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Predicting the Impact of Teachers' Health Information Literacy Skills on Their Psychological Distress during COVID-19

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Abstract: Health information literacy (HIL) profoundly impacts people's psychological well-being and physical health. It is pertinent to investigate the relationship between HIL and psychological well-being to understand the implications of the COVID-19 pandemic. Therefore, the study aims to predict the impact of HIL skills on psychological distress among college teachers during the COVID-19 pandemic. The study adopted a cross-sectional survey design and data was collected from 315 college teachers through an e-questionnaire. The research data was analysed using descriptive statistics and simple linear regression. HIL skills were assessed on three levels; likely sufficient, problematic, and inadequate health information literacy. Each level of HIL performs in three domains; healthcare literacy, disease prevention literacy, and health promotion literacy. The prevalence of psychological distress and the impact of HIL skills on psychological distress were also measured among the respondents. The respondents exhibited sufficient HIL skills. The findings highlighted that healthcare literacy and disease prevention literacy skills are significant predictors of traumatic stress during the COVID-19 pandemic. Conversely, the respondents with sufficient health promotion literacy skills faced more psychological distress during the COVID-19 pandemic. The study's findings have practical guidelines for practice and decision-making for different stakeholders including information professionals, medical librarians, policymakers, teachers, educationists, psychologists, and general health practitioners. Arrangements to enhance health promotion literacy and measures are needed to develop stress-coping strategies for college teachers to respond to uncertain situations.

Keywords: health information literacy; health literacy; COVID-19 distress; teachers; psychological distress

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1. Introduction

The globally prevailing situation of COVID-19 served as a potential threat to education, the economy, and people of all spheres of life. Fear of getting infections, loss of jobs (Chirico & Magnavita, 2020) economic burden (J. Li et al., 2020) quarantines (Ng, 2020) social distancing, travel bans, and lockdowns posed serious mental health issues; anxiety, stress, and depression. Keeping in view the adverse effects of the health emergency; informed health decisions, preventive and promotional health behaviour, health information literacy (HIL), and stress management skills are highly demanded in the current scenario.

During the pandemic, HIL skills are much needed to make informed health-related decisions involving different steps of information literacy. They mainly require individuals to recognize their health information needs and access accurate health information by approaching reliable websites or medical professionals. Second, carefully interpret and evaluate the health-relevant information to understand health issues. Finally, call-to-action to maintain good health through utilizing the obtained health information for healthcare, disease prevention, and health promotion in a specific situation (Goetz & Teixeira, 2020). Mental and physical health considerations manipulated the significance of HIL skills during the COVID-19 pandemic (Nguyen et al., 2020). HIL comprises a set of competencies that empower people to comprehend self-care and medical information to interact with the healthcare system (Paige et al., 2017; Vozikis et al., 2014). In addition, HIL enables individuals to perform intelligently in novel and changing health circumstances by applying cognitive and social skills (Speros, 2005). Dissimilar to that, low HIL skills are associated with poor health outcomes, a high rate of health services utilization, high health costs, and continuous visits to emergency rooms (Haun et al., 2015; Nutbeam, 2008; Mancuso, 2008; Speros, 2005).

During the pandemic, governments and healthcare professionals emphasized adopting preventive health behaviours to mitigate the virus transmission massively. The importance of HIL skills becomes more evident during COVID-19 and in a country with an under-resourced healthcare system like Pakistan. The COVID-19 pandemic has its impending effects on the public but presented exceptional challenges for the education, educators and healthcare systems (Nguyen et al., 2020). It is widely accepted that negative life events cause psychological distress (Kidwai et al., 2014; Marum et al., 2014). Generally, anxiety is a general response to any stressful condition and the fear of unknown circumstances may have multiple adverse fallouts (Saleem et al., 2020). Teachers impart their knowledge and vision to the next generations but the pandemic of COVID-19 suspended face-to-face academic activities.

No doubt, teaching is a highly stressful profession (Johnson et al., 2005; Newberry & Allsop, 2017) and academics assumed new roles and responsibilities to embrace the new ways of working during the time of global pandemic (Beames et al., 2021). Moreover, education is considered a key

component in promoting health, preventing disease and cultivating an informed citizenry (Nutbeam, 2008; Walker & Doyle-Baker, 2019). Teachers' stress may affect the quality of their instructions and class management tasks which ultimately contributes to low academic performance (Madigan & Kim, 2021; McLean & Connor, 2015) and the health behaviour of students (Sparks, 2017).

It has been also argued that teachers are one of the neglected frontline workers at the time of the pandemic (Beames et al., 2021). Various studies investigated the HIL skills and the occurrence of psychological disorders in the sample of teachers concerning different causes, factors and institutional backgrounds in varying geographical contexts. The studies have been conducted to measure the HIL skills of schoolteachers (Abuda & Noroña, 2020; Bae & Yoon, 2021; Shojaei Baghini et al., 2020) and school administrators (Dadaczynski et al., 2022). There are studies which also identified stress, anxiety and depression related to COVID-19 among teachers (Besser et al., 2022; Li et al., 2020; Stachteas & Stachteas, 2020; Wakui et al., 2021; Fan et al., 2021) separately, however, very little research was carried out to investigate the impact of HIL skills on psychological distress during COVID-19 (Tran, et al., 2020; De Buhr et al., 2020; Hoang et al., 2020; Dadaczynski et al., 2021). Hence, health literacy is found to protect against depression and anxiety.

Locally in Pakistan, Yaqoob et al. (2021) investigated knowledge, attitudes and practices towards COVID-19 among students and teachers. The researchers also reported that the adoption of protective measures against infectious diseases was associated with HIL (Castro-Sánchez et al., 2016) and it also investigated that COVID-19 negatively affected the mental health of society and education (Karataş, 2020; Huang & Zhao, 2020; Bo et al., 2021). A review of the literature informs that the impact of HIL skills level on subscales of psychological distress has not been studied in the current scenario of the COVID-19 pandemic. Teachers' physical and mental well-being is momentous like other segments of the population in the time of global health emergency, and teachers' HIL skills are important for themselves and students' health behaviour. However, no particular study investigated the HIL skills and COVID-19 psychological distress among public college teachers. Therefore, due to the large-scale impact of COVID-19 across the population, it is necessary to investigate the HIL skills and psychological distress level among college teachers in COVID-19 settings. Secondly, it was also aimed to measure the impact of HIL skills of college teachers on their psychological distress during the COVID-19 pandemic.

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2. Review of the Literature

2.1. Health Information Literacy Skills of Teachers of Public Colleges

As self-management of health increases individuals are expected to assume new roles of seeking health information, understanding rights and responsibilities, and making better health-related decisions for themselves and the community. The core concept underlying these demands is individuals' knowledge and competencies to perform and interact with the healthcare system (Nielsen-Bohlman et al., 2004). HIL is a multidimensional concept (Frisch et al., 2012) ranging in multiple competencies. The concept of HIL is measured in different dimensions and domains/ levels. Nutbeam (2000) conceptualized HIL with varying capabilities into basic/functional literacy skills, communicative/interactive, and critical literacy skills. Each level is determined by different capabilities which are reading, writing, cognitive, communication, advanced cognitive and social skills. Sørensen et al. (2012) analyzed the concept of HIL skills in three levels likely sufficient HIL, problematic HIL and inadequate HIL. Each level performs to measure four competencies (access, understand, appraise, and apply information relevant to health) in three health-related domains; healthcare, disease prevention, and health promotion. HIL is important in building competencies to make profound health decisions in daily lives and concerns with operative participation in healthcare, disease prevention, and health-promoting activities (Sumanu & Madge, 2023; Barry et al., 2013).

Medical Library Association (2003) defined health information literacy as cited by Shipman et al. (2009: 294)

"The set of abilities needed to recognize a health information need, identify likely information sources and use them to retrieve relevant information, assess the quality of the information and its applicability to a specific situation, and analyze, understand, and use the information to make good health decisions".

All these elements of HIL are related to cognitive capabilities and skills which predict an individual's ability to make informed decisions for better health outcomes, defined as

"Level of knowledge and personal skill to manage and analyze information regarding one's health to exert greater control over health situations and the ability to take action to change the determinants of health in the environment are implied" (Levin-Zamir et al., 2016).

In the current global scenario of the COVID-19 pandemic, the elevation of HIL skills is considered an urgent goal in public health and education. Individuals' liability for general health and against disease prevention has become a matter of a great deal. Teachers are trainers of future generations and can provide healthy lifestyle information to students at a larger and more contextual level (Wong & Cheng, 2012). Teachers' HIL skills are important to make informed health choices for themselves, their students, community, and to prepare the next generations for positive roles. In addition, teachers' knowledge about

healthy lifestyles, and practical behaviour has a positive correlation with HIL (Lamanauskas & Augienė, 2019). Teachers' HIL was a key determinant of teachers' health-promoting behaviour associated with a healthy diet, physical activity, stress management, and reduced risky habits (Bae & Yoon, 2021). Similarly, teachers' knowledge, attitudes, and practices positively weighed to fight against infectious diseases (Yaqoob et al., 2021).

Moreover, educational administrators with sufficient levels of HIL skills were more likely to implement health-promoting activities in the educational environment which is beneficial at the community level (Lamanauskas & Augienė, 2019). Lamanauskas and Augienė (2019) also, uncover the truth that academic institutions are suitable venues to cultivate HIL skills of the young generation concerned with physical and mental health.

2.2. Psychological Distress among Teachers of Public College

Psychological distress is defined by Ridner (2004: 539) as

"The unique discomforting, emotional state experienced by an individual in response to a specific stressor or demand that results in harm, either temporary or permanent, to the person".

Lizhi et al. (2021) claimed the prevalence of psychological distress among teachers during the COVID-19 pandemic. The study reported that 35.5% of Chinese teachers suffered sleep disturbance, 25.3% denounced somatic discomfort, 17.7% experienced anxiety symptoms, 4.0% reported depression, and 2.8% expressed self-injury or suicidal thoughts. A high percentage of university teachers reported moderate to severe anxiety, somatic symptoms, depression, and sleep disturbance.

In the same vein, Nabe-Nielsen et al. (2021) noted lack of access to personal protective equipment and exposure to infectious students, teachers, and parents were factors linked with more frequent adverse effects on mental health. In addition, the fear of getting an infection and emotional disturbance was equally high among those who were involved in teaching on campus or in online teaching. Moreover, teachers were more likely to experience negative emotions towards COVID-19 than other occupational groups during the pandemic.

Similarly, Ozamiz-Etxebarria et al. (2021) explored in a rapid systematic review with meta-analysis of the prevalence of anxiety, stress, and depression among teachers during the COVID-19 pandemic. The symptomatology is due to various causes, especially the unplanned shift from face-to-face to online mode of learning. The study results showed that 17% of teachers experienced anxiety, 19% depression, and 30% stress. The prevalence of psychological distress was comparatively higher in Asian countries than in other continents. The schoolteachers exhibited a higher level of anxiety compared to university

teachers. However, the stress level was higher among university academics than schoolteachers.

Likewise, Silva et al. (2021) identified prevalent causes of psychological distress among teachers who were engaged abruptly in e-learning without prior readiness and returned to face-to-face learning amid the COVID-19 pandemic. Insufficient personal protective measures, improper knowledge of mask-wearing practices, and close contact with students were significant predictors of mental health problems (Q. Li et al., 2021). Yi et al. (2021) also identified that excessive use of social media presented a toll on the mental health of teachers conducting online teaching. The study explored the problematic internet use as a predictor of psychological distress among teachers with a mediating role of fear of the COVID-19 and psychological need to thwart online teaching.

To reduce distress, social support networking among teachers at the workplace enhanced their interpersonal relationships and stress management behaviour which led to better health status including physical, mental, and spiritual health (Bae & Yoon, 2021).

2.3. Impact of Health Information Literacy Skills on Psychological Distress among Teachers

Mental health concerns were well-identified in the public (Wang et al., 2020; Montano & Acebes, 2020; Al-Shannaq et al., 2021; Li et al., 2020) during the pandemic. HIL skills have demonstrated a far-reaching effect on mental and physical health outcomes. Rapidly evolving infectious diseases pose a serious threat to the population and healthcare system across the world (Druss, 2020) and HIL has been considered a safeguard for physical and mental health (Nguyen et al., 2020).

HIL has a significant contribution to the treatment and prevention of depression. The researchers documented that low HIL is associated with inadequate adoption of preventive measures such as immunization, and least understanding of antibiotics (Castro-Sánchez et al., 2016) and causing higher depressive symptoms among Korean adults (Rhee et al., 2017). Okan et al. (2020) also denoted that confusion about COVID-19-related information was significantly higher among those who had lower levels of HIL skills. In the same manner, Dadaczynski et al. (2022) investigated the association of HIL with the mental health concerns of school principals. The results of the study revealed that 29.2% of the sample showed limited health literacy. Concerning mental health, 40% of the sample indicated a low level of well-being and 15% of with clinical depression. Male school principals were more vulnerable to low health literacy compared to their female counterparts.

Similarly, Alshehri et al. (2020) identified the increased perception of threat regarding COVID-19 as positively associated with an increased risk of Post-Traumatic Stress Disorder symptoms and led to mental health issues. Ahmadi and Montazeri (2019) reported limited health literacy of pre-service teachers

with difficulty in evaluating and implementing health-related information. Moreover, male participants and those less than or equal to age 20 years showed significantly low health literacy. However, Baird et al. (2019) explored high depression literacy to have a positive association with depression among older Korean Americans.

Subsequently, in the time of the global health emergency of COVID-19, HIL has become more consequential than ever at the individual, community, and population levels (Okan et al., 2020). To support such claims, Rajkumar (2020) anticipated that the mental health problems of the pandemic may be apparent after a long time in the post-pandemic era. It is noticed that although prior studies investigated the influence of HIL on depression, anxiety and stress. However, the literature is silent on the relationship of all levels (Sufficient, problematic and inadequate) of HIL on subscales of psychological distress during the COVID-19 pandemic.

3. Research Objectives of the Study

The objectives of the study are as follows:

- To assess the perceived health information literacy skills of teachers of public colleges during the COVID-19 pandemic.
- To identify the prevalence of psychological distress among teachers of public colleges during the COVID-19 pandemic.
- To measure the impact of health information literacy skills of teachers of public colleges on their psychological distress during the COVID-19 pandemic.

4. Design of the Study

A cross-sectional study design is a type of observational study design. This method is popular due to its time and cost-effectiveness. In the present study, a cross-sectional survey method was adopted to collect data to make inferences about the targeted population at one point in time. A survey questionnaire is usually used to investigate the trends, attitudes, and opinions of large groups of the population and to test for associations among variables (Creswell & Creswell, 2017). Therefore, a questionnaire was developed to meet the study objectives.

Data Collection Instrument: To achieve the objectives of the study, two separate but interrelated survey questionnaires were adopted. HLS-EU-Q16 (Pelikan et al., 2014) is a short form of the European Health Literacy Survey Questionnaire-47 developed by (Sørensen et al., 2012). HIL is defined according to three levels: likely sufficient HIL (13–16 statements), problematic

HIL (9–12 statements), and inadequate HIL (1–8 statements). HLS-EU-Q16 measures four competencies (access, understand, appraise, and apply information relevant to health) in three health-related domains (healthcare, disease prevention, and health promotion). Data was collected on a four-point Likert scale from 'very difficult to very easy. This comprehensive HIL data collection instrument is valid and reliable in European and Asian populations as well (Duong et al., 2017).

To measure psychological distress, COVID Stress Scales (CSS) developed by Taylor et al. (2020) were adopted to meet study objectives. CSS is a self-report assessment tool used to measure COVID-19-related distress. The 36 items of CSS were developed to better understand and assess COVID-19-related distress; 1-6 items about danger; 7-12 socio-economic consequences; 13-18 xenophobia; 19-24 contamination; 25-30 traumatic stress; 31-36 compulsive checking. Items were rated on a 5-point Likert scale ranging from 1 (never) to 5 (almost always). CSS was used to measure pandemic-related psychological distress. The scale showed good reliability coefficients and adequate validity indexes (Montano & Acebes, 2020).

Alpha is a widely used method to measure the internal consistent reliability of measurement tools. To check the reliability of the questionnaire according to population and geographical variation, the Cronbach's Alpha reliability analysis test was performed in Statistical Package for Social Science Version 22 (SPSS-22) on all relevant sections of the questionnaire. The Cronbach's Alpha coefficient of HLS-EU-Q16 was 0.782 and of CSS was 0.922. However, the alpha coefficient value for problematic HIL was 0.577. According to Perry Hinton et al. (2004: 356), a 0.50 to 0.70 alpha coefficient shows moderate reliability which is acceptable. The value of Cronbach's Alpha test of measuring instrument showed that it was valid and reliable to get responses from the respondents on study concepts. The cut-off values HIL mean score between 1-2 indicates inadequate HIL, a mean score of more than 2 and less than 3 indicates problematic HIL and a mean score of more than 3 predicts a sufficient level of HIL skills (Ahmed et al., 2021).

Table 1. Cronbach's Alpha Coefficient of HLS-EU-Q16, COVID Stress Scale and Sub-Scales

Scale	Sub-Scales	Alpha Value
HLS-EU-Q16		0.782
	Healthcare Literacy	0.707
	Disease Prevention Literacy	0.577
	Health Promotion Literacy	0.798
Covid Stress Scale		0.922
	Danger	0.758

Socioeconomic Consequences	0.911
Xenophobia	0.915
Contamination	0.888
Traumatic Stress	0.807
Compulsive Checking	0.700

Population & Sampling: The data collection site was Faisalabad (District), Pakistan. Faisalabad is the second most populous district of Punjab (Pakistan Bureau of Statistics, 2017) and in October 2020, Faisalabad was identified as a fourth major district of Punjab, Pakistan with a high number (6102) of COVID-19 cases (Saeed et al., 2021). Therefore, it was decided to investigate the phenomenon in this major district of Pakistan. Moreover, college teachers were the target population of the study. Education is fundamental to human rights and the foundation of a nation's socioeconomic development (Pakistan Economic Survey 2020-2021, 2021) and a nation's capacity building with a notable audience of youth. Academic institutions are suitable venues to build HIL skills in youth (Cheng & Wong, 2015) and teachers are elemental in developing several literacies.

According to the statistics acquired from the Directorate of Colleges Faisalabad Division, there were 1079 teachers (male and female) delivering instructions to 76293 students and working on different pay scales at 48 male and female public colleges in Faisalabad District. So, it was found necessary to assess the HIL skills and well-being of college teachers interacting with a large group of students during the COVID-19 pandemic. For this purpose, research data was collected from the respondents during October and November 2020.

Sample Size and Sampling Technique: Sampling is the process of recruiting the selected segment of the whole population of the study. This technique reduces the work burden and cost which involves targeting the whole population and is crucial in every study that has been conducted with primary data (Rahi, 2017). The recruitment of the appropriate sample size to obtain data is a big challenge for researchers. However, different formulae and rules of thumb are used to determine the accurate sample size because the sample size refers to the number of respondents participating in a study.

According to Ellis (1994) with a confidence level of 95 per cent and an error margin of 5 per cent, a sample size of 400 respondents is "needed to achieve accuracy within sampling error limit" (p.175). Through the convenience sampling method and according to Ellis' recommendation, 400 respondents to the study were recruited at the time of data collection. Nevertheless, 315 responses were collected at the rate of 78.75%. To ensure and recruit a

representative sample, an effort was made to select a sample from all disciplines; Social sciences, Sciences, Arts, and Computer Science of public colleges of Faisalabad District, Punjab, Pakistan. With relevance to gender, both male and female teachers were targeted in the data collection procedure. The researchers ensured the possible measures to minimize the shortcomings of convenience sampling and the results of the study will be more likely to generalize on the population being studied.

5. Results of Data Analysis

5.1 Demographic Information

One section of the questionnaire was developed to gather demographic information from the respondents. The section is comprised of six demographic variables, which are i) Gender, ii) Place of Birth, iii) Age, iv) Discipline, v) Education, and vi) Income per month.

Gender-wise Distribution of the Respondents: Results given in Table 2 highlight that the majority of the respondents 191 (60.6%) were female and the rest of the respondents 124 (39.4%) were male.

Birthplace-wise Distribution of the Respondents: The frequency distribution given in Table 2 shows that the majority of the respondents 194 (61.6%) were born in urban areas, while 121 (38.4%) respondents belonged to rural areas.

Age-wise Distribution of the Respondents: Results of the data analysis presented in Table 2 show that the highest number of respondents 111 (35.2%) was from the age group of "31-40" years, followed by 96 (30.5 %) the respondents from the age group of "41-50" years and 78 (24.8%) respondents were of the age group of "21-30" years. However, the least number of 30 (9.5%) respondents was from the age group of "51-60" years.

Discipline-wise Distribution of the Respondents: The frequency and percentage of the respondents concerning their disciplines have been shown in Table 2. According to the descriptive statistics, the highest number of the respondents 133 (42.2 %) was from the Arts discipline. The respondents from the Sciences and Social Sciences disciplines were 76 (24.1%) and 75 (23.8%) respectively. The least number of the respondents were from Computer Science, which was 31 (9.8%) of the total respondents.

Education-wise Distribution of the Respondents: The frequency distribution of the respondents in terms of their academic qualifications is shown in Table 2. The results of data analysis show that the majority of the respondents 178 (56.5%) were of academic qualification MPhil. A frequency distribution shows that a prominent number of the respondents 114 (36 %) had a minimum level of education M.A. However, the least number of the respondents 23 (7.3%) had the maximum academic qualification of a PhD.

Monthly Income-wise Distribution of the Respondents: Table 2 describes the frequency distribution of the respondents based on their monthly income. The analysis shows that nearly half of the respondents 155 (49.2 %) monthly income

from the lowest range of income of PKR 30500-77500 followed by 38 (21.6 %) respondents' monthly income in the income range of PKR. 77501-96500. The results show that 16.8 % of the respondents were in the income range of PKR. 96501-12500, while only 12.4% of the respondents were in the maximum range of income of PKR. 120501-132500. At the time of data collection, one Dollar rate was equivalent to PKR 162.43 in Pakistan.

Table 2. Demographic Characteristics of the Respondents (N=315)

Variables	Category	Percentage	(N=315)
Gender	Male	39.4	124
	Female	60.6	191
	Total		315
Birthplace	Rural	38.4	121
	Urban	61.6	194
	Total		315
Age	21-30	24.8	78
	31-40	35.2	111
	41-50	30.5	96
	51-60	9.5	30
	Total		315
Discipline	Arts	42.2	133
	Sciences	24.1	76
	Social Sciences	23.8	75
	Computer Science	9.8	31
	Total		315
Education	M.A	36.2	114
	Mphil	56.5	178

	PhD	7.3	23
	Total		315
Income	30500-77500	49.2	155
	77501-96500	21.6	68
	96501-120500	16.8	53
	120501-132500	12.4	39
	Total		315

5.2. Perceived Health Information Literacy Skills of College Teachers During COVID-19

This section of the questionnaire comprises 16 statements defining three health-related domains (healthcare, disease prevention, and health promotion literacy). The findings (Table 3) revealed the healthcare literacy mean score (mean= 3.01), disease prevention literacy mean score (mean= 3.02), and health promotion literacy mean score (mean= 3.11). The mean score of three domains; healthcare literacy, disease prevention literacy, and health promotion literacy depicted that the respondents had sufficient HIL skills.

Table 3. Perceived Health Information Literacy Skills of College Teachers During COVID-19 Mean Score (N=315)

Variables	Mean
Healthcare Literacy	3.01
Disease Prevention Literacy	3.02
Health Promotion Literacy	3.11

Scale: 1 = Very Difficult, 2 = Difficult, 3 = Easy, 4 = Very Easy

5.3. The Prevalence of Psychological Distress among College Teachers During COVID-19

There are six dimensions of the CSS comprising thirty-six statements to measure psychological distress during COVID-19. The mean score of the six dimensions of CSS has been given below (Table 4). The results depicted that the respondents had psychological distress very often related to contamination of

objects (mean= 3.23) followed by danger (mean= 3.22) and xenophobia (mean= 3.05) respectively. The results show that the respondents had psychological distress sometimes to compulsive checking of body symptoms, internet searching (mean= 2.87), and socio-economic consequences related to COVID-19 (mean= 2.75). The results revealed that the respondents had rarely traumatic stress (mean= 2.10). The findings highlight that the majority of the respondents had distress related to infected physical objects and surfaces such as staircases, door handles, debt machines etc. The majority of the respondents felt in danger; stress to keep their families safe from the virus, the inability of the healthcare system to provide health services and insufficient protective measures to protect from the virus. The respondents also stressed that foreign restaurants and foreigners (xenophobia) were spreading the virus. The respondents felt comparatively less distressed about compulsive checking of body symptoms, internet searching, socioeconomic consequences (i.e., shortfall of basic commodities and medicines), and traumatic stress.

Table 4. Prevalence of Psychological Distress among College Teachers During COVID-19 Mean Score (N=315)

Variables	Number of Items	Mean	SD
Contamination	06	3.23	.81
Danger	06	3.22	.68
Xenophobia	06	3.05	.93
Compulsive checking	06	2.87	.60
Socio-economic Consequences	06	2.75	.82
Traumatic Stress	06	2.10	.91

Scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Very Often, 5 = Almost Always

5.4. Impact of Healthcare Literacy Skills on Psychological Distress among College Teachers During COVID-19

Simple linear regression analysis was used to assess the strength of a relationship between one independent and one dependent variable. Regression analysis helps in predicting how much variance is being accounted for in a dependent variable by an independent variable. In regression analysis prediction and explanation of the dependent variable is based on the independent or predictor variable (Hair et al., 2006). The results (Table 5) revealed that simple linear regression was used to find the effect of healthcare literacy skills on subscales of the CSS: danger, socioeconomic consequences, xenophobia,

contamination, traumatic stress, and compulsive checking. The findings show that healthcare literacy skills were not significant to danger ($p = .415 > 0.05$), socioeconomic consequences ($p = .139 > 0.05$), xenophobia ($p= .303 > 0.05$), contamination ($p = .879 > 0.05$) and compulsive checking ($p = .148 > 0.05$). However, analysis shows that healthcare literacy skills ($\beta = -.161$, $p = .004 < 0.05$) are a negatively significant predictor of traumatic stress in the respondents. The respondents' higher level of healthcare literacy skills predicted lower traumatic stress scores during the COVID-19 pandemic. Healthcare literacy explained the 26% variance in the traumatic stress score ($R2 = .026$, $p < 0.05$). The findings imply that a higher level of healthcare literacy plays an important role in reducing traumatic stress (caused by shock) during COVID-19. There is a need to further enhance the healthcare literacy skills of college teachers to protect against COVID-19-induced psychological distress.

Table 5. Impact of Healthcare Literacy Skills on Psychological Distress among College Teachers During COVID-19 (N= 315)

Independent Variable	Dependent Variable	Mean	SD	β Value	R^2	F	*P-Value*
Healthcare Literacy	Danger	3.22	.68	-.046	.002	.666	.415
	Socioeconomic Consequences	2.75	.82	-.084	.007	2.204	.139
	Xenophobia	3.05	.93	-.058	.003	1.066	.303
	Contamination	3.23	.81	-.009	.000	.023	.879
	Traumatic Stress	2.10	.91	-.161	.026	8.298	.004
	Compulsive Checking	2.87	.60	-.082	.007	2.102	.148

Significant *P-Value* = 0.05

5.5. Impact of Disease Prevention Literacy Skills on Psychological Distress among College Teachers During COVID-19

The results (Table 6) show that simple linear regression was applied to measure the effect of disease prevention literacy skills on subscales of the CSS: danger, socioeconomic consequences, xenophobia, contamination, traumatic stress, and compulsive checking. The findings show that disease prevention literacy skills were not significant to danger ($p = .495 > 0.05$), socioeconomic consequences ($p = .299 > 0.05$), xenophobia ($p= .649 > 0.05$), contamination ($p = .551 > 0.05$) and compulsive checking ($p = .197 > 0.05$). However, analysis shows that disease prevention literacy skills ($\beta = -.152$, $p = .007 < 0.05$) are a negatively significant predictor of traumatic stress in the respondents. The higher level of disease prevention literacy skills of the respondents benefited from lower

traumatic stress during the COVID-19 pandemic. The disease prevention literacy skills predicted the 23% variance in the traumatic stress score (R2 = .023, p < 0.05). The findings suggest that the disease prevention literacy skills of college teachers may be more protective against psychological distress during COVID-19. To get the desired benefits, tailored interventions such as the provision of detailed information on prevailing health problems, discussions with medicine practitioners, and plain language information about health issues could be fruitful

Table 6. Impact of Disease Prevention Literacy Skills on Psychological Distress among College Teachers During COVID-19 (N= 315)

Independent Variable	Dependent Variable	Mean	SD	β Value	R^2	F	*P-value*
Disease Prevention Literacy	Danger	3.22	.68	-.039	.001	.466	.495
	Socio-economic Consequences	2.75	.82	-.059	.003	1.084	.299
	Xenophobia	3.05	.93	-.026	.001	.208	.649
	Contamination	3.23	.81	.034	.001	.356	.551
	Traumatic Stress	2.10	.91	-.152	.023	7.374	.007
	Compulsive Checking	2.87	.60	-.073	.005	1.675	.197

Significant *P-Value* = 0.05

5.6. Impact of Health Promotion Literacy Skills on Psychological Distress among College Teachers During COVID-19

The results denoted in Table (7) highlight that simple linear regression analysis was used to find the impact of health promotion literacy on subscales of the CSS: danger, socioeconomic consequences, xenophobia, contamination, traumatic stress, and compulsive checking. The results revealed the positive impact of health promotion literacy of the respondents on socioeconomic consequences (p = .000 > 0.05), xenophobia (p = .000 > 0.05), contamination (p = .000 > 0.05), traumatic stress (p = .000 > 0.05) and compulsive checking (p = .000 > 0.05) except danger. The higher level of health promotion literacy skills of the respondents showed higher symptoms of socioeconomic consequences, xenophobia, contamination, traumatic stress, and compulsive checking distress during the COVID-19 pandemic. The health promotion literacy skills predicted

the 18% variance in the socioeconomic consequences score (R2 = .180, p < 0.05), 11.7% variance in xenophobia (R2 = .117, p < 0.05), 29.6% variance in contamination (R2 = .296, p < 0.05), 12% variance in traumatic stress (R2 = .120, p < 0.05), and 46.7% variance in compulsive checking (R2 = .467, p < 0.05), during the COVID-19 pandemic. These findings depicted the converse effect of health promotion literacy skills on psychological distress among the respondents during the COVID-19 pandemic. Health promotion literacy skills positively contributed to psychological (socioeconomic consequences, xenophobia, contamination, traumatic stress, and compulsive checking) distress during the COVID-19 pandemic.

Table 7. Impact of Health Promotion Literacy Skills on Psychological Distress among College Teachers During COVID-19 (N=315)

Independent Variable	Dependent Variable	Mean	SD	β Value	R^2	F	*P-value*
Health Promotion Literacy	Danger	3.22	.68	1.00	1.00		
	Socioeconomic Consequences	2.75	.82	.424	.180	68.717	.000
	Xenophobia	3.05	.93	.342	.117	41.369	.000
	Contamination	3.23	.81	.544	.296	131.482	.000
	Traumatic Stress	2.10	.91	.346	.120	42.614	.000
	Compulsive Checking	2.87	.60	.683	.467	274.209	.000

Significant *P-Value* = 0.05

6. Discussion

This research study was intended to measure the HIL skills and the prevalence of psychological distress among college teachers. The study also investigated the impact of the HIL skills level of college teachers on the sub-scales of psychological distress during the COVID-19 pandemic. The present study adopted the practice of using an e-questionnaire with college teachers which is relatively uncommon in developing countries. Information literacy (IL) has various characteristics in different contexts, especially in health and medicine. This close association signified the need for IL in health (Aharony, 2010). HIL is a sub-component of the umbrella term; information literacy. It is worth saying that HIL is specific. However, we can assume that the general IL skills and competencies of the respondents would not be at the expert level, however, it is significant to examine the IL in general. The mean scores of all three levels of HIL skills - healthcare (3.01), disease prevention (3.02), and health promotion literacy (3.11) were more than three, which indicated the sufficient level of HIL skills of college teachers. These findings were found consistent with the high score of knowledge, attitude, and practice of teachers and students towards COVID-19 (Yaqoob et al., 2021). The findings documented by Abuda and Noroña (2020) also support that secondary school teachers possess a high level of functional, communicative, and critical HIL skills. Correspondingly, Denuwara and Gunawardena (2017) studied schoolteachers in an education zone in Colombo, Sri Lanka, and found adequate health literacy in three domains; healthcare literacy (70.9%), disease prevention literacy (47.8%), and health promotion literacy (67.5%).

Therefore, based on current study findings, it can be concluded that teachers possess a sufficient level of HIL skills. One of the obvious reasons for sufficient HIL skills of college teachers may be that they are well-educated and possess good academic qualifications. Moreover, the healthcare and disease prevention literacy skills of the college teachers protected them from traumatic stress. It is assumed that better healthcare and disease prevention literacy skills can provide better shielding against traumatic stress. It proves the logical reason that healthcare and disease prevention literacy skills were crucial at the time of the pandemic to prevent the spread of the disease and resulting distress. There may be another reason that the respondents had not experienced stress, which was education and awareness or a good level of HIL skills. However, it was ascertained through findings that the majority of the college teachers faced difficulty in finding and applying information related to mental health issues like stress, anxiety and depression.

The findings revealed that the majority of college teachers suffered from psychological distress during the pandemic which is similar to other contemporary studies (Wakui et al., 2021; Nabe-Nielsen et al., 2021; Mansoor et al., 2020). The findings also showed the positive impact of health promotion literacy skills on psychological distress during the pandemic which is in line with (SĞIRCI et al., 2022). The study supported Kidwai et al. (2014) and Marum et al. (2014) claim that negative life events caused psychological distress and exposure to a massive health crisis like COVID-19 may be the main reason which led to psychological distress among the study population with a relatively sufficient level of HIL skills. There may be some extraneous variable that is not counted in the present study endorsed by Xiao et al. (2020) who identified an indirect effect of infectious-disease-specific health literacy on anxiety through resilience. Health literacy was positively associated with increased resilience and resilience was negatively associated with decreased anxiety.

However, the findings showed that the respondents with sufficient health promotion literacy level experienced psychological distress, coinciding with the type 2 diabetes patients who reported being stressed and showed a reduced influence of health literacy (Schinckus et al., 2018). Healthcare literacy and disease prevention literacy skills protected the respondents at a sufficient level against traumatic stress during the pandemic which is not in line with the perceived threat of COVID-19 positively associated with Post Traumatic Stress Disorder (Alshehri et al., 2020) and the positive correlation between health literacy scores and post-traumatic stress in paramedical staff (Bölükbaş & Yöndem, 2022) but it is an optimistic reflection of healthcare and disease prevention literacy to better health outcomes.

The direct impact of health promotion literacy skills on psychological distress subscales- socioeconomic consequences, contamination, xenophobia, traumatic stress, and compulsive checking was positively significant. The results consistent with Baird et al. (2019) reported that higher depression literacy has a significant positive association with a higher score of depression at the rate of 22.5% among older Korean Americans. Moreover, previous and contemporary studies on infectious disease outbreaks have demonstrated that such health crises impact survivors, and peoples' mental well-being and lead to mental

The study provides an understanding to health policymakers and health service providers to design programmes for improving the health promotion literacy of targeted populations. The study also helps to understand and weigh up the effects of the pandemic among different geographic regions and professionals. The findings proposed that academic librarians and information professionals should design library services to enhance the competencies of teachers on how to find and evaluate health information sources to maintain health, transform health behaviour, and healthy lifestyle. The study suggested the integration of health promotion literacy into general education and in-service trainings of academic leaders. Additionally, teachers are role models; their health behaviours and lifestyle can affect the health knowledge and health behaviour of students. A teacher's role as an instructor could produce well-informed citizens but the research instrument used in this study could only measure the HIL skills of teachers as consumers rather than as providers. Further studies are needed to investigate teachers' HIL skills as instructors to produce health-literate citizens. Attaining higher health promotion literacy skills is a significant investment in to fight against infectious diseases at the community level.

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