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Mental Health Literacy among Middle School Students in Private and Community Schools, Kathmandu, Nepal

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Abstract

Mental health literacy (MHL) among adolescents is crucial for early recognition and intervention of mental health issues, yet research on MHL among Nepalese adolescents remains limited. This study aimed to assess mental health literacy and its relationship with demographic variables among school-going adolescents in Nepal. **Methods:** A cross-sectional survey using the Mental Health Literacy Questionnaire (MHLQ) was conducted among 454 students (56.82% male, 43.18% female) aged 12 – 16-year from seven schools in Kathmandu and Lalitpur districts, selected through purposive sampling. Data normality was assessed with the Shapiro-Wilk test. Descriptive and inferential statistics were applied, with effect sizes calculated using Hedges' *g*, partial eta squared and Cohen's *d*. Reliability was measured with McDonald's ω and Guttman's λ6. Spearman's rho (ρ) was used for correlation analysis. **Results:** The study revealed significantly higher levels of global mental health literacy and knowledge about mental health problems among females compared to males. Parental education significantly influenced MHL, with students whose parents held bachelor's or master's degrees demonstrating better literacy compared to those with primary-level educated parents. Females with higher parental education had greater mental health literacy, while among males, only those with bachelor's-educated parents showed higher literacy. While participants showed high awareness of common mental health conditions like depression (84.36%) and anxiety (52.86%), recognition of less common conditions was notably low. No significant differences were observed across ethnicity, permanent residence, or grade levels. **Conclusion**: The findings underscore the need

for targeted interventions to enhance mental health literacy, particularly among male students and those from families with lower educational backgrounds, while emphasizing comprehensive mental health education covering both common and less common mental health conditions.

Keywords

Adolescents, Gender Differences, Mental Health Literacy, Nepal, Parental Education, School Type

1. Introduction

Mental Health Literacy (MHL) refers to the knowledge and beliefs about mental health disorders that facilitate their recognition, management, and prevention (Jorm et al., 1997). Since its introduction, MHL has evolved into a multidimensional construct encompassing several essential components: the ability to recognize specific disorders, understanding the risk factors and causes, knowledge of self-treatment options, awareness of professional help available, and attitudes that encourage appropriate help-seeking (Jorm, 2000; O'Connor & Casey, 2015).

Mental health literacy (MHL) stems from the broader concept of health literacy (HL) (Kutcher et al., 2016a). Over time, the concept of MHL has shifted from a narrow focus on mental illness to being seen as a resource that can be enhanced through educational initiatives, aimed at improving public health (Kutcher et al., 2016b). Mental health literacy has been the most frequently examined topic, with studies primarily conducted in school-based settings and high-income economies (Patafio et al., 2021). However, the concept of mental health literacy (MHL) is still relatively new and underexplored in school settings in countries like Nepal.

While mental health literacy (MHL) has been widely studied globally, there is a notable lack of research on MHL in Nepal, particularly among children and adolescents, including middle school students. We found only two articles closely related to our area of interest; however, both of the studies have been conducted in adults. One study was in college students and the other in community people (Poudel et al., 2024; Singh et al., 2013).

Recent studies on mental health literacy (MHL) in adults have yielded mixed findings. Poudel et al. (2024) found no connection between age and MHL, contrasting with research suggesting lower knowledge among individuals aged 70 and above and higher MHL in younger adults aged 18 to 29 (Doumit et al., 2019; Hadjimina & Furnham, 2017).

Additionally, Poudel et al. (2024) identified gender differences in erroneous beliefs or stereotypes but reported no significant variations in other factors such as ethnicity and academic level. However, their study does not address MHL in school-age students, leaving a critical gap in understanding MHL at earlier developmental stages.

Other factors influencing MHL, such as residency and educational context, also warrant further exploration. For instance, Singh et al. (2013) found that adults residing in urban areas exhibited better knowledge of mental health and illness compared to their rural counterparts. However, little is known about how these disparities manifest in younger populations. Furthermore, variables such as school type (private vs. government), parental education, and students' ability to recognize of mental health problems have not been thoroughly examined for their impact on MHL in children and adolescents.

Despite global research emphasizing the importance of MHL, studies in Nepal have predominantly focused on adults, leaving the needs of children and adolescents, particularly middle school students, underexplored. Limited attention has been given to how demographic factors like age, gender, ethnicity, grades, school type, parental education and the combined role of gender and parental education influence MHL in this population.

This study aims to address these gaps by investigating MHL among middle school students in Nepal. By examining disparities and factors such as age, gender, ethnicity, residence (valley vs outside valley), grades, school type, parental education and the interplay of gender and parental education this research seeks to provide insights that inform targeted interventions and promote better mental health outcomes for this underserved group.

This study is significant as it addresses the crucial role of MHL in promoting early intervention, reducing stigma, and fostering a supportive community. By investigating MHL among middle school students, it aims to provide insights that can guide targeted educational programs and policies, improving mental health outcomes and academic performance, ultimately benefiting both individuals and society.

This study is limited to select schools in Kathmandu, affecting the generalizability of findings to other regions of Nepal. It focuses on schools with prior access to mental health services and excludes primary grade students, narrowing the scope of MHL assessment. Data collection through interviews, observations, and the Mental Health Literacy Questionnaire (MHLQ) may introduce response bias. While the sample size is 454, the study does not evaluate the effectiveness of the examined mental health services and is restricted to comparisons between private and community schools, limiting broader applicability.

2. Methodology

2.1. Research Design

In this study, we employed a cross-sectional survey design. Quantitative data were collected using a purposive sampling technique from both community and private schools based in Kathmandu districts. Purposive sampling was used to ensure diverse representation across key demographics (e.g., gender, ethnicity, school type, and parental education) in Kathmandu and Lalitpur districts. This approach allowed for a balanced sample from both community and private schools, targeting adolescents aged 12 - 16 and in grades 7 - 9, reflecting the region's demographic diversity.

2.2. Ethical Considerations

Prior to data collection, approvals were obtained from the respective school authorities, and informed consent was secured from all participants. Ethical guidelines were strictly followed, particularly because the participants were minors. Measures were implemented to ensure privacy and confidentiality, participant protection, the right to withdraw, and data security, including the use of a password-protected database. Ethical data analysis was conducted using appropriate statistical techniques with open-source software (Jeffreys's Amazing Statistics Program, JASP).

2.3. Participants

A total of 454 participants were recruited from seven schools, comprising three private and four community institutions in the Lalitpur and Kathmandu districts. The study involved students aged 12 to 16 years, with 11.70% aged 12 or below, 22.52% aged 13, 27.37% aged 14, 21.19% aged 15, and 17.21% aged 16 or above. The gender distribution included 56.82% male and 43.18% female students. Ethnic representation consisted of 20.17% Janajati, 57.46% Khas/Aryan, and 22.38% Newar. Parental education levels varied, with 25.30% completing the primary level (PL), 15.51% achieving the Secondary Education Examination (SEE), 14.80% completing a high school degree (HSD), 14.80% holding a Bachelor's degree (BD), and 29.59% attaining a Master's degree (MD). Grade levels included 14.75% in Grade 7, 22.46% in Grade 8, and 62.77% in Grade 9.

2.4. Materials

The 33-item Mental Health Literacy Questionnaire (MHLQ; Campos et al., 2016) was used to assess knowledge, beliefs, and attitudes. The instrument includes 33 statement-based questions and one multiple-choice item. The scale demonstrated strong reliability ($\alpha = 0.84$) overall, as well as for its factors: Help-Seeking and First Aid Skills (HSFAS) ($\alpha = 0.79$), Knowledge/Stereotypes about Mental Health Problems (KSMHP) ($\alpha = 0.78$), and Self-Help Strategies (SHS) ($\alpha = 0.72$). It also exhibited excellent test-retest reliability, with an ICC of 0.88 for the total MHLq score and 0.80, 0.90, and 0.86 for Factors 1, 2, and 3, respectively. Items are rated on a five-point scale (1 = strongly disagree to 5 = strongly agree), with specific ones reverse-scored (Campos et al., 2016; Dias et al., 2018). In this current study, we observed acceptable reliability score, McDonald's $\omega = 0.78$, 95% CI [0.75, 0.81] and Guttman's $\lambda 6 = 0.83$, 95% CI [0.81, 0.87]. The MHLQ total scale showed moderate to strong positive correlations measured by Spearman's rho (ρ) with its factors: HSFAS ($\rho = 0.66$, $p < 0.001$), KSMHP ($\rho = 0.81$, $p < 0.001$), and SHS ($\rho = 0.57$, $p < 0.001$), demonstrating a strong convergent validity.

2.5. Procedures

The study employed purposive sampling to select participants, focusing on students from private and public schools in the Kathmandu and Lalitpur districts.

This targeted approach aimed to capture a diverse representation of the population in terms of age, gender, ethnicity, parental education, and school type, grade levels, ensuring comprehensive data reflective of the region's demographic variety.

A brief orientation regarding the study's objectives and data collection methods was explained to all the participants. During this session, student inquiries were addressed on an individual basis, ensuring clarity and understanding. The questionnaire began with written informed consent form, demographic information form, followed by the MHLQ.

Class teachers were engaged to facilitate the distribution of the questionnaires, ensuring a supportive environment for data collection. Following the data collection, all completed surveys were reviewed for accuracy and completeness, identifying any missing or illegible responses.

To minimize measurement bias, reliable and validated tools were used, with translations into Nepali following established protocols. The tools' reliability and validity were assessed in the Nepalese context as well. To address response bias in the on-school survey design, comprehensive information about the research was provided to participants, ensuring confidentiality. Convenient sampling was preferred over purposive sampling for systematic investigation, emphasizing careful observation and understanding of survey items, with clarifications offered for any ambiguities.

2.6. Data Analysis and Reporting

Quantitative data from the MHLQ were analyzed to assess variations among demographic factors using both descriptive and inferential statistics, including means and standard deviations. To evaluate relationships between variables, Welch's t-test and ANOVA (with Welch's correction for homogeneity) were conducted based on the results of parametric tests (Shapiro-Wilk test). Games-Howell post-hoc comparisons were applied for significant group differences. For effect size, Hedges' g was calculated for the t-test, partial eta squared (ηp^2) for ANOVA, and Cohen's d for post hoc comparisons. Spearman's rho (ρ) was used to measure correlations among variables, and reliability was assessed using McDonald's omega (ω) and Guttman's $\lambda 6$. Note: Please report Reliability first as in other areas.

Data were cleaned via Google sheet and downloaded as a CSV file for analysis in Jeffrey's Amazing Statistics Program (JASP). Data were visually represented in tables and figures. Citations were managed using Mendeley, and the report was prepared in Microsoft Word. ChatGPT was used for paraphrasing and language editing.

3. Results

3.1. Descriptive and Demographic Component

The total score ranged from 57 to 154 (M = 126.30, SD = 13.27) in the MHLQ. The 25th percentile was 121, the 50th percentile (median) was 128, and the 75th percentile was 135. Skewness was −1.19 (SE = 0.15), and kurtosis was 3.13 (SE = 0.30). The Shapiro-Wilk test indicated significant deviations from a normal dis-

tribution for the MHLQ total score ($W = 0.94$, $p < 0.001$) and across various demographic subgroups: gender ($W = 0.94$, $p < 0.001$), ethnicity ($W = 0.96$, $p = 0.006$), grades ($W = 0.98$, $p < 0.001$), location ($W = 0.94$, $p < 0.001$), and types of school ($W = 0.92$, $p < 0.001$) (Table 1).

Table 1. Descriptive statistics.

Variables		N(%)	Skewness	Kurtosis	Shapiro-Wilk	p-value of Shapiro-Wilk
Gender						
HSFAS Factor	Female	196 (43.17%)	−0.48	0.22	0.98	0.004**
HSFAS Factor	Male	258 (56.83%)	−0.88	1.22	0.96	<0.001***
KSMHP Factor	Female	196 (43.17%)	−0.33	−0.51	0.98	0.009**
KSMHP Factor	Male	258 (56.83%)	−0.70	0.96	0.97	<0.001***
SHS Factor	Female	196 (43.17%)	−0.44	0.05	0.97	<0.001***
SHS Factor	Male	258 (56.83%)	−1.00	2.31	0.94	<0.001***
MHLQ Total	Female	196 (43.17%)	−0.41	−0.31	0.98	0.011*
MHLQ Total	Male	258 (56.83%)	−1.19	3.13	0.94	<0.001***
Ethnicity						
HSFAS Factor	Janajaati	73 (16.08%)	−0.48	−0.26	0.96	0.035*
HSFAS Factor	Khas/Aryan	208 (45.82%)	−0.88	1.71	0.96	<0.001***
HSFAS Factor	Newar	81 (17.84%)	−0.69	0.80	0.96	0.021*
KSMHP Factor	Janajaati	73 (16.08%)	−0.20	−0.25	0.99	0.609
KSMHP Factor	Khas/Aryan	208 (45.82%)	−0.73	0.79	0.97	<0.001***
KSMHP Factor	Newar	81 (17.84%)	−1.11	3.33	0.93	<0.001***
SHS Factor	Janajaati	73 (16.08%)	−0.34	−0.44	0.96	0.015*
SHS Factor	Khas/Aryan	208 (45.82%)	−0.96	2.01	0.95	<0.001***
SHS Factor	Newar	81 (17.84%)	−0.39	0.72	0.97	0.042*
MHLQ Total	Janajaati	73 (16.08%)	−0.09	−0.62	0.99	0.634
MHLQ Total	Khas/Aryan	208 (45.82%)	−1.45	4.41	0.91	<0.001*
MHLQ Total	Newar	81 (17.84%)	−0.91	1.64	0.96	0.006**
Permanent Residence						
HSFAS Factor	Inside Valley	185 (40.75%)	−0.64	0.57	0.97	<0.001***
HSFAS Factor	Outside Valley	236 (51.98%)	−0.98	2.00	0.95	<0.001***
KSMHP Factor	Inside Valley	185 (40.75%)	−0.81	1.53	0.96	<0.001***
KSMHP Factor	Outside Valley	236 (51.98%)	−0.49	0.34	0.98	0.002**
SHS Factor	Inside Valley	185 (40.75%)	−0.49	0.31	0.97	<0.001***
SHS Factor	Outside Valley	236 (51.98%)	−0.86	1.83	0.95	<0.001***
MHLQ Total	Inside Valley	185 (40.75%)	−0.96	1.41	0.95	<0.001***
MHLQ Total	Outside Valley	236 (51.98%)	−1.15	4.02	0.94	<0.001***

Continued

Grades						
HSFAS Factor	Seven	67 (14.76%)	−1.07	2.64	0.94	0.002
HSFAS Factor	Eight	102 (22.47%)	−0.32	0.16	0.98	0.227
HSFAS Factor	Nine	285 (62.78%)	−0.81	0.71	0.96	<0.001***
KSMHP Factor	Seven	67 (14.76%)	−1.12	1.31	0.92	<0.001***
KSMHP Factor	Eight	102 (22.47%)	−0.52	0.04	0.97	0.03*
KSMHP Factor	Nine	285 (62.78%)	−0.28	−0.19	0.99	0.03*
SHS Factor	Seven	67 (14.76%)	−1.20	3.35	0.92	<0.001***
SHS Factor	Eight	102 (22.47%)	−0.77	1.13	0.95	<0.001***
SHS Factor	Nine	285 (62.78%)	−0.55	0.29	0.97	<0.001***
MHLQ Total	Seven	67 (14.76%)	−1.60	4.43	0.89	<0.001***
MHLQ Total	Eight	102 (22.47%)	−0.89	0.93	0.95	<0.001***
MHLQ Total	Nine	285 (62.78%)	−0.46	0.00	0.98	<0.001***
Types of Institutions						
HSFAS Factor	Government School	198 (43.61%)	−0.83	0.74	0.95	<0.001***
HSFAS Factor	Private School	256 (56.39%)	−0.80	1.60	0.97	<0.001***
KSMHP Factor	Government School	198 (43.61%)	−0.22	−0.28	0.99	0.066
KSMHP Factor	Private School	256 (56.39%)	−1.02	1.90	0.94	<0.001***
SHS Factor	Government School	198 (43.61%)	−0.64	0.83	0.96	<0.001***
SHS Factor	Private School	256 (56.39%)	−0.81	1.47	0.95	<0.001***
MHLQ Total	Government School	198 (43.61%)	−0.54	0.38	0.98	0.002**
MHLQ Total	Private School	256 (56.39%)	−1.34	3.95	0.92	<0.001***
Parental Education						
HSFAS Factor	Primary Level (Class 1 - 8)	106 (23.35%)	−0.44	0.09	0.98	0.096
HSFAS Factor	Junior HSD (Class 9 & 10)	65 (14.32%)	−0.80	0.41	0.95	0.006**
HSFAS Factor	Senior HSD (Class 11 & 12)	62 (13.66%)	−0.88	0.66	0.93	0.002**
HSFAS Factor	Bachelor's Degree	63 (13.66%)	−0.77	0.87	0.95	0.021*
HSFAS Factor	Master's Degree	124 (27.31%)	−0.79	1.06	0.96	<0.001***
KSMHP Factor	Primary Level (Class 1 - 8)	106 (23.35%)	−0.50	1.15	0.98	0.06
KSMHP Factor	Junior HSD (Class 9 & 10)	65 (14.32%)	−0.15	−0.40	0.99	0.796
KSMHP Factor	Senior HSD (Class 11 & 12)	62 (13.66%)	−0.71	0.70	0.96	0.04*
KSMHP Factor	Bachelor's Degree	63 (13.66%)	−0.46	0.06	0.96	0.033*
KSMHP Factor	Master's Degree	124 (27.31%)	−0.55	0.12	0.97	0.004**
SHS Factor	Primary Level (Class 1 - 8)	106 (23.35%)	−0.22	−0.77	0.96	0.004**

Continued

SHS Factor	Junior HSD (Class 9 & 10)	65 (14.32%)	−0.83	1.13	0.94	0.005**
SHS Factor	Senior HSD (Class 11 & 12)	62 (13.66%)	−0.95	1.66	0.94	0.004**
SHS Factor	Bachelor's Degree	63 (13.66%)	−0.61	0.34	0.97	0.072
SHS Factor	Master's Degree	124 (27.31%)	−0.59	0.47	0.96	0.002**
MHLQ Total	Primary Level (Class 1 - 8)	106 (23.35%)	−0.16	−0.53	0.99	0.558
MHLQ Total	Junior HSD (Class 9 & 10)	65 (14.32%)	−0.28	−0.35	0.98	0.402
MHLQ Total	Senior HSD (Class 11 & 12)	62 (13.66%)	−0.91	1.68	0.96	0.023*
MHLQ Total	Bachelor's Degree	63 (13.66%)	−0.79	1.07	0.95	0.018*
MHLQ Total	Master's Degree	124 (27.31%)	−1.00	1.49	0.94	<0.001***
Gender and Parental Education Combined Interaction						
HSFAS Factor	Female (Bachelor+)	68 (16.22%)	−0.26	−0.27	0.97	0.143
HSFAS Factor	Female (Senior HSD)	30 (7.16%)	−0.97	0.84	0.92	0.027*
HSFAS Factor	Female (Junior HSD)	33 (7.88%)	−0.21	−0.83	0.96	0.321
HSFAS Factor	Female (Primary)	54 (12.89%)	−0.31	−0.47	0.97	0.215
HSFAS Factor	Male (Bachelor+)	118 (28.16%)	−0.95	1.17	0.94	<0.001***
HSFAS Factor	Male (Senior HSD)	32 (7.88%)	−0.81	0.7	0.94	0.056
HSFAS Factor	Male (Junior HSD)	32 (7.64%)	−0.99	0.35	0.9	0.006**
HSFAS Factor	Male (Primary)	52 (12.41%)	−0.3	0.0003	0.98	0.557
KSMHP Factor	Female (Bachelor+)	68 (16.22%)	−0.71	−0.02	0.95	0.007**
KSMHP Factor	Female (Senior HSD)	30 (7.16%)	−0.33	−0.4	0.96	0.385
KSMHP Factor	Female (Junior HSD)	33 (7.88%)	−0.53	0.49	0.97	0.387
KSMHP Factor	Female (Primary)	54 (12.89%)	0.07	−0.58	0.98	0.457
KSMHP Factor	Male (Bachelor+)	118 (28.16%)	−0.48	0.34	0.97	0.004**
KSMHP Factor	Male (Senior HSD)	32 (7.88%)	−0.48	0.38	0.97	0.397
KSMHP Factor	Male (Junior HSD)	32 (7.64%)	0.1	−0.36	0.98	0.895
KSMHP Factor	Male (Primary)	52 (12.41%)	−0.81	1.7	0.96	0.059
SHS Factor	Female (Bachelor+)	68 (16.22%)	−0.45	0.31	0.97	0.095
SHS Factor	Female (Senior HSD)	30 (7.16%)	−0.46	−0.98	0.9	0.01**
SHS Factor	Female (Junior HSD)	33 (7.88%)	−0.72	0.63	0.95	0.128
SHS Factor	Female (Primary)	54 (12.89%)	−0.26	−0.98	0.94	0.009**
SHS Factor	Male (Bachelor+)	118 (28.16%)	−0.67	0.55	0.96	0.001**
SHS Factor	Male (Senior HSD)	32 (7.88%)	−0.87	1.13	0.94	0.072*
SHS Factor	Male (Junior HSD)	32 (7.64%)	−0.37	−0.14	0.97	0.398
SHS Factor	Male (Primary)	52 (12.41%)	−0.15	−0.56	0.96	0.103
MHLQ Total	Female (Bachelor+)	68 (16.22%)	−0.79	0.59	0.96	0.018*

Continued

MHLQ Total	Female (Senior HSD)	30 (7.16%)	−0.07	−0.58	0.98	0.884
MHLQ Total	Female (Junior HSD)	33 (7.88%)	−0.45	−0.08	0.97	0.351
MHLQ Total	Female (Primary)	54 (12.89%)	−0.1	−0.76	0.98	0.609
MHLQ Total	Male (Bachelor+)	118 (28.16%)	−0.98	1.58	0.94	<0.001
MHLQ Total	Male (Senior HSD)	32 (7.88%)	−0.94	1.24	0.94	0.089
MHLQ Total	Male (Junior HSD)	32 (7.64%)	−0.15	−0.28	0.99	0.931
MHLQ Total	Male (Primary)	52 (12.41%)	−0.38	−0.51	0.96	0.105

$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. *Note*: Skewness, Kurtosis, Shapiro-Wilk test values, and *p*-values are presented for each factor across different demographic groups.

The age ranged from 11 to 17 ($M = 14.09$, $SD = 1.26$). The sample consisted of 454 participants. Gender distribution was 56.82% male and 43.18% female (Table 1).

3.2. Relationship MHL with Demographic Variables

A significantly higher level was found in females compared to males in KSMHP dimension and the global MHL. However, no significant difference was found between gender variables in all other factors (Table 2).

Table 2. Welch's t-test results for gender, permanent residence, and school type.

	Group	Mean	*SD*	*SE*	*t*	*df*	*p* (Hedges' *g*)
			Gender				
HSFAS Factor	Female	39.17	4.76	0.34	1.16	450.43	0.247
	Male	38.59	5.90	0.37			
KSMHP Factor	Female	70.74	7.21	0.52	4.31	443.80	<0.001*** ($g = 0.40$)
	Male	67.60	8.30	0.52			
SHS Factor	Female	19.63	3.00	0.21	−1.66	426.97	0.097
	Male	20.11	3.10	0.19			
MHLq Total	Female	129.55	10.72	0.77	2.88	450.28	0.004** ($g = 0.26$)
	Male	126.30	13.27	0.83			
			Permanent Residence				
HSFAS Factor	Inside Valley	38.541	5.302	0.39	−1.39	402.52	0.167
	Outside Valley	39.275	5.532	0.36			
KSMHP Factor	Inside Valley	69.486	7.943	0.58	0.876	391.27	0.381
	Outside Valley	68.809	7.772	0.51			
SHS Factor	Inside Valley	19.919	2.83	0.21	−0.02	409.69	0.987
	Outside Valley	19.924	3.108	0.2			
MHLq Total	Inside Valley	127.95	11.57	0.85	−0.05	405.61	0.957
	Outside Valley	128.01	12.32	0.8			

Continued

Type of the Schools							
HSFAS Factor	Government School	39.56	5.32	0.38	2.49	429.56	0.013* ($g = 0.24$)
	Private School	38.29	5.48	0.34			
KSMHP Factor	Government School	67.02	7.26	0.52	−4.71	444.15	<0.001*** ($g = 0.44$)
	Private School	70.45	8.22	0.51			
SHS Factor	Government School	20.10	2.92	0.21	1.21	438.52	0.227
	Private School	19.75	3.17	0.20			
MHLq Total	Government School	126.68	11.37	0.81	−1.58	445.14	0.115
	Private School	128.49	12.99	0.81			

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Note: The table provides means, standard deviations (*SD*), standard errors (*SE*), t-values, degrees of freedom (*df*), *p*-values, and effect sizes (Hedges' *g*) for comparisons across gender, permanent residence, and type of school. Effect sizes (*g*) are shown for significant results.

We found no statistically significant differences in the level of MHLq and its all dimension among ethnic groups i.e., Janajaati, Khas/Aryan, and Newar (Table 3).

Table 3. Welch's ANOVA for ethnicity, grades, and parental education.

Variables		Mean	*SD*	*SE*	*df*	*F*	*p* (ηp^2)
Ethnicity							
HSFAS Factor	Janajaati	39.08	5.07	0.59	2/359	0.77	0.464
	Khas/Aryan	38.39	5.73	0.40			
	Newar	39.15	5.21	0.58			
KSMHP Factor	Janajaati	68.78	6.79	0.79	2/359	0.32	0.73
	Khas/Aryan	69.63	8.12	0.56			
	Newar	69.37	7.92	0.88			
SHS Factor	Janajaati	20.30	3.06	0.36	2/359	0.81	0.446
	Khas/Aryan	19.81	3.18	0.22			
	Newar	19.78	2.53	0.28			
MHLq Total	Janajaati	128.16	10.75	1.26	2/359	0.05	0.948
	Khas/Aryan	127.83	12.88	0.89			
	Newar	128.30	10.76	1.20			
Grades							
HSFAS Factor	Class Seven	37.72	6.25	0.76	2/451	1.73	0.179
	Class Eight	38.92	5.03	0.50			
	Class Nine	39.08	5.36	0.32			
KSMHP Factor	Class Seven	68.51	10.17	1.24	2/451	0.13	0.882
	Class Eight	69.09	8.96	0.89			
	Class Nine	69.01	7.02	0.42			

Continued

SHS Factor	Class Seven	19.78	3.52	0.43	2/451	0.50	0.608
	Class Eight	19.69	3.15	0.31			
	Class Nine	20.01	2.92	0.17			
MHLq Total	Class Seven	126.00	16.10	1.97	2/451	0.79	0.454
	Class Eight	127.70	14.11	1.40			
	Class Nine	128.11	10.52	0.62			
Parent's Education							
HSFAS Factor	Primary Level (Class 1 - 8)	39.04	5.08	0.49	4/414	2.05	0.087
	Junior HSD (Class 9 & 10)	40.34	4.86	0.60			
	Senior HSD (Class 11 & 12)	37.97	5.46	0.69			
	Bachelor's Degree	38.16	5.81	0.74			
	Master's Degree	39.14	5.28	0.48			
KSMHP Factor	Primary Level (Class 1 - 8)	65.41	7.56	0.73	4/414	10.14	<0.001*** (0.089)
	Junior HSD (Class 9 & 10)	69.03	6.98	0.87			
	Senior HSD (Class 11 & 12)	68.05	7.84	1.00			
	Bachelor's Degree	71.40	6.97	0.89			
	Master's Degree	70.93	7.56	0.68			
SHS Factor	Primary Level (Class 1 - 8)	20.25	2.83	0.28	4/414	2.60	0.036* (0.024)
	Junior HSD (Class 9 & 10)	20.48	3.14	0.39			
	Senior HSD (Class 11 & 12)	18.97	2.90	0.37			
	Bachelor's Degree	19.87	2.98	0.38			
	Master's Degree	19.90	2.81	0.25			
MHLq Total	Primary Level (Class 1 - 8)	124.69	11.20	1.09	4/414	4.89	<0.001*** (0.045)
	Junior HSD (Class 9 & 10)	129.85	9.75	1.21			
	Senior HSD (Class 11 & 12)	124.98	12.15	1.54			
	Bachelor's Degree	129.44	11.03	1.40			
	Master's Degree	129.96	12.09	1.09			
Gender and Parental Education Interaction							
HSFAS Factor	Female (Bachelor+)	38.94	4.84	0.59	7/136.17	1.72	0.11
	Female (Senior HSD)	38.03	5.85	1.07			
	Female (Junior HSD)	40.27	3.92	0.68			
	Female (Primary)	40.04	4.35	0.59			
	Male (Bachelor+)	38.74	5.82	0.54			
	Male (Senior HSD)	37.91	5.17	0.91			
	Male (Junior HSD)	40.41	5.73	1.01			
	Male (Primary)	38	5.6	0.78			

Continued

KSMHP Factor	Female (Bachelor+)	73.02	7.11	0.86	7/136.24	9.85	<0.001*** (0.153)
	Female (Senior HSD)	71.2	5.82	1.06			
	Female (Junior HSD)	71.55	6.7	1.17			
	Female (Primary)	66.78	6.93	0.94			
	Male (Bachelor+)	69.98	7.29	0.67			
	Male (Senior HSD)	65.09	8.41	1.49			
	Male (Junior HSD)	66.44	6.39	1.13			
	Male (Primary)	63.98	7.97	1.11			
SHS Factor	Female (Bachelor+)	19.35	3	0.36	7/135.38	2.85	0.008** (0.044)
	Female (Senior HSD)	19.27	2.16	0.4			
	Female (Junior HSD)	19.82	3.6	0.63			
	Female (Primary)	20.02	2.92	0.4			
	Male (Bachelor+)	20.2	2.75	0.25			
	Male (Senior HSD)	18.69	3.46	0.61			
	Male (Junior HSD)	21.16	2.46	0.44			
	Male (Primary)	20.48	2.74	0.38			
MHLq Total	Female (Bachelor+)	131.31	11.01	1.34	7/136.92	4.64	<0.001*** (0.075)
	Female (Senior HSD)	128.5	9.55	1.74			
	Female (Junior HSD)	131.64	9.65	1.68			
	Female (Primary)	126.83	11.47	1.56			
	Male (Bachelor+)	128.91	12.07	1.11			
	Male (Senior HSD)	121.69	13.5	2.39			
	Male (Junior HSD)	128	9.67	1.71			
	Male (Primary)	122.46	10.56	1.47			

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. *Note*: The table includes means, standard deviations (*SD*), standard errors (*SE*), degrees of freedom (*df*), F-statistics, *p*-values, and partial eta squared (ηp^2) for comparisons across ethnicity, grade levels, parental education and, gender and parental education interaction. Due to insufficient data points for individual categories, bachelor's and master's degrees were combined into the "Bachelor+" category for gender and parental education classifications. Effect sizes (ηp^2) are shown for significant results.

No statistically significant differences were observed between participants permanently living inside the valley and those permanently living outside the valley in the level of MHL and its all the dimensions (Table 2).

No statistically notable differences was observed between participants from government schools and private schools in the level of MHL and its dimensions (Table 2).

We found no statistical difference in the level of MHL and its dimensions among participants from different grades (Table 3).

A significant difference was observed among the levels of MHL based on the parental education i.e. primary level (Classes 1 - 8), junior HSD (Classes 9 & 10),

senior HSD (Classes 11 & 12), bachelor's degree and master's degree (Table 3). Games Howell post hoc analysis found the participants with parental education equals to junior HSD, bachelor or master's degree had a significantly higher level of MHL than the participants with parental education equal to primary level (Table 4). The difference was also significant among the groups in KSMHP and SHS dimensions (Table 4).

We found a significant difference among the group variables in the interaction of gender and educational levels in the level of MHL, including the KSMHP and SHS dimensions (Table 3). The post hoc analysis examined the interaction between gender and parental education across various factors. Significant differences were found between multiple groups, indicating variations in scores based on gender and parental education levels. Effect sizes ranged from small to large, highlighting the practical significance of these differences (Table 4).

Table 4. Games-howell post hoc comparisons for parental education and MHLQ.

		95% CI for Mean Difference					
Comparison	Mean Difference	Lower	Upper	*SE*	*t*	*df*	P-value (Cohen's *d*)
Parental Education							
KSMHP Factor							
Bachelor's Degree Primary Level (Class 1 - 8)	6.00	2.82	9.18	1.15	5.22	136.28	<0.001*** (0.81)
Master's Degree Primary Level (Class 1 - 8)	5.52	2.77	8.27	1	5.52	222.48	<0.001*** (0.74)
Primary Level (Class 1 - 8) - Junior HSD (Class 9 & 10)	−3.63	−6.76	−0.49	1.14	−3.19	143.70	0.015* (−0.49)
SHS Factor							
Senior HSD (Class 11 & 12) - Primary Level (Class 1 - 8)	−1.28	−2.55	−0.01	0.46	−2.78	125.32	0.048* (−0.44)
MHLQ Total							
Master's Degree Primary Level (Class 1 - 8)	5.27	1.04	9.50	1.54	3.43	226.53	0.006** (0.46)
Primary Level (Class 1 - 8) - Junior HSD (Class 9 & 10)	−5.16	−9.65	−0.67	1.63	−3.17	149.67	0.016* (−0.45)
Gender and Parental Education Interaction							
KSMHP Factor							
Female (Bachelor+) - Female (Primary)	6.24	2.29	10.18	1.28	4.88	115.05	<0.001*** (0.87)
Female (Bachelor+) - Male (Senior HSD)	7.92	2.50	13.34	1.72	4.61	52.63	<0.001*** (1.10)
Female (Bachelor+) - Male (Primary)	9.03	4.70	13.37	1.40	6.44	102.93	<0.001*** (1.26)

Continued

Female (Bachelor+) -Male (Junior HSD)	6.58	2.13	11.02	1.42	4.63	67.15	<0.001*** (0.92)
Female (Senior HSD) - Male (Senior HSD)	6.11	0.35	11.86	1.83	3.34	55.32	0.03* (0.85)
Female (Senior HSD) - Male (Primary)	7.22	2.44	12.00	1.53	4.71	75.50	<0.001*** (1.00)
Female (Primary) - Female (Junior HSD)	−4.77	−9.45	−0.08	1.50	−3.18	69.61	0.043* (−0.66)
Female (Junior HSD) - Male (Senior HSD)	6.45	0.52	12.39	1.89	3.42	59.17	0.024* (0.90)
Female (Junior HSD) - Male (Primary)	7.57	2.56	12.57	1.61	4.71	76.59	<0.001*** (1.05)
Female (Junior HSD) - Male (Junior HSD)	5.11	0.02	10.19	1.62	3.15	62.98	0.048* (0.71)
Male (Bachelor+) - Male (Primary)	5.99	1.98	10.01	1.29	4.64	90.14	<0.001*** (0.83)
SHS Factor							
Female (Bachelor+) - Male (Junior HSD)	−1.80	−3.58	−0.03	0.57	−3.18	72.95	0.043* (−0.62)
Female (Senior HSD) - Male (Junior HSD)	−1.89	−3.74	−0.04	0.59	−3.21	59.76	0.041* (−0.65)
Male (Senior HSD) - Male (Junior HSD)	−2.47	−4.83	−0.11	0.75	−3.29	56.02	0.035* (−0.86)
MHLq Total							
Female (Bachelor+) - Male (Senior HSD)	9.62	0.98	18.26	2.73	3.52	51.15	0.019* (0.86)
Female (Bachelor+) - Male (Primary)	8.85	2.72	14.97	1.98	4.46	112.08	<0.001*** (0.79)
Female (Junior HSD) - Male (Senior HSD)	9.95	0.76	19.13	2.92	3.41	56.01	0.025* (0.88)
Female (Junior HSD) - Male (Primary)	9.18	2.22	16.13	2.23	4.12	72.79	0.002** (0.82)
Male (Bachelor+) - Male (Primary)	6.45	0.76	12.13	1.84	3.51	110.63	0.015* (0.57)

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. Note: The table shows mean differences, confidence intervals (95% CI), standard errors (*SE*), t-values, degrees of freedom (*df*), *p*-values, and effect sizes (Cohen's *d*) for comparisons of parental education levels, and the combined effect of gender and parental education across factors.

3.3. Recognition of Different Mental Health Conditions

A high proportion, 84.36%, reported awareness of depression, while generalized anxiety was recognized by 52.86%. In contrast, conditions like cerebral palsy, stroke, and trisomy showed low awareness levels, with only 14.54%, 13.22%, and 13.00% of participants recognizing these conditions, respectively. Awareness of Parkinson's disease was particularly low at 8.81%. Additionally, 51.76% of partic-

ipants were aware of schizophrenia (Table 5).

Table 5. Participants' awareness of mental and neurological conditions.

Groups	Frequency	Percent
Generalized Anxiety		
Yes	240	52.86
No	214	47.14
Depression		
Yes	383	84.36
No	71	15.64
Cerebral palsy		
Yes	66	14.54
No	388	85.46
Stroke		
Yes	60	13.22
No	394	86.78
Trisomy		
Yes	59	13.00
No	395	87.00
Schizophrenia		
Yes	235	51.76
No	219	48.24
Parkinson		
Yes	40	8.81
No	414	91.19

Note: The table shows the frequency and percentage of participants who reported awareness ("Yes") or lack of awareness ("No") of the listed conditions.

4. Discussion

The study included 454 participants (56.82% male, 43.18% female) aged 12 to 16. Demographic variables included age, ethnicity, associated academic institutions, parental education, and family literacy measured by parental education levels. Participants' awareness of mental health issues was also assessed. Data were collected from six schools across Kathmandu and Lalitpur Districts, including both public and private institutions.

We observed significantly higher levels of global mental health literacy and knowledge/stereotypes about mental health problems among females compared to males. This exactly aligns with the findings of Poudel et al. (2024), who reported that females had greater awareness of erroneous beliefs/stereotypes, with the other dimensions remaining the same. Shrestha et al. (2023) reported that female stu-

dents demonstrated significantly higher MHL, knowledge, first aid skills, and help-seeking behavior than male students, while erroneous beliefs and stereotypes were more prevalent among males (Shrestha et al., 2023; Lee et al., 2020). Females scored higher on overall mental health literacy, showing greater knowledge and understanding across all dimensions except erroneous beliefs/stereotypes (Dias et al., 2018). However, Mishra et al. (2023) found similar level of mental health literacy between female and male gender. Future research should explore the underlying factors contributing to these differences and develop targeted interventions to enhance mental health literacy among male students.

We observed a similar level of MHL based on the school type (government vs. private). However, students from community school had higher level of awareness in help seeking and first aid skills whereas lower level in knowledge/stereotypes about mental health problems. However, Poudel et al. (2024) found significantly higher level of self-help strategies in students from community colleges than in private colleges and government colleges. Siddique et al. (2022) found no differences according to the university type (public and private) in the level of mental health knowledge and awareness. These inconsistencies warrant further investigations to address these inconsistencies.

We found the significant influence of parental education on MHL. Adolescents whose parents had a higher education level (bachelor's or master's degree) demonstrated better MHL compared to those with parents educated only up to the primary level. This aligns with the idea that parental education, particularly the father's education level, significantly influences mental health awareness (Abonassir et al., 2021). Parental mental health literacy positively influenced adolescents' mental health literacy, with parent-child intimacy mediating this relationship. Additionally, school mental health services moderated the links between parental literacy, intimacy, and adolescent literacy (Wang et al., 2024). These dynamics, in turn, may facilitate knowledge sharing or discussions between parents and children. It is important for family members and the support network of individuals to possess skills that enable effective listening, providing support, and encouraging acknowledgment of the condition and seeking assistance (Jorm, 2012). This suggests that school children and adolescents may benefit from school based mental programs, especially when parental involvement is taken into account.

Our study revealed that females with bachelor's and junior high school parental education backgrounds demonstrated significantly higher mental health literacy specifically compared to males with senior high school and primary education backgrounds. The only significant difference among males was that those with bachelor's level parental education showed better mental health literacy than those from primary education backgrounds. Our findings align with the evidence that a mother's higher education contributes to greater mental health awareness (Mishra et al., 2023). These findings suggest the need for targeted interventions to enhance mental health literacy, particularly among males from lower educational back-

grounds. Additionally, females with higher parental education generally demonstrated better mental health literacy, particularly in knowledge/stereotypes about mental health problems. However, in self-help strategies, males from lower educational backgrounds showed higher competency than females from higher educational backgrounds, revealing a complex relationship between gender, parental education, and different aspects of mental health literacy, leaving room for future research.

No significant differences were found in MHL across ethnicity, permanent residence (inside vs. outside the valley), grades enrolled. This aligns with the previous study indicating non-significant differences based on the ethnicity and academic levels or literacy rate and academic years (Jayan & Vishwas, 2023; Poudel et al., 2024; Siddique et al., 2022). However, Singh et al. (2013) found that adults residing in urban communities had greater knowledge of mental health and mental illness compared to those in rural communities. Studies have shown that academic levels or grade have significant impacts on mental health literacy. For example, Ayurveda students in Nepal showed high mental health literacy, increasing with educational level. Interns had the highest scores, highlighting the impact of advanced education (Khayamali et al., 2023). The lack of significant variation in MHL across grades in this study may reflect the relatively narrow age range (12 - 16 years) and the homogeneity of the school curriculum in Nepal, which does not systematically address mental health education. Additionally, the absence of group differences combined with the low level of recognition of mental health issues may suggest a plateau in mental health literacy, highlighting the need for further examination and targeted improvement efforts.

Participants demonstrated high awareness of common mental health conditions like depression and generalized anxiety, consistent with findings that over 80% of students could identify these disorders (Duwal et al., 2024; Khayamali et al., 2023). However, awareness of less common conditions, including Parkinson's disease and cerebral palsy, was notably low. The varying levels of awareness across different mental health issues may result from the greater emphasis placed on common conditions, as highlighted by Jorm (2012). Public health campaigns often prioritize widely recognized mental illnesses, such as anxiety and depression, potentially leaving gaps in awareness of neurological and developmental conditions, which warrants further exploration. Additionally, a significant portion of the population remains unaware of common mental health issues, such as anxiety, highlighting a lack of mental health literacy among school students which is consistent with mental health literacy among adolescents was low, with 29% recognizing depression and 1.31% aware of schizophrenia or psychosis (Ogorchukwu et al., 2016). This aligns with findings from community surveys conducted in Australia, Canada, India, Japan, Sweden, the UK, and the US, which reveal widespread difficulties in accurately recognizing mental disorders (Jorm, 2012). Our observation also revealed a notable variation in students' awareness of depression and anxiety, highlighting the need for further exploration in this area.

5. Conclusion

Our study found that females had higher mental health literacy (MHL) than males, particularly in knowledge and help-seeking behavior, while males showed more erroneous beliefs. Parental education positively influenced MHL, with higher literacy among students from more educated families. Males from lower parental educational backgrounds excelled in self-help strategies, suggesting a complex relationship between gender, parental education, and different aspects of mental health literacy. While awareness of common mental health conditions like depression and anxiety was high, knowledge of less common conditions was low, highlighting gaps in mental health education. These results emphasize the need for targeted interventions, especially for male students and those from lower educational backgrounds.

5.1. Implication

This study highlights the need for targeted interventions to improve mental health literacy (MHL) in male students, particularly those from lower parental education backgrounds. It emphasizes the importance of parental involvement and school-based mental health education. Future research should explore the complex relationship between gender, parental education, and MHL to develop more effective interventions.

5.2. Future Directions

Future research should explore gender-based differences in mental health literacy, focusing on stereotypes and awareness of less common conditions like Parkinson's disease. The role of parental education, parent-child intimacy, and school-based programs needs further investigation to enhance MHL. Additionally, examining MHL differences across public and private school students, particularly in help-seeking behaviors, and conducting longitudinal studies to assess the long-term effectiveness of current interventions are essential.

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Institutional Review Board Statement

We obtained permission from the school authorities from all the schools involved in this study. It followed the ethical guidelines of the Declaration of Helsinki, ensuring participants' rights were protected throughout the research.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest

The authors declare no conflicts of interest.

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