread, often without verification, which has been termed health misinformation (Maita, Maniaci et al. 2024, Ahmed, Okesanya et al. 2025). Such information can widely spread and has the potential to be a public health problem, especially in low and middle-income countries (LMICs), where poor health information literacy and lack of health information regulation can contextualize the risk of exposure to misinformation and unsafe health behaviors (Bagherian and Sattari 2022).

For one, the rise of self-medication (Mustafa, Iqbal et al. 2023), which involves buying over-the-counter (OTC) medicines, prescription drugs or herbal remedies without consulting a qualified healthcare provider, is an important consequence of health misinformation. Responsible self-medication can help alleviate the burden of minor illnesses in a timely manner, while simultaneously decreasing the costs associated with health care, however inappropriate self-medication can result in incorrect diagnosis, inappropriate drug choice, adverse drug reactions, medication interactions, delay in treatment of serious diseases and the emergence of antimicrobial resistance (Ruiz 2010). This as a result has compelled greater attention from healthcare providers, teachers and policy makers as irrational self-medication has become an important health problem (Fatima, Mushtaq et al. 2025).

The population that is especially vulnerable for misinformation-based self-medication are young adults of 18-30 years old (Juneja, Chauhan et al. 2024). In the absence of critical evaluation skills about online information's credibility though, they might assume unhealthy behaviors while experiencing misinformed or inaccurate information (Patel, Chakraborty Samant et al. 2024). Thus, this capacity to distinguish between credible and "mis- or disinformation" about health is an integral part of health literacy in the digital age (Burstin, Curry et al. 2023, Alabri 2026).

Self-medication is commonly used among all age groups within the study population in Pakistan, especially among adults and university students (Mushtaq, Gul et al. 2017). Several causes for this behavior, such as the ease of access to medicines that do not require a prescription, lack of access to affordable healthcare services, low incomes, waiting in line at healthcare facilities, and an increasing reliance on health information via the Internet. People with low health misinformation literacy may struggle to identify reliable information will use it for inappropriate uses, such as self-diagnosis and medication use, or engage in other unsafe health practices (Bas-Sarmiento, Lamas-Toranzo et al. 2022).

Health misinformation literacy is the ability of an individual to assess, detect and critically appraise the likelihood that health information is accurate and use that assessment to make health decisions (Johnson 2025). However, poor health misinformation literacy can lead to greater susceptibility to demagogic information, which can lead to improper self-medication and other unhealthy behaviors (Nugrahani 2022).

Thus, similarly most of the studies conducted focused on demographic characteristics, commonly used drugs, and self-medication determinants (Shaamekhi, Asghari Jafarabadi et al. 2019) respectively. Although digital health information and the widespread use of social media among young adults has increased, not enough studies have considered the role of health misinformation literacy on young adults' self-medication behaviors (Paul and Headley-Johnson 2025). Moreover, few studies have investigated the relationship between susceptibility towards health misinformation on the internet with medication-related decision making in Pakistan (Malik,

Ahmad et al. 2022). Such a lack of evidence hinders the creation of efficient educational initiatives and public health strategies for enhancing digital health literacy, safe use of medicines (Xie, Liao et al. 2026).

Online health information plays a significant role in people's health behaviors, and it is becoming increasingly crucial to understand the connections between health misinformation and self-medication behaviors in this digital environment (Jia, Pang et al. 2021, Moisoglou, Katsiroumpa et al. 2026). Identifying gaps in health misinformation literacy can guide educational and public health interventions to promote informed medication use among young adults.

Therefore, this study aimed to assess health misinformation literacy and examine its association with self-medication practices among young adults in Pakistan. The findings are expected to provide evidence to support digital health literacy initiatives, strengthen medication safety education, and inform public health strategies aimed at reducing misinformation-driven self-medication among Pakistani young adults.

Methodology

Study Design

A quantitative Analytical Cross-Sectional Study was carried out to determine health misinformation literacy and its relationship with self-medication practices among young adult population of Pakistan. A cross-sectional design was found to be appropriate because data collection for the participants would occur at one point in time and assessment between the constructs of health misinformation literacy and self-medication practices could be observed. This design also enabled the researcher to identify the level of distribution of health misinformation literacy, susceptibility to health misinformation, and self-medication practices in the research participants.

Study Setting

The study was undertaken with young adults living in various urban, semi-urban and rural communities of Pakistan. A structured self-administered questionnaire was used to gather the data with the help of an online survey platform. This online approach provided participants a chance to be from across geographical regions and educational backgrounds and made it accessible and convenient.

Study Population

The study was conducted on youth of the age between 18-30 years who were staying in Pakistan. There were diverse gender needs, socioeconomic statuses and living environments represented. A study was conducted with those who could read and understand English with the consent and participation of the subjects.

Sample Size

The sample size was calculated using **Cochran's formula** for cross-sectional studies:

$$\frac{z^2 \times p(1 - p)}{d^2}$$

Where:

- **n** = Required sample size
- **Z** = Standard normal deviate at a 95% confidence level (1.96)
- **P** = Expected prevalence (0.50)
- **d** = Margin of error (0.07)

Substituting the values:

Therefore, the minimum required sample size for the study was **196 participants**.

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.07^2}$$

$$n = \frac{3.84 \times 0.25}{.0049}$$

$$n = 196$$

Sampling Technique

A convenience sampling technique was employed to recruit participants. Eligible young adults who met the inclusion criteria were invited to participate through online platforms and social networking applications. Recruitment continued until the required sample size of 196 participants was achieved.

Inclusion Criteria

Participants were included in the study if they:

- Were between **18 and 30 years** of age.
- Were residents of Pakistan.
- Were able to read and understand English.
- Voluntarily agreed to participate in the study.
- Provided informed consent before completing the questionnaire.

Exclusion Criteria

Participants were excluded if they:

- Were younger than 18 years or older than 30 years.
- Declined to participate.
- Submitted incomplete questionnaires.
- Submitted duplicate responses.

Study Variables

Independent Variable

- Health misinformation literacy

Dependent Variable

- Self-medication practices

Additional Variables

- Health misinformation susceptibility
- Age
- Gender
- Educational level
- Place of residence
- Monthly family income
- Formal health or medical education
- Primary source of health information

Data Collection Instrument

A self-administered questionnaire with a structured format was designed based on the literature review and was previously used and tested. This questionnaire was divided into 5 parts.

Section I: Sociodemographic Characteristics

This section gathered data on the demographic characteristics of participants such as age group, gender, level of education, formal health/medical education background, and primary source of health knowledge while in the home.

Part II: Health Misinformation Literacy

The eight statements were drawn from eHealth Literacy Scale (eHEALS) and available health misinformation literature to measure health misinformation literacy. The responses were collected on a five-point Likert scale (SD = strongly disagree, A = agree, SA = strongly agree). All items measured participants' skills to detect accurate health information, assess information credibility, identify inaccurate health claims, identify, and evaluate online health statistics and to compare health information from online sources with official sources. The scores are calculated on an overall health misinformation scale after reverse-scoring (inverting) the score on one item. Scores were higher if individuals were more health misinformation literate.

Section III: Health Misinformation Susceptibility

The health misinformation susceptibility was assessed with five items from previously published health misinformation susceptibility studies. The answers were captured on a scale of 1 to 5 with never = 1 and always = 5. The factors evaluated the extent to which the participants believed in unverified health information within social media platforms established by popular opinion creators, followed unverified home remedies, shared unverifiable health advice, trusted highly shared content online and accepted health messages that were emotionally convincing. The higher the score, the more prone toward health misinformation they were.

Section IV: Self-Medication Practices

Self-medication practices were determined by using the 12 statements which define participants' medicine-related behaviors. They responded on a 5-point frequency scale from 1 (Never) to 5 (Always). Data from the questionnaire included OTC medicines use, remaining medications from a prescription, use of medication according to recommendations from family, friends or from information found online, inappropriate change of the dose of a medicine, early stopping of treatment and taking antibiotics without a doctor's prescription, polypharmacy, and thoughts about harmfulness of self-medication. The overall self-medication practice score was derived after taking appropriate reverse scoring of those items which were negatively worded. More frequent self-medication practices were associated with a higher score.

The last section involved three statements that measured perceptions of the impact of online unhealthy information on self-medication practices. The agreement of the participants in this study was sought by using the five-point Likert scale: 1 (Strongly Disagree) to 5 (Strongly Agree). These products investigated how participants' use of online health information, unverified social media information and trust in limited healthcare services, may affect their decisions to self-medicate.

Instrument validity and reliability

The questionnaire for this study was created after a thorough literature review and adaptation from validated questionnaires, such as the health misinformation research, and eHealth Literacy Scale (eHEALS). Content of the researcher developed questionnaire was determined as valid with the help of expert opinion by specialists in the fields of public health, nursing, and research methodology. Prior to the data collection, questionnaire's clarity, relevance, and comprehensiveness were improved based on their recommendations.

A selection of around 10% of the total sample (not part of the study) consisted of a pilot study. A pilot-study was done to evaluate the clarity, feasibility, reading level and comprehensibility of the questionnaire. A few minor changes were made according to participants' suggestions to enhance the instrument.

Cronbach's alpha was used to assess internal consistency. The Public Health Literacy ($\alpha = 0.750$), Knowledge ($\alpha = 0.817$), Risk Perception ($\alpha = 0.718$), and Preparedness ($\alpha = 0.829$) scales showed acceptable to good reliability. However, the Health Information-Seeking Behavior section had poor reliability ($\alpha = 0.64$); therefore, its items were analyzed individually rather than as a single scale.

Data Collection Procedure

Before data collection, requirements for conducting this study were met with permission through the relevant authority. Eligibility was determined as the participants who agreed online and via social media applications. Participants were informed about the aim and purpose of the study before completing the questionnaires and signed-up electronically.

The questionnaire was performed online upon an independent questionnaire platform. It took about 10–15 minutes to answer the questionnaire. No personal information, including national ID, email addresses, telephone numbers or names, was gathered so as not to violate anonymity. Questionnaires that were completed were checked to ensure that they were devoid of missing information prior to statistical analysis.

Data Management and Statistical Analysis

The data from the collected items were coded, entered, cleaned, and analyzed with IBM SPSS Statistics version 27.0. Demographic characteristics and the study variables were presented in descriptive statistics. Frequencies and percentages of categorical variables and means and standard deviations for continuous variables were used to summarize the data.

The scores of health misinformation literacy, health misinformation susceptibility and self-medication practice were computed based on the respective scoring frameworks. Pearson's correlation was performed in order to analyze the correlation between misinformation literacy and self-medication. Associations between categorical variables (where appropriate) were assessed using chi square tests. Multiple linear regression (MLR) analysis was carried out to find predictors of self-medication practices, controlling demographic variables. A p value of < 0.05 was statistically significant.

Ethical Considerations

The study used principles of the scientific ethics: respect for persons, beneficence, confidentiality, and voluntariness. All data collection was undertaken voluntarily and informed consent had been administered electronically prior to data collection.

Participants were told that they could refuse to participate in the study or stop if they wanted to at any time. There was no attempt made to collect any personal identifier of any sort to maintain confidentiality and anonymity throughout the study. All data collected was kept securely and only for research, and was not made accessible to others but only to the researcher.

Results

Table 1: Sociodemographic Characteristics of the Participants (n = 196)

Variable	Category	Frequency (n)	Percentage (%)
Age Group	18–21 years	86	43.9
	22–25 years	78	39.8
	26–30 years	32	16.3
Gender	Male	89	45.4
	Female	107	54.6
Educational Level	Intermediate/A-Level	28	14.3
	Undergraduate (Bachelor's)	125	63.8
	Postgraduate or above	43	21.9
Current Residence	Urban	102	52.0
	Semi-Urban	52	26.5

Variable	Category	Frequency (n)	Percentage (%)
	Rural	42	21.4
Monthly Family Income (PKR)	Less than 30,000	51	26.0
	30,000–60,000	68	34.7
	60,001–100,000	41	20.9
	More than 100,000	36	18.4
Formal Health/Medical Education Background	Yes	46	23.5
	No	150	76.5
Primary Source of Health Information	Social media	84	42.9
	Search engines	38	19.4
	Friends/Family	35	17.9
	Healthcare professionals	20	10.2
	Television/Print media	19	9.7

Sociodemographic Characteristics of the Participants

A total of **196 young adults** participated in this study, with complete responses obtained for all sociodemographic variables. Most participants were aged **18–21 years** ($n = 86$, **43.9%**), followed by those aged **22–25 years** ($n = 78$, **39.8%**), while participants aged **26–30 years** constituted the smallest age group ($n = 32$, **16.3%**). Females slightly outnumbered males, accounting for **54.6%** ($n = 107$) and **45.4%** ($n = 89$) of the sample, respectively. Regarding educational attainment, nearly two-thirds of the participants were **undergraduate (Bachelor's) students** ($n = 125$, **63.8%**), whereas **21.9%** ($n = 43$) had postgraduate or higher education, and **14.3%** ($n = 28$) had completed Intermediate/A-Level education. In terms of residence, most participants lived in **urban areas** ($n = 102$, **52.0%**), followed by **semi-urban** ($n = 52$, **26.5%**) and **rural** areas ($n = 42$, **21.4%**).

Regarding socioeconomic and health-related characteristics, the largest proportion of participants reported a monthly family income of **PKR 30,000–60,000** ($n = 68$, **34.7%**), followed by **less than PKR 30,000** ($n = 51$, **26.0%**), **PKR 60,001–100,000** ($n = 41$, **20.9%**), and **more than PKR 100,000** ($n = 36$, **18.4%**). Most respondents **did not have a formal health or medical education background** ($n = 150$, **76.5%**), whereas **23.5%** ($n = 46$) reported having such a background. Social media emerged as the **most frequently reported primary source of health information** ($n = 84$, **42.9%**), followed by search engines ($n = 38$, **19.4%**), friends or family ($n = 35$, **17.9%**), healthcare professionals ($n = 20$, **10.2%**), and television or print media ($n = 19$, **9.7%**). Overall, the study sample predominantly comprised young undergraduate students residing in urban areas, with social media serving as their principal source of health-related information.

Table 2: Descriptive Statistics of the Study Variables ($n = 196$)

Variable	Possible Score	Mean $\pm$ SD	Minimum	Maximum
Health Misinformation Literacy (HML)	8–40	25.06 $\pm$ 5.75	12	37

Variable	Possible Score	Mean $\pm$ SD	Minimum	Maximum
Health Misinformation Susceptibility (HMS)	5–25	13.79 $\pm$ 4.05	5	23
Self-Medication Practices (SMP)	12–60	35.90 $\pm$ 6.82	18	55
Association Between Health Misinformation and Self-Medication (ASM)	3–15	9.29 $\pm$ 2.67	3	15

Descriptive Statistics of the Study Variables

The descriptive statistics for the study variables are presented in **Table 2**. The mean score for **Health Misinformation Literacy (HML)** was **25.06 $\pm$ 5.75**, with scores ranging from **12 to 37**, indicating a moderate level of health misinformation literacy among the participants. The mean score for **Health Misinformation Susceptibility (HMS)** was **13.79 $\pm$ 4.05**, with observed scores ranging from **5 to 23**. The **Self-Medication Practices (SMP)** scale yielded a mean score of **35.90 $\pm$ 6.82**, with scores ranging from **18 to 55**, suggesting a moderate level of self-medication practices among the respondents. The mean score for the **Association Between Health Misinformation and Self-Medication (ASM)** was **9.29 $\pm$ 2.67**, with scores ranging from **3 to 15**. Overall, the findings indicate that participants demonstrated **moderate levels of health misinformation literacy, health misinformation susceptibility, self-medication practices, and the influence of online health information on self-medication behaviors**. These descriptive findings provide an overview of the study variables and establish a basis for subsequent inferential analyses examining the relationships among these constructs.

Table 3: Correlation Matrix of the Study Variables (n = 196)

Variable	1	2	3	4
1. Health Misinformation Literacy	1.00			
2. Health Misinformation Susceptibility	–0.074	1.00		
3. Self-Medication Practices	–0.254**	0.086	1.00	
4. Association Score	–0.185**	0.123	0.204**	1.00

Note. Values are Pearson's correlation coefficients. **p < 0.01.**

Correlation Among the Study Variables

Pearson correlation analysis showed that health misinformation literacy was significantly and negatively associated with self-medication practices (**r = –0.254, p < 0.001**), indicating that participants with higher misinformation literacy tended to report lower levels of self-medication. Health misinformation literacy was also negatively associated with the overall association score (**r = –0.185, p = 0.010**). In contrast, self-medication practices were positively associated with the association score (**r = 0.204, p = 0.004**), suggesting that greater influence of online health information was related to more frequent self-medication behavior.

No statistically significant association was found between health misinformation susceptibility and health misinformation literacy (**r = –0.074, p = 0.302**), self-medication practices (**r = 0.086, p = 0.230**), or the association score (**r = 0.123, p = 0.086**). Overall, the results indicate that higher health misinformation literacy may have a protective relationship with self-medication practices,

whereas stronger online misinformation influence is associated with greater self-medication behavior.

Table 4: Multiple Linear Regression Predicting Self-Medication Practices (n = 196)

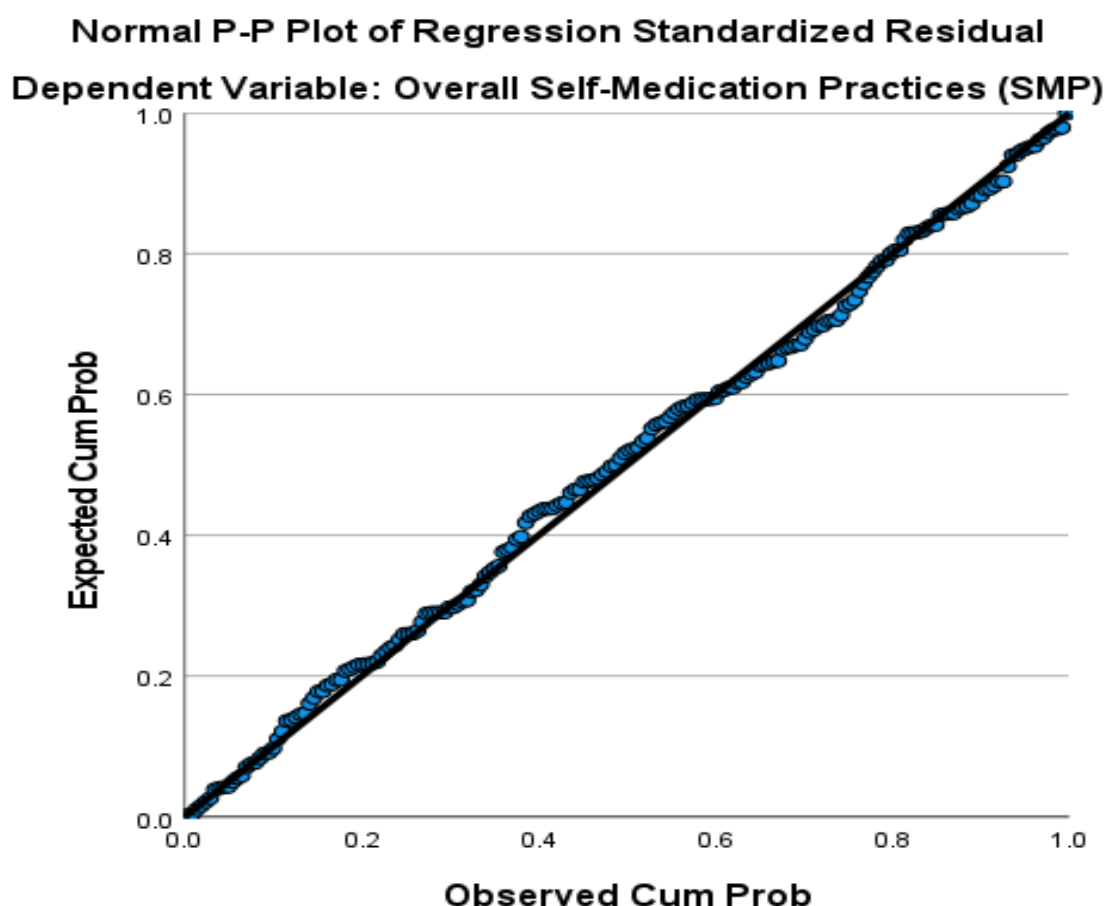
Predictor	B	Standard Error	Standardized β	t	p-value
Constant	39.226	4.672	—	8.397	<0.001
Health Misinformation Literacy	-0.263	0.078	-0.238	-3.359	0.001
Health Misinformation Susceptibility	0.116	0.120	0.069	0.971	0.333
Age Group	0.423	0.666	0.045	0.636	0.526
Gender	-0.830	0.966	-0.061	-0.859	0.392
Educational Level	-0.193	0.808	-0.017	-0.238	0.812
Current Residence	0.331	0.603	0.039	0.549	0.584
Monthly Family Income	-0.345	0.459	-0.053	-0.751	0.454
Medical Education Background	1.542	1.165	0.096	1.324	0.187
Primary Source of Health Information	0.041	0.358	0.008	0.113	0.910

Model summary: $R = 0.302$, $R^2 = 0.091$, Adjusted $R^2 = 0.047$, $F(9,186) = 2.071$, $p = 0.034$.

Multiple Linear Regression Results

A multiple linear regression analysis was conducted to examine whether health misinformation literacy, health misinformation susceptibility, and selected sociodemographic characteristics predicted self-medication practices among participants. The overall regression model was statistically significant, $F(9, 186) = 2.071$, $p = 0.034$, indicating that the predictors collectively explained a significant proportion of variation in self-medication practices. The model explained **9.1%** of the variance in self-medication practices ($R^2 = 0.091$), while the adjusted R^2 was **0.047**, indicating that approximately 4.7% of the variance remained explained after adjusting for the number of predictors.

Health misinformation literacy was the only statistically significant independent predictor of self-medication practices ($B = -0.263$, $\beta = -0.238$, $t = -3.359$, $p = 0.001$). This finding indicates that each one-point increase in health misinformation literacy was associated with a **0.263-point decrease** in the self-medication score, after controlling for the other variables. Health misinformation susceptibility was not a significant predictor ($B = 0.116$, $\beta = 0.069$, $p = 0.333$). Age, gender, educational level, residence, monthly family income, medical education background, and primary source of health information were also not significantly associated with self-medication practices in the adjusted model.



Discussion

This study aimed to examine misinformation and misinformation literacy and how it correlates with self-medication behaviors with a concern to youthful adults in Pakistan. It also analyzed factors that increase susceptibility to health misinformation and how selected sociodemographic factors affect self-medication behavior. The results indicated moderate scores on health misinformation literacy, susceptibility to health misinformation, and self-medication practices, as well as an impact of health information spread in the digital environment on self-medication practices. In addition, health misinformation literacy showed significant negative correlations with self-medication practices and the only significant independent predictor of self-medication was health misinformation literacy, independent of demographic factors. The results of this study add to the emerging literature about the value of digital health literacy for supporting safe medication practices among young adults.

Among the sociodemographic results, most respondents were aged 18-21, women, students, and urban residents. Moreover, most indicated lack of formal training in health or medical field, and social media is deemed as the main medium of health knowledge sources. The results are similar with those who have studied several studies on university students stating that young adults are increasingly depending on digital platforms due to the availability of health-related information to them within a span of moments, accessibility, and convenience on such platforms (Stifjell, Sandanger et al. 2025). This finding of mainly undergraduate students and urbanites is like that of the present study, which may be attributed to increased access to internet, the high rate of smartphone use and greater orientation to social networking sites among younger age groups. While digital media is useful in reaching health information, it may also lead to misinformation

or incorrect information, which may impact medication-related decisions, and can also lead to excessive reliance on digital media for information (Gram, Moynihan et al. 2025).

Another very important finding was that most of the participants did not have any formal education in health or medical field. People who don't have strong educational backgrounds in health sciences might not know much about assessable information on the Internet and may be more susceptible to inaccurate health information. Like other studies, it was found that non-healthcare educated were also less able to tell the difference between accurate information and misinformation, highlighting the importance of improving the digital health literacy of the general public (Fitzpatrick 2023, Ishikawa, Miyawaki et al. 2025). Therefore, there is a need to encourage the use of reliable health sites on the internet and encourage evidence-based health messages in education and corner education clinics.

According to the present study, the participants had moderate levels of health misinformation literacy. The results indicate that while some respondents were able to distinguish between sound health information, there were still significant gaps in assessing the credibility and reliability of the online health information. Moderate DHL has been documented in university students of several countries despite having access to and consumed a lot of information online (Bouclaous, Kamand et al. 2023). Here's one possible reason: While young adults often visit health information websites, training, or formal education on assessing health information found online is scarce. Therefore, many people choose to fail to seek evidence-based sources as their source of information when making health decisions.

The study also revealed a moderate level of health misinformation susceptibility. This suggests that even though participants were somewhat aware of misinformation on health, they remained vulnerable to consuming and/or sharing inaccurate health information on social media platforms. In recent studies, exposure to misinformation has been seen to make people more likely to believe unhelpful health information, with repeated contact with misinformation, and when the information is spread by popular influencers or is emotionally compelling or engaging (Kbaier, Kane et al. 2024, Rodrigues, Newell et al. 2024). Acceptance of inaccurate health-related information may be further affecting people who have some health knowledge because of confirmation bias, repeated exposure, and emotional appeal. The results highlight the need to enhance critical thinking and information evaluation capabilities of young adults.

With regards to self-medication practices, the participants are moderately self-medicated. This result suggests that the use of self-medication is also prevalent among the youth in Pakistan. The trends seen in self-medication practices among college students have also been reported among students from other developing nations such as Pakistan, India, Bangladesh, and other countries, in which self-medication is common, physicians are perceived as costly and time consuming whereas people depend on precedent for common illnesses due to easy access to medical drugs without prescription (Rehman, Ul Abideen et al. 2026). Additional pharmacologic treatments that are available without a prescription, and even greater access to information on health websites, may further augment self-diagnosis and self-medication.

Finally, the self-medication levels found in this study may be attributed to the growing presence of health-related information online, which is moderately used as a source of self-medication information. Instead of going for professional medical advice, there are many young adults who prefer to turn to the internet or advice they get from social media. While self-prescribed medicines for minor ailments might be suitable, inappropriate use can present a risk of adverse drug reactions, delayed diagnosis, choosing the wrong medicine to treat a patient, drug interactions and antimicrobial resistance (Ruiz 2010). Increased medication knowledge and better patient interaction with health care providers are thus public health issues to be addressed.

The correlation analysis results of the present study yielded that the self-medication practices were significantly and negatively correlated with health misinformation literacy. The level of health misinformation literacy was negatively associated with self-medication among participants. This discovery indicates that patients with high skills of identifying, assessing, and assessing online health information have lower inappropriate medication practices. Findings from previous studies show that there is also a relationship between the patient's health literacy with his/her level of health literacy and the ability of decision making in health care, as well as with a reduction in the use of nonindicated medicines (Seo, Goodman et al. 2016). People who have better evaluative skills are more able to confirm the medical information with a reliable source prior to making choices about treatment, which limits unindicated self-medication attempts.

The present study also found a significant negative association between the overall association score with health misinformation literacy, and a positive correlation between online association with health information and self-medication practices. Results show that self-medication behaviors increased with increased online health information reliance. Similar studies have also shown that social media can significantly impact health-related decisions, especially for young adults who are often looking for health information online (Ali, Avais et al. 2025). Misleading information accessed online can cause individuals to self-diagnose and start medicine without talking with medical specialists.

Interestingly, there were no significant relationships between self-medication practices and health misinformation susceptibility. There was a positive trend in self-medication scores for those at high risk which did not reach statistical significance. Occasionally, other factors have been shown to account for the relationship between mistrust and health behaviors, and this finding has been replicated in controlled environments where age alone was shown to predict health behaviors (Cardi, Munk et al. 2009). Self-medication is a complicated behavior and has been linked to many factors: the accessibility of health care, cultural beliefs, previous experience of medication, financial factors, or the influence of the family. Thus, misinformation alone can't completely account for misusing medications by young adults.

The correlation results were confirmed once again by the results of multiple linear regression analysis. Controlling for age, gender, educational level, place of residence, monthly family income, health education background, and main source of health information, health misinformation literacy was the only variable that was found to be statistically significant and predictive of self-medication practices. Higher health misinformation literacy scores were linked to lower self-medication scores. In contrast, there were no significant predictors for health misinformation susceptibility for all sociodemographic variables. The findings indicate that critical evaluation of online health information can be a more important factor than primarily demographic variables to predict drug use behaviors in youth and young adults (Srivastava and Srivastava 2026). The proportion of variance explained by the regression model was modest as might be anticipated as many psychological, social, cultural, and healthcare related factors are likely to be important in the influence of self-medication that were not captured in the present study.

Implications

This study has relevance for nursing education, public health practice and healthcare policy. The strong link between HML and self-medication behaviors underscores the importance of increasing young adults' capacity to critique health information on the internet. Incorporating safe and reliable health-related information within the field of public health along with the inclusion of digital health literacy and evidence-based medication knowledge within existing nursing programs, may help curb the practice of inappropriate self-medication and promote medication safety amongst young adults.

Strengths and Limitations

There are several strengths of this study. Among few studies conducted in Pakistan, it is one which focused on the association between health misinformation literacy with self-medication practices among young adults. The study used a valid questionnaire and internal consistency satisfactory for all the items to assess health misinformation literacy, health misinformation susceptibility and self-medication behaviors comprehensively. In addition, descriptive statistics, Correlation-coefficient, and Multiple linear regression have been used to give a thorough insight into the relationship between the study variables. Although this research offers several benefits, there are also several factors that must be considered. Causality cannot be inferred from the cross-sectional design and responses may suffer from social desirability and recall bias. In addition, the findings may not be representative if non-probability sampling was used. Students are advised to use probability sampling, more size and diversification in people and longitudinal design to increase the chances of establishing causality in the data collected and expounding additional factors that can influence self-medication methods.

Conclusion

The present study analyzed the issue of misinformation literacy, and explored the relationship between misinformation literacy and self-medication behaviors among young adults in the context of Pakistani scenario. The results indicated that health misinformation literacy was at moderate level, health misinformation susceptibility was at moderate level and use of self-medication practices was at moderate level. The health misinformation literacy was shown to have a significant relationship with self-medication in a negative direction, with people that engaged in high misinformation literacy showing less tendency to self-medicate. In addition to that, health misinformation literacy was determined as the sole significant predictor of self-medication practices. The results underscore the need for digital health literacy promotion efforts through health education and public health strategies that will help youth gain the necessary information to make better health decisions, avoid risky drug use, and decrease the damaging effects of health misinformation.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The author declares that there are no conflicts of interest regarding the publication of this study.

Acknowledgements

The author expresses sincere gratitude to all the BSN students who voluntarily participated in this study. Appreciation is also extended to everyone who contributed to the successful completion of this research.

Authors' Contribution

The author solely conceived and designed the study, collected, and analyzed the data, interpreted the findings, and prepared the manuscript.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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