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Enhancing Health Literacy and Promoting Adolescents Healthy Behaviors: Empirical Analysis

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Abstract

This study investigates health literacy (HL) current levels and health promotion behaviors (HPB) among adolescents in Peshawar, Pakistan. Recognizing adolescence as critical period for fostering health-promoting behaviors, the research examines relationship between HL and HPB and explores socio-demographic factors influencing these variables. Utilizing cross-sectional survey of 298 tenth-grade students from diverse socioeconomic backgrounds, the study employs validated scales to measure HL and, HPB. Findings reveal that HL and HPB among participants, with significant correlations between HL and various dimensions of HPB, particularly stress management and spiritual growth. Socio-demographic factors such as parental education and internet use significantly influence HL and HPB. Gender disparities were observed, with male students exhibiting slightly higher HL and HPBs. The study underscores importance of integrating comprehensive health education into school curricula, enhancing parental involvement, and leveraging digital platforms for effective health promotion. These insights call

for targeted interventions to improve health literacy and promote equitable health behaviors, ultimately aiming to diminish future health disparities.

Keywords: Health Literacy, Adolescence, Health Promotion, Validity, Nutrition.

Introduction

Health literacy, defined ‘access capacity that understand, and utilize information and informed decisions for healthcare services, plays a crucial role across all stages of life’ (Ehmann et al., 2020). Beginning in early childhood and continuing throughout adulthood, health literacy empowers individuals to maintain and improve their health, influencing behaviors like nutrition, physical-activity and stress management (Liu et al., 2020). Adolescence, marked by rapid physical, psychological, and social changes, represents a pivotal period for fostering these health behaviors (Nutbeam & Lloyd, 2021)

The beginning of health literacy occurs from the early childhood years and continues throughout an individual's entire life. It is equally vital for adults to have a good understanding of health as it is for children who are in the early stages of adolescence and will eventually become adults (Riiser et al., 2020). In the course of the adolescent years, a multitude of changes in terms of the psychological, physical, and social aspects take place simultaneously. During time period, adolescents would educated on healthy behaviors i.e. adopting a diet that is both adequate and balanced, engaging in physical activity, avoiding substances that are addictive, maintaining a healthy level of stress, getting enough sleep, and practicing proper hygiene in order to safeguard and develop their health (Ceylan et al., 2022; Ehmann et al., 2020). Thus adolescents would apply health promotion behavior at different stage (Petersen et al., 2020; Sharma, 2021). The information that is acquired from adolescents regarding their health is closely tied to the amount of health that they will have in the future. When compared to health literacy lacking, children

that adequate health literacy exhibit much greater number of actions that promote health (health promotion) (de Buhr & Tannen, 2020). It is possible that providing adolescents with insufficient information about health can result in lower health effect and inequities in future as adults on account of their lack of knowledge. It is generally acknowledged that health literacy is a significant, autonomous, and transformable factor in the prevention of health disparities (Nutbeam & Lloyd, 2021). Through addressing and improving health literacy level among teenagers, it was possible that bring about a reduction in inequalities (Caldwell & Melton, 2020; Ceylan et al., 2022). In most cases, choices about the health state of adolescents are made by the parents. Hence, it would enable parents to improve children's health literacy skills, and helps adopting healthy lifestyle choices and empower for making decisions about their own health condition if they instruct their adolescents with information that promotes or encourages positive health behaviors. For this reason, it is equally essential to raise level of health literacy among parents (de Buhr & Tannen, 2020; Zaidman, Scott, Hahn, Bennett, & Caldwell, 2023). However, the direct HL effects and HPB in subsequent stages exerted by health literacy development at an early age (Mei et al., 2023). The adoption of health behaviors throughout the adolescent era is shown to be more effective than the adoption of health behaviors in adulthood period, according to the given information (Romanenko et al., 2023). The HL evaluation and HPB activities during adolescent period are essential. This is due to the fact that the information that adolescents learn health would impact on present health, and it is also crucial to note that all adolescents will eventually become adults (de Buhr & Tannen, 2020; Guo et al., 2023). The existing study determines current health literacy levels among adolescents as well as the actions that they engage in to promote their own health. Also, the following research issues were investigated in current study.

1. How much average health literacy level determined among adolescents?
2. What percentage of adolescents engages in practices that may be considered health promotion?
3. The HL and HPBs of teenagers are influenced by which socio-demographic factors, precisely?
4. Is there a connection between health literacy level among teenagers and, degree which they engage in health promotion behaviors?

Method

Sample Size

The existing study goals were examining students' health literacy and, health promotion behavior among 10th class students. The students studying in three secondary schools level accordingly medium, high, and low income students of Peshawar, Pakistan. This study adopted quantitative techniques for answering existing research questions. Also, studies utilize cross sectional and correlation analysis. In this study, researcher the survey included low, medium, and high level of school that represents socioeconomic sample population. In this study, 298 students' enrolled selecting as sample on the day of survey. To answer study questions, survey questionnaires were utilized. Participants were chosen randomly from the school grounds. A student requested to provide parents informed consent before accessing survey.

Measurement Scale

Measurement scale of health literacy is a self-report measure used to evaluate via 10 items scale developed by (Norman & Skinner, 2006). However, these scale measures ability utilize health

information for health decisions. It is composed of items that assess an individual's knowledge of health concepts, their self-efficacy in accessing and using health information, and their attitudes towards health information. Cronbach's Alpha was existing scale calculated (.82). Validity-related data was examined in this phase of investigation. Accordingly, the variables loadings, Cronbach's alpha, valued for HL and Health promotion behavior were estimated. In addition, all scale variables had CR values higher than the 0.70 threshold suggested by (Henseler & Fassott, 2010).

HPLP II was utilizing the students' health promoting behaviors measuring. Hence, the HPLP II is comprised of six subscales (Chen et al., 2003). Likert scale with 52 items and six subscale points, which are as follows: health responsibility, spiritual growth, nutrition, interpersonal relations, stress management and physical activity. Individuals with higher average scores exhibited more health-promoting habits on a regular basis (1 = "never" to 4 = "routinely"). Also, Cronbach's alpha was existing scale calculated (.76). The socioeconomic demographics information consisted closed-ended questions identifying education level, students' gender, parents' internet use, and chronic disease.

Data analysis:

The statistical package application known as SPSS 28.0 (Statistical Package of Social Sciences) was utilized in order to analyze the data. Presented in form of frequencies and percentages were the categorical variables. The mean and S.D were two main ways that continuous variables were expressed. The ANOVA was performed in existing study and also independent t-tests were utilized. Spearman's correlation coefficient was utilized for determining correlation. It was determined that a p value of 0.05, which was two-sided, was significant for all of the studies.

Table 1 Socioeconomic student demographics

Student Demographics	n	%
Students' Gender(n=298)		
Male	156	52.35
Female	142	47.65
Parents' Education(n=298)		
Matric	29	9.73
Inter	35	11.74
graduate	82	27.52
MS and above	152	51.01
Chronic Disease(n=298)		
Yes	124	40.94
No	176	59.06
Internet Use		
Yes	245	82.21
No	53	21.63

Results

Demographics Analysis

Of the students, 156 (53.35%) were male, 142 (47.65%) were female, 29 (9.73%) were in matric grade while MS above parents were (51.01%). 124 (40.94%) had a chronic diseases condition, while 245 (82.21%) accessed internet frequently.

Participants' mean scores for HL and HPB were 76.14± 15.26 and 100.45± 19.82, respectively. The nutrition dimension had the greatest health-promoting behavior score (26.11± 6.85), whereas physical activity had the lowest score (6.70±2.75) (see Table 2). Pearson's correlation coefficient (P of diabetes) revealed a substantial link between health literacy and all characteristics of health-promoting behaviors (Table 3).

Table 2: Mean & S.D

Variable	Mean±S.D

HL		76.14± 15.26
HPB		100.45± 19.82
	Spiritual Growth	14.02± 2.91
	Health Responsibility	13.69± 3.17
	Stress Management	8.10± 2.70
	Nutrition	26.11± 6.85
	Physical Activity	6.70± 2.75
	Interpersonal Relations	10.44± 2.92

Table 3: HL and HPB

Health promoting behavior	HL (Correlation Coefficient)	Result
Nutrition	0.07	Significant**
Health Responsibility	0.42	Significant**
Stress Management	0.47	Significant**
Spiritual Growth	0.42	Significant**
Physical Activity	0.13	Significant**
Interpersonal Relations	0.40	Significant**

Table 4: Regression Analysis

	Estimate	S.E.	C.R.	P	Comment
Health Literacy-Nutrition	0.34	0.076	4.50	***	Supported
Health Literacy -Health Responsibility	0.34	0.049	6.98	***	Supported
Health Literacy -Stress Management	0.177	0.068	2.61	0.009	Supported
Health Literacy -Spiritual Growth	0.366	0.066	5.57	***	Supported
Health Literacy -Physical Activity	0.11	0.052	2.12	0.06	Supported
Health Literacy -Interpersonal Relations	0.366	0.066	5.57	***	Supported

The data indicates significant positive relationships between health literacy and various health-related factors. Health literacy is strongly associated with nutrition (β: 0.34, C.R.: 4.50), health responsibility (estimate: 0.34, C.R.: 6.98), spiritual growth (β: 0.366, C.R.: 5.57), and interpersonal relations (β: 0.366, C.R.: 5.57), all with highly significant value. HL also positively impacts stress management (β: 0.177, C.R.: 2.61, P: 0.009) and physical activity (β: 0.11, C.R.: 2.12, P: 0.06), though latter is marginally significant. Overall, HL enhances various health dimensions, with varying effect sizes and significance levels.

Discussion:

The findings reveal significant insights into HL and HPB among adolescents in Peshawar, Pakistan. The study highlights the overall health literacy and health promotion behaviors, consistent to previous research conducted in different regions and populations (Petersen et al., 2020; Sharma, 2021). Also, current study examined that income level and parent qualification level were connected with HL and adolescents health promotion behaviors. The observed moderate level suggests that while adolescents have a basic understanding and engagement in health-promoting activities, there is still considerable room for improvement.

Health promotion behavior is a successful determinant of health. A positive relationship among high HL levels an HPBs in adolescents reported in previous studies (Nutbeam & Lloyd, 2021; Uysal, Ceylan, & Koç, 2020). A current study empirical finding shows that HL of ten class students would be enhanced. A recent study in Germany showed that adolescents 14-17 years age had low health literacy level (Loer, Domanska, Stock, & Jordan, 2020). Hence, the HL has considerable relationships and all HPBs various aspect, that manage stress and spirituality development. Also, (Fretian, Bollweg, Okan, Pinheiro, & Bauer, 2020) empirically determined that majority of adolescents had high health literacy level, in association between various HPBs

dimensions. A step in the right direction towards enhancing the students' health literacy would be to incorporate into the curriculum a course that contains fundamental health knowledge as well as behaviors that promote healthy lifestyle. Educational goals include empowering students to take charge of their health improving health knowledge and supporting needy (Abdalla Hamza et al., 2021).

Adolescence is a crucial period for establishing lifelong health behaviors, presenting valuable chance for promoting good health. The adolescent's health behaviors significantly influence promotion of a healthy lifestyle, long-term effects on overall health outcomes (Sousa et al., 2020). However, Gürkan & Ayar (2020) revealed that school adolescents varying level of HL that impact health promotion behaviors. The survey revealed that the higher HL Students likely participate in activities that promote health, also promote regular exercise, balanced diet, and preventive health measures. It may be concluded that the teenagers indeed exhibit healthy behaviors. Hence, (Momenabadi et al., 2020) also explain limited adolescents HL knowledge has connected with low HPBs initiatives. These study outcomes suggest that difficulties currently experienced in mid-adolescence might persevere into adulthood. Hence, it is crucial to prioritise the enhancement of health literacy (HL) among teenagers. This entails offering precise and current knowledge about HPBs, while also establishing avenues for adolescents to actively engage in HL through activities like simulations, role-playing, and critical thinking. It is crucial to encourage health-promoting behaviors during adolescence. The primary factors contributing to sickness and mortality throughout adolescence are predominantly avoidable. Unhealthy behaviours that arise throughout adolescence indicate a future risk for chronic diseases in adulthood (Kleppang, Vettore, Hartz, Haugland, & Stea, 2023). The present study has determined that the students HL and HPBs are impacted by socio-demographic factors, such as

economic level and the educational attainment of their parents. Furthermore, the literature highlights that socioeconomic level significantly element influencing health literacy. Specifically, low socioeconomic level considered risk factor for health literacy (Rudd, Anderson, Oppenheimer, & Nath, 2023). The study conducted by (Zakar, Iqbal, Zakar, & Fischer, 2021) found that significant students utilized digital platforms to seek health-related information. However, the overall HL levels were moderate, indicating room for enhancement. Moreover, the study conducted by (Gautam, Dessie, Rahman, & Khanam, 2023) found that indicated that adolescents from low socioeconomic status are more likely to engage in on health behaviors'. In study of (Depboylu & Kaner, 2023) highlighted that parental education, particularly father's education level, played significant role in children's dietary habits, and enhanced healthy lifestyle behaviors of adolescents. Conversely In their study, (McCaffery et al., 2020) discovered, individuals with higher health literacy demonstrated better understanding, more accurate beliefs, and more consistent adherence to recommended health behaviors.

The study conducted by (Zaidman et al., 2023) found that Parents with higher health literacy were more capable of understanding medical information, effectively communicating with healthcare providers, and implementing health-promoting behaviors in their children's lives. Parents with a high income and education level are believed to dedicate substantial time to their children, provide them with essential health knowledge, and consequently enhance their children's health literacy and encourage them to adopt health promotion behaviors.

Practice implications

The study's findings can improve Pakistani adolescents' health promotion and literacy. School curricula must include organized health education that include mental health, physical exercise, nutrition, and preventative healthcare education. Teacher plays a key role in providing HL to

students in educational settings (Patil et al., 2021). Teachers need training to properly teach health education and provide students with the information and skills to address health issues and promote healthy habits. Further, parental involvement is crucial in HL (Patil et al., 2021). The determination of HL and HPBs in adolescents by parents' is essential for adolescent health promotion. Parents would benefit from health promotion guides, books, and online tools. Digital platforms can also spread health information. Social media advertisements that engage teens with realistic messages and eye-catching visuals can help promote healthy habits. Youth health clubs and health awareness program increase health literacy and behavior. Collaboration with neighborhood health organizations, educational institutions, and the media can boost campaign reach and influence. Health clubs allow teens to discuss health issues, share stories, and participate in wellness activities. Finally, regular evaluations of teenage health promotion activities and health literacy can identify issues and assess treatment efficacy. Health literacy and health behaviors' research can reveal trends and best practices if systematic and inclusive data collection approaches are employed to capture multiple perspectives. These strategies can help Pakistani teens become more health-literate and adopt healthy habits, improving health outcomes and reducing health inequities.

Limitations

The study "HL and HPB of Adolescents in Pakistan" has several limitations. Firstly, the study's cross-sectional design restricts causality ability among health literacy and health-promoting behaviors. However, correlation relationships identified, however unclear whether higher HL leads HPB enhancement or vice versa. Secondly, the study relies on self-reported measures for both health literacy and health-promoting behaviors. Self-reporting can introduce response biases, such as social desirability bias, where participants might over-report behaviors they

perceive as positive or under-report behaviors they perceive as negative. This reliance on self-reporting can compromise the accuracy of the data. Thirdly, sample size limited to 10th-grade students from in Peshawar, representing different income levels. Hence, existing sampling method would not capture full diversity of Pakistan adolescent population, potentially limiting generalizability. Fourthly, the study does not consider possible socio-demographic variables that could influence HL and HPBs. Although characteristics like parental education and internet use were taken into account, other possible influences like cultural practices, peer pressure, and school climate were not thoroughly investigated. Finally, study only examined teenagers, therefore it didn't account for social and environmental factors that may affect health literacy and behavior across age groups. It is necessary that Interventions that solely target teenagers may be less successful if family, cultural, and systemic factors are not adequately addressed.

Conclusions

Research on health literacy and health promotion practices among Peshawar's youth from Pakistan's "Adolescents HL and HPBs in Pakistan" sheds light on the present situation of these areas. Teenagers have a moderate understanding of health issues and participate in healthful habits to a comparable extent. The importance of health literacy in affecting other aspects of health-promoting habits, like managing stress and spiritual growth, is highlighted.

Adolescents' health literacy and habits are influenced by their parents' education and socioeconomic level, according to the socio-demographic analysis. The study's findings on gender differences highlight the importance of developing specific interventions to bridge the achievement gap in health education chances for teenage boys and girls. Furthermore, digital platforms can be useful instruments for health education if the content is authentic and

dependable, as there is a favorable correlation between internet use and health literacy. In sum, the study shows that health education programs should be a part of school curricula that parents should be more involved in their children's health literacy, and that teens should use technology to their advantage to adopt better habits. Stakeholders may greatly enhance health literacy and health outcomes among Pakistani teenagers by focusing on these areas, setting the stage for a healthier generation to come.

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