Journal of Pedagogical Research
Volume7, Issue 5, 2023
https://doi.org/10.33902/JPR.202323786

Research Article

A comparative study of mental health literacy in university students in Czechia and China

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This study compares the mental health literacy (MHL) of university students in China and the Czech Republic. MHL refers to the ability to recognize mental health problems, adjust one's mental state and seek professional assistance. The study recruited 358 Chinese university students (244 female and 114 male) and 282 Czech university students (247 female and 35 male) and collected data through online questionnaires using the O'Connor's MHL Scale. The results indicated that Czech students had a significantly higher level of MHL compared with Chinese students based on the total score and other subscales. The findings of this study emphasize the importance of MHL on a global scale and the potential of cross-cultural comparisons to promote MHL and improve mental health outcomes. The disparity in MHL between the two countries highlights the need for increased mental health education and resources in China. Further research is needed to explore the cultural and educational factors contributing to the difference in MHL between China and the Czech Republic.

Keywords: Mental health literacy; Cross-cultural comparison; Gender difference

Article History: Submitted 30 July 2023; Revised 4 October 2023; Published online 15 November 2023

1. Introduction

The evolution of our understanding of health and its various components has led to the emergence of specialized fields of research and practice. One such offshoot, stemming from the broader concept of health literacy, is MHL (Kutcher et al., 2016). Historically, health literacy has garnered attention owing to its undeniable link with individual and community well-being. As defined by numerous scholars, health literacy encapsulates the capability to acquire, interpret, and utilize health information for the betterment of personal health and well-being (Furnham & Swami, 2018). Broadening the spectrum, the World Health Organization categorizes health into various dimensions, namely physical, mental, and social, among others (Callahan, 1973). Within this framework, the inception of the term MHL marked a significant step in recognizing the uniqueness of mental health challenges. Initially conceived by Jorm, MHL was described as the knowledge and beliefs aiding individuals in identifying, managing, and circumventing mental illnesses (Jorm et al., 1997). This definition underwent refinements over time, with Jorm later

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How to cite: Liu, H. & Vachova, L. (2023). A comparative study of mental health literacy in university students in Czechia and China. *Journal of Pedagogical Research, 7*(5), 237-250. https://doi.org/10.33902/JPR.202323786

broadening it to encompass knowledge concerning prevention, identification, effective treatment avenues, self-help strategies, and psychological first aid skills (Jorm, 2012). Contemporary research has further broadened this scope by integrating elements like stigma, efficacy in seeking help, and proactive mental health promotion (Kutcher et al., 2015; Spiker & Hammer, 2019; Wei et al., 2015), while some researchers also include the ability to promote mental health (Bjørnsen et al., 2019; Spiker & Hammer, 2019).

MHL, succinctly, is the understanding and comprehension individuals hold about mental health and related disorders (Jorm, 2000). Its prominence arises from its influence on timely detection, effective management of mental health issues, and facilitating access to the right care (Chao et al., 2020). This is particularly salient among university students, a demographic navigating a transformative life phase, making them vulnerable to mental health challenges (Kim et al., 2015).

In addition to the research on the definitions of MHL, there have been many different types of studies over the years which have contributed to the assessment, promotion and impact of MHL on mental health. First, Jorm (1997) compiled the earliest MHL situational questionnaire, which is an open questionnaire asking patients in a test case what psychological problems they have, what help they need, etc. In addition to the focus on methodological advancements, the broader research landscape has also delved into the multifaceted applications and implications of MHL. Recognizing the intertwined nature of MHL with socio-cultural constructs, researchers have probed its role in shaping public attitudes towards mental health, stigma reduction, and the promotion of early interventions (Burns & Rapee, 2006; Corrigan et al., 2004). There is an increasing consensus that high MHL levels can foster an environment where individuals are not only knowledgeable but also empathetic, resulting in reduced barriers to seeking mental health services(Kelly et al., 2007). However, as the discourse evolved, there emerged a need for more standardized, reproducible, and scalable tools. Enter instruments like the Mental Health Knowledge Schedule [MAKS] by Evans-Lacko et al. (2010). This schedule was designed to gauge the public's knowledge about mental health disorders and the associated stigma. By aiming to identify gaps in knowledge, MAKS contributed to better-informed public health interventions (Evans-Lacko et al., 2010). Similarly, the MHL Scale [MHLS] by O'Connor and Casey (2015) brought another layer of depth, focusing on multiple dimensions of mental health, ranging from the ability to recognize disorders to being aware of where and how to seek help. Such scales allowed for a broader and more in-depth assessment of MHL across varied populations(O'Connor & Casey, 2015). In the light of rising mental health challenges among the youth, the Universal MHL Scale for Adolescents [UMHL-A] by Kågström et al. (2023) was a timely addition. Recognizing that adolescents have unique mental health needs and challenges, this scale was tailored to capture their specific experiences and literacy levels. This move was imperative as addressing MHL at younger ages can set the stage for healthier adulthood (Kågström et al., 2023). Additionally, the growing body of literature in this realm underscores the importance of tailoring interventions to specific cultural, demographic, and age-specific contexts. As the global community becomes more intertwined and diverse, culturally competent tools and methodologies will be indispensable in ensuring that MHL initiatives are both relevant and effective.

In addition to assessing the development of MHL tools, many researchers are also engaged in research on improving MHL. Social intervention campaigns are designed to raise awareness and understanding of mental health issues in the broader public. These campaigns often employ media (like TV ads, radio spots, social media campaigns) to convey information. The aim is to destigmatize mental illness, promote help-seeking behaviors, and generally improve the public's MHL. Given the references, it's likely that Harman and Heath (2017), and Jorm (2015) explored the effectiveness and reach of such campaigns and their impact on the target populations. School-based interventions target younger populations to improve their understanding of mental health from an early age. By integrating mental health topics into school curricula, these interventions aim to ensure that children and adolescents have the tools to recognize, understand, and

potentially seek help for mental health issues. The studies by Tay et al. (2018) and Wei and Kutcher (2014) might have evaluated the effectiveness of such educational interventions in increasing MHL among school-aged populations. With the rise of technology, autonomous applications (apps) have become a popular tool to disseminate information and provide support in various areas, including mental health. Such apps can be designed to provide information, self-help tools, or even therapeutic exercises to users. Brijnath et al. (2016) and Twomey et al. (2014) might have focused on the development, deployment, and assessment of such apps, gauging their effectiveness in improving users' MHL and potentially providing direct mental health support (Brijnath et al., 2016; Twomey et al., 2014).

Although various studies have made good progress in the conception and application of MHL, at present, there are relatively few cross-national studies of MHL. Loo et al. (2012) compared the level of MHL between the British, Hong Kongers and Malaysians and found that the British were the most adept at correctly identifying the cases of mental disorders in the vignettes followed by the Hong Kongers and Malaysians (Loo et al., 2012). This paper aims to compare the level of MHL between Czechia and Chinese university students. The study also seeks to understand the reasons behind this difference and to explore the implications for mental health promotion and intervention strategies in both countries. This research provides a pivotal exploration into the differences in MHL among university students in China and the Czech Republic. As societies grapple with increasing mental health challenges, understanding MHL becomes paramount; it serves as an indicator of how well individuals can identify, manage, and seek help for these issues. By contrasting MHL between these two culturally distinct nations, this study offers valuable insights into how cultural and educational contexts shape perceptions and understanding of mental health. Such findings can guide policymakers, educators, and healthcare professionals in tailoring interventions, curricula, and outreach programs. Recognizing areas with lower MHL, such as China in this instance, helps target regions needing more robust mental health education and resources. Ultimately, enhancing MHL across diverse populations can pave the way for healthier societies, as better-informed individuals are more likely to access care, support peers, and reduce stigmatization surrounding mental health.

2. Method

2.1. Sample

The Chinese version of the online questionnaire was distributed to the Faculty of Education of a university in Sichuan Province, China, while the Czech version was distributed to the Faculty of Education at Palacky University. A total of 640 university students completed the questionnaires (see Table 1). Data were collected using an online questionnaire (Google Forms in Czech Republic and Wenjuanxing in China) in two identical forms in Czechia and Chinese. The data was gathered from 358 participants in China and 282 from Czechia. Chinese participants had an average age of 21.65 years (SD = 2.0), with 68.2% being female, while those from Czechia had an average age of 25.13 years (SD = 7.5) with a higher female representation at 87.6%. Pertaining to parental education as a socio-economic indicator, 37.2% of the Chinese sample had both parents with primary school degree, contrasted starkly with only 0.4% in the Czech sample. Notably, Czech participants exhibited a higher proportion with both parents having secondary school (38.7%) or at least one parent with university-level education (33.7%).

Table 1
Characteristics of the sample

	China	*Czechia*
N	358	282
Age, mean [SD]	21.65 [2.0]	25.13 [7.5]
Gender, N [%]		
Female	244 [68.2%]	247 [87.6%]
Male	114 [31.8%]	35 [12.4%]
Parent education, N [%]		
Both primary	133 [37.2%]	1 [0.4%]
At least 1 secondary	18 [5%]	5 [1.8%]
Both secondary	9 [2.5%]	109 [38.7%]
At least 1 university	46 [12.8%]	95 [33.7%]

2.2. Instruments

MHL was measured using the MHL Scale by O'Connor and Casey (2015). For the Chinese set of students, the previously validated Chinese version (Wang et al., 2022) was used, the Czech version was created by double-blind expert translation of the original English version. This 35-item instrument provides an overall score (with a range of 35-160 points, with higher scores reflecting better MHL) and two subscales: core MHL and social acceptance of people with mental illness. Core literacy is further divided into three subscores: knowledge of mental disorder (knowledge), ability of seeking information and help (ability) and recognition of mental disorder (recognition). Reliability (McDonald's omega) in this study was found to be acceptable to excellent: total score ω=0.91, core literacy ω=0.85, knowledge ω=0.79, ability ω=0.57, recognition ω=0.85 and social acceptance ω=0.89, and similar to the previous study (Wang et al., 2022).

2.3. Data Analysis

Due to the violation of the assumption of data normality, non-parametric variants of statistical methods were used. Pairwise differences were analyzed using the Wilcoxon rank sum test with Benjamini-Hochberg correction for multiple comparisons. Effect sizes were quantified using Wilcoxon's r. Differences between multiple groups (intra-country differences by combined parental education, among them, $0.1 < r < 0.3$ is low, $0.3 < r < 0.5$ is medium, $r > 0.5$ is large) (Cohen, 2013) were analyzed using the Kruskal-Wallis test (with eta-squared effect size) and Dunn's post-hoc test.

All statistical tests were performed as two-tailed and all $p < .05$ were considered statistically significant. Data analysis and visualizations were performed in RStudio (v.2022.07.2 with R v.4.2.1).

2.4. Ethical Consideration

The authors declare that all the procedures included in this work are in accordance with the ethical standards of the relevant national and institutional human experimentation committees and with the Helsinki Declaration of 1975, revised in 2008. All participants were informed of the confidentiality of their responses and signed an online informed consent form before completing the questionnaire. No specific information allowing the identification of specific students (e.g., IP address, student name or ID number, specific field of study, etc.) was collected as part of the online data collection. The research protocol of the study was approved by the Ethics Committee of the Faculty of Education of Palacky University.

3. Findings

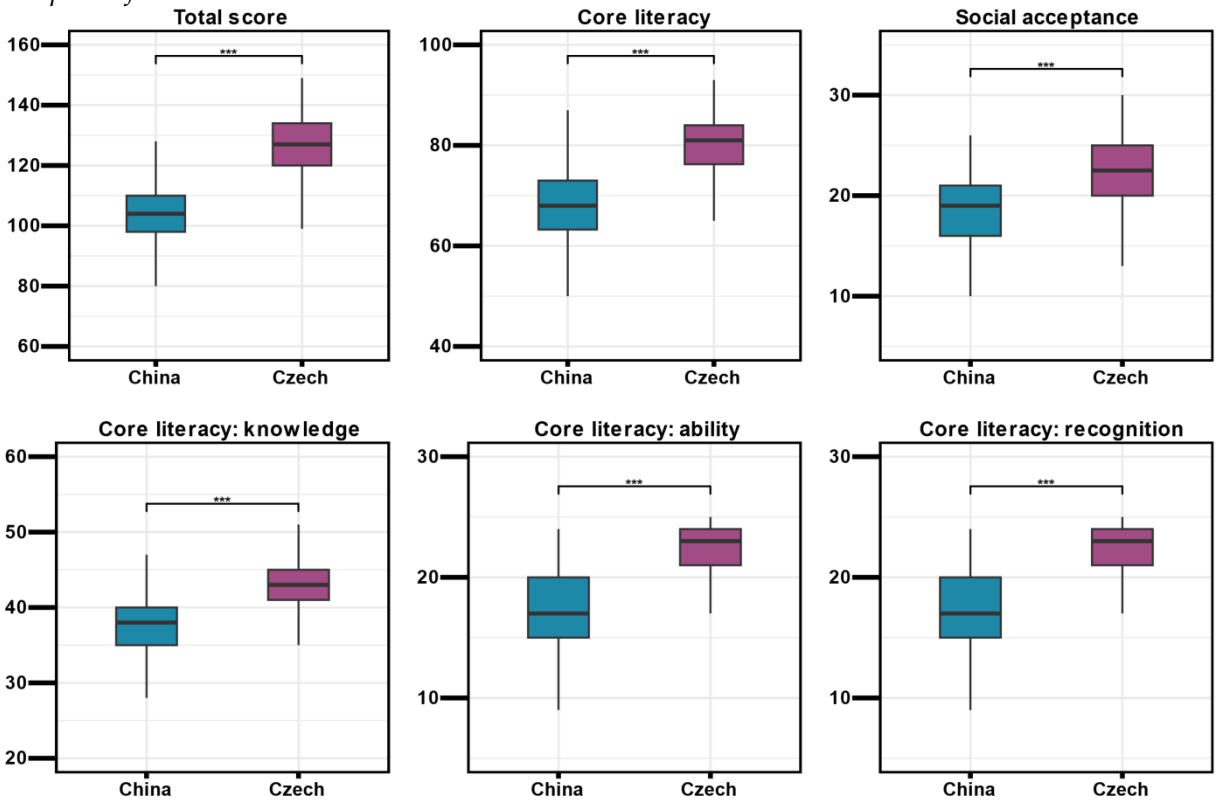
3.1. Differences in Mental Health Literacy Scores between Countries

Table 2 presents a comparison of MHL scores between China and Czechia across various dimensions, including total score, core literacy components (knowledge, ability, and recognition), and social acceptance. The table highlights mean scores, standard deviations, differences in rankings (W), adjusted p-values, and the effect size (r) for each component. In terms of the mean comparison of the total scores, the questionnaire scores of Czech university students (M= 125.8, SD=11.0) were significantly higher than those of Chinese university students (M=104.3, SD=10.4). Besides, in each of the factors of the questionnaire including core scores and social acceptance, the average scores of Czech university students were significantly higher than those of Chinese university students and the test effect size was between medium and large ($r = 0.4 - 0.71$) (see Table 2 and Figure 1.

Table 2
Differences in MHL scores between countries

	Mean [SD]		*Country difference*		
	China	Czechia	W	adj.P	r
Total score	104.3 [10.4]	125.8 [11.0]	8579.5	<0.001	0.71
Core literacy	68.1 [7.3]	80.1 [6.8]	11144.5	<0.001	0.67
Knowledge	37.8 [4.4]	42.7 [4.0]	19562.5	<0.001	0.53
Ability	12.9 [2.2]	15.0 [2.8]	27053	<0.001	0.40
Recognition	17.4 [3.8]	22.4 [2.4]	12447.5	<0.001	0.65
Social acceptance	18.8 [3.5]	22.4 [4.7]	25612.5	<0.001	0.42

Figure 1
Boxplots of MHL scales in individual countries



Note. Asterisks indicate significant differences between countries (***$p < .001$).

Figure 1 derived from Table 2 visually illustrate the distribution and central tendencies of MHL scores across various dimensions for both China and Czechia. Each box plot showcases the median value, signifying the central tendency of scores within each dimension, and is flanked by the interquartile range [IQR], capturing the middle 50% of the data. The whiskers extending from the box illustrate the overall spread or range of scores, while any isolated points outside of these whiskers signal potential outliers. Furthermore, the statistical significance (adj. p) for all these differences is < .001, indicating that the observed differences in scores between the two countries are statistically significant across all dimensions.

3.2. Differences in Mental Health Literacy Scores between Countries in respect to Gender

We used the Wilcoxon rank sum test to examine gender differences in MHL. The results are shown in Table 3 and Figure 2.

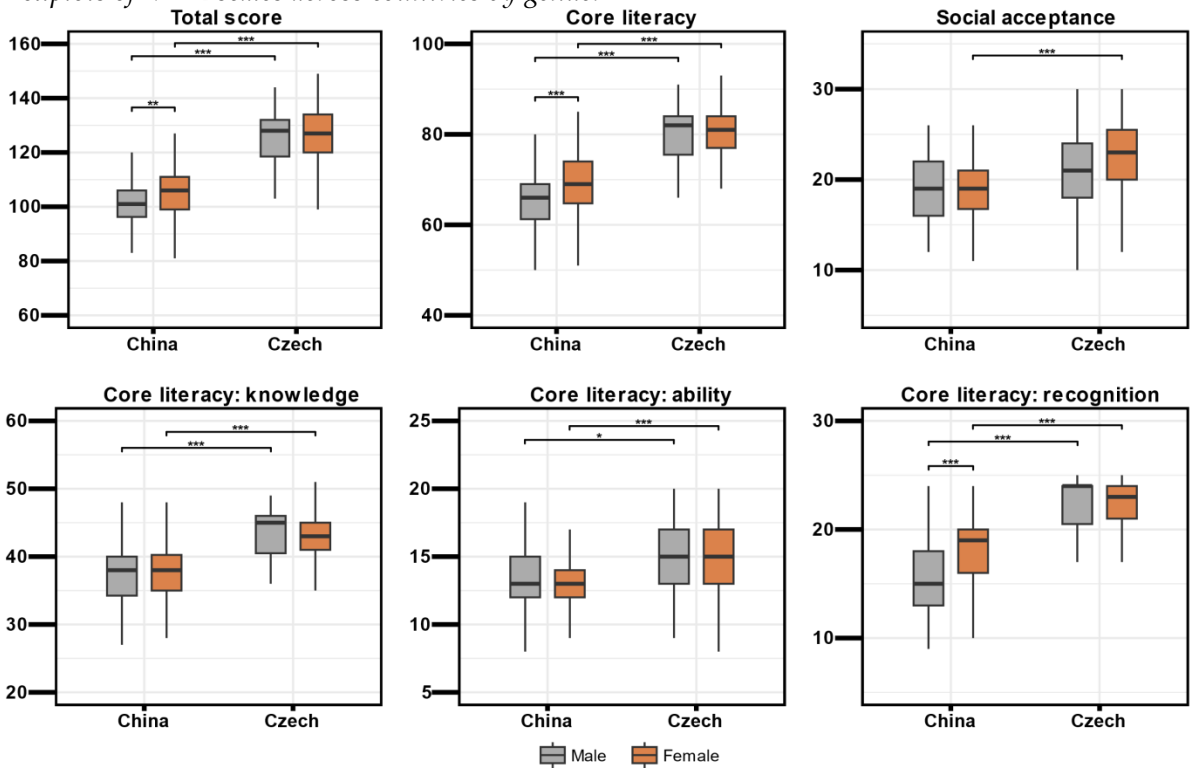
Table 3
Differences in MHL scores between countries in respect to gender

		Mean [SD]		*Country difference*		
Variable	Comparison	Male	Female	W	adj.P	r
Total score	Male vs. female (Czechia)	124.8 [12.0]	126.0 [10.8]	4092.5	>0.999	0.03
	Male vs. female (China)	101.9 [10.6]	105.4 [10.1]	10573	0.001	0.19
	Czechia vs. China (males)			403.5	<0.001	0.58
	Czechia vs. China (females)			5196	<0.001	0.72
Core literacy	Male vs. female (Czechia)	80.0 [6.9]	80.1 [6.7]	4348	>0.999	0
	Male vs. female (China)	66.3 [7.6]	68.9 [7.0]	10471	<0.001	0.20
	Czechia vs. China (males)			384.5	<0.001	0.59
	Czechia vs. China (females)			7005.5	<0.001	0.66
Knowledge	Male vs. female (Czechia)	43.5 [3.4]	42.5 [4.1]	5000.5	0.526	0.09
	Male vs. female (China)	37.4 [5.0]	38.0 [4.2]	12459.5	0.445	0.08
	Czechia vs. China (males)			615	<0.001	0.51
	Czechia vs. China (females)			12142.5	<0.001	0.52
Ability	Male vs. female (Czechia)	14.4 [3.3]	15.1 [2.8]	3831.5	>0.999	0.07
	Male vs. female (China)	13.2 [2.3]	12.8 [2.1]	15335.5	0.456	0.08
	Czechia vs. China (males)			1408	0.032	0.22
	Czechia vs. China (females)			14879	<0.001	0.44
Recognition	Male vs. female (Czechia)	22.0 [2.5]	22.5 [2.4]	3847.5	>0.999	0.06
	Male vs. female (China)	15.7 [4.0]	18.1 [3.4]	8872	<0.001	0.29
	Czechia vs. China (males)			375	<0.001	0.60
	Czechia vs. China (females)			8372.5	<0.001	0.63
Social acceptance	Male vs. female (Czechia)	20.9 [6.0]	22.7 [4.4]	3259.5	0.073	0.14
	Male vs. female (China)	19.0 [3.4]	18.7 [3.6]	14633.5	>0.999	0.04
	Czechia vs. China (males)			1544.5	0.172	0.17
	Czechia vs. China (females)			13864.5	<0.001	0.47

It can be seen from the chart that for Czech students, the total score of MHL does not significantly differ between genders [M(female)=126.0, SD=10.8, M(male)=124.8, SD=12.0]. For Chinese students, female's total score of MHL is marginally significantly higher than male's [M(female)=105.4, SD=10.1, M(male)=101.9, SD=10.6]. In the sample of Chinese university students, the main gender difference is reflected in the recognition of psychological problems in core literacy [M(female)=18.1, SD=3.4, M(male)=15.7, SD=4.0], in other factors, however, no significant differences were observed.

Figure 2

Boxplots of MHL scales across countries by gender



Note. Asterisks indicate significant differences between groups (*$p < .05$, **$p < .01$, ***$p < .001$).

3.3. Inter-country Differences in Mental Health Literacy Scores in respect to Combined Parental Education

The inter-country comparison in MHL scores in respect to the level of parental education is shown in Table 4 and Figure 3.

Table 4

Inter-country differences in MHL scores in respect to combined parental education

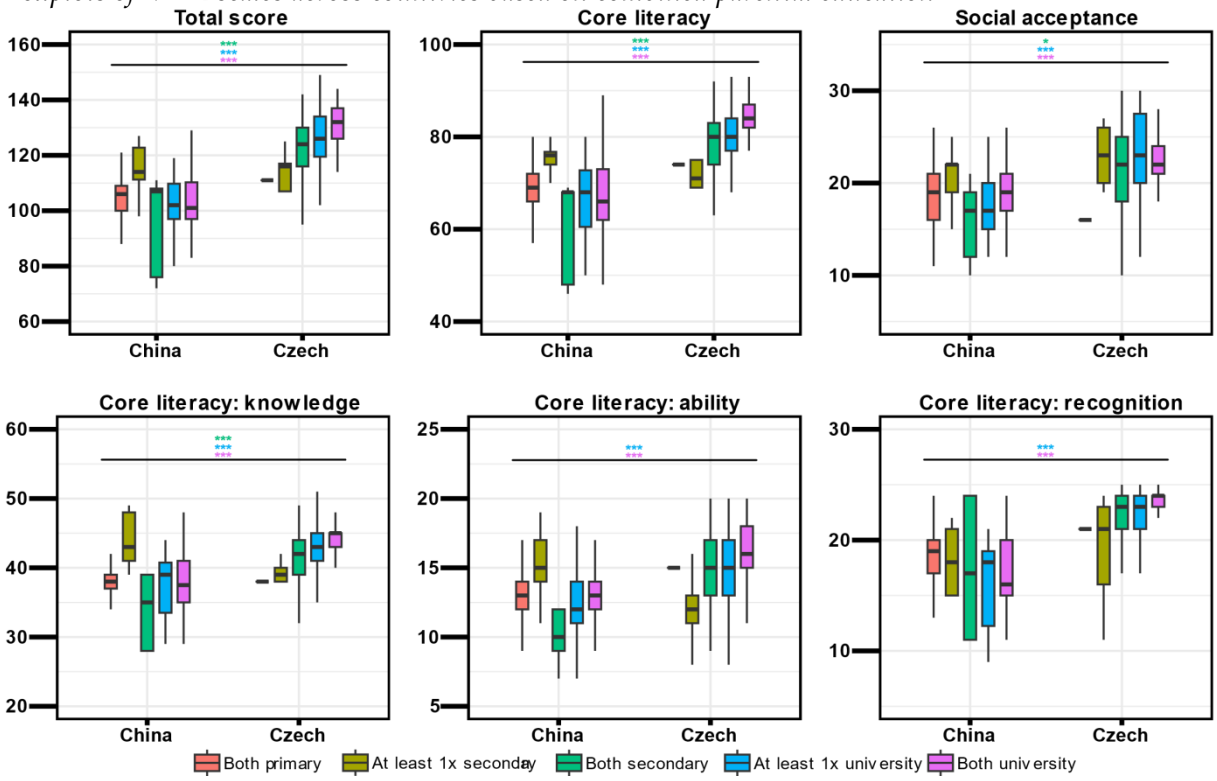
		Mean [SD]		*Country difference*		
Variable	Education	Czechia	China	W	adj.P	r
Total score	Both primary	111 [-]	104.7 [7.7]	20	>0.999	0.10
	At least 1 secondary	110.8 [13.8]	114.9 [8.7]	49	>0.999	0.06
	Both secondary	122.6 [11.2]	96.6 [17.0]	82.5	<0.001	0.38
	At least 1 university	126.4 [10.6]	101.3 [11.3]	218	<0.001	0.73
	Both university	131.2 [7.6]	104.0 [11.0]	380.5	<0.001	0.75
Core literacy	Both primary	74 [-]	68.7 [5.1]	19	>0.999	0.11
	At least 1 secondary	68.0 [10.4]	75.5 [2.5]	74	0.16	0.45
	Both secondary	78.4 [6.3]	61.3 [10.5]	56	<0.001	0.41
	At least 1 university	79.8 [6.6]	66.3 [8.4]	382.5	<0.001	0.67
	Both university	84.0 [5.1]	67.6 [7.9]	630.5	<0.001	0.71
Knowledge	Both primary	38 [-]	37.7 [3.2]	64	>0.999	0.01
	At least 1 secondary	37.0 [6.3]	43.8 [3.7]	78	0.073	0.52
	Both secondary	41.7 [3.7]	34.0 [4.8]	91.5	<0.001	0.37
	At least 1 university	42.6 [4.0]	37.6 [4.2]	791.5	<0.001	0.52
	Both university	44.7 [3.4]	37.4 [4.9]	1160.5	<0.001	0.64
Ability	Both primary	15.0 [-]	12.8 [1.8]	16.5	0.971	0.11
	At least 1 secondary	12.0 [2.9]	15.2 [2.3]	74	0.161	0.45
	Both secondary	14.6 [3.0]	10.0 [1.7]	86.5	<0.001	0.38
	At least 1 university	14.8 [2.9]	12.3 [2.5]	1068	<0.001	0.42
	Both university	16.1 [2.1]	13.1 [2.1]	1807.5	<0.001	0.54

Table 4 continued

Variable	Education	*Mean [SD]*		*Country difference*		
		Czechia	China	W	adj.P	*r*
Recognition	Both primary	21.0 [-]	18.2 [3.4]	22	>0.999	0.10
	At least 1 secondary	19.0 [5.4]	16.5 [5.8]	31.5	>0.999	0.21
	Both secondary	22.1 [2.6]	17..3 [5.6]	255	0.077	0.22
	At least 1 university	22.4 [2.4]	16.4 [4.0]	279	<0.001	0.71
	Both university	23.2 [1.6]	17.0 [3.4]	778.5	<0.001	0.70
Social acceptance	Both primary	16.0 [-]	18.7 [3.3]	104.5	>0.999	0.09
	At least 1 secondary	23.0 [3.5]	21.8 [4.4]	34	>0.999	0.17
	Both secondary	21.6 [5.4]	16.2 [4.4]	206.5	0.02	0.27
	At least 1 university	23.2 [4.8]	17.8 [3.5]	845.5	<0.001	0.50
	Both university	22.8 [3.3]	18.9 [3.3]	2116.5	<0.001	0.50

Figure 3

Boxplots of MHL scales across countries based on combined parental education



Note. Asterisks indicate significant differences between groups (*$p < .05$, ***$p < .001$).

In the two groups of both primary and at least 1 secondary, there was no significant difference between Czechia and Chinese university students in terms of MHL total score or various factors. In the secondary group, Czech students' total score was significantly higher than Chinese students'. In detail, this difference was especially evident in the knowledge and ability factor. In the group where at least one parent had a university degree, Czech students' total score and every factor score were significantly higher than Chinese students. In addition, with a higher level of education of parents, Czech students' MHL was higher, while MHL levels in Chinese students were not significantly affected by parental education.

4. Discussion, Conclusion and Recommendations

4.1. Inter-country Difference

According to results of the statistical analysis, the average score of MHL of Chinese university students was significantly lower than that of Czech university students. This difference in MHL

between Czechia and Chinese university students may be influenced by several factors, including cultural differences, educational backgrounds and access to mental health resources.

Cultural differences may play a crucial role in shaping attitudes towards mental health issues. Previous research has shown that cultural factors, such as stigmatization and shame, can impact individuals' willingness to seek help for mental health problems (Eisenberg et al., 2009). In China, mental health issues are often viewed as a personal weakness or failure, which may prevent individuals from seeking help (Chen et al., 2014). On the other hand, Czech culture may be more open towards mental health issues than China and seeking help is often encouraged and viewed as a positive step towards recovery (Křeménková et al., 2021).

Education can also influence MHL. According to past research, mental health education is not given enough attention in most areas of China, which may be due to the cultural factors mentioned above and the lack of mental health professionals. Since the management of Chinese universities has a strict hierarchy, the knowledge of top managers can determine the resource input of the entire education system. There is usually insufficient awareness of mental health education among top management and insufficient resources for mental health professionals to carry out their work (Lockett, 1988; Zhang & Spicer, 2014). On the contrary, the Czech Republic may have a more mature mental health education system than China (Sigmund et al., 2014).

Access to mental health resources is also a critical factor that can impact MHL. Mental health resources in China are often limited, and the government's approach to mental health is more traditional and stigmatized (Liang et al., 2018).

In conclusion, the difference in MHL between Czechia and Chinese university students may be influenced by cultural differences, educational backgrounds, and access to mental health resources. The findings suggest that there is a need for more mental health education and resources in China to improve MHL among university students. The management model that has lasted for many years and it is a greater challenge to improve mental health education then improve MHL of university students in China.

4.2. Gender Difference

The results showed that there were no significant differences in the total score of MHL between genders for Czech students. In contrast, female Chinese students had marginally higher total scores of MHL than their male counterparts. However, the main gender difference was reflected in the recognition of psychological problems in core literacy, with female Chinese students performing significantly better than male Chinese students.

The findings of this study have several important implications for mental health education and promotion in the Czechia and Chinese university student populations. Firstly, the lack of gender differences in MHL among Czech students suggests that mental health education programs in the Czech Republic have been successful to some degree in promoting MHL equally among male and female university students (Kvintová & Sigmund, 2012). This is consistent with previous research suggesting that MHL is positively associated with exposure to mental health information and education (Mori et al., 2022). Therefore, future mental health education programs in the Czech Republic should continue to emphasize the importance of MHL to promote equal mental health outcomes among male and female students (Pugnerova et al., 2018).

In contrast, the marginally higher MHL scores of female Chinese students may indicate that mental health education programs in China have not been as effective in promoting MHL among male university students. This finding is consistent with previous research showing that gender differences in MHL exist in other populations (Wong et al., 2012). One possible explanation for this gender difference is that mental health issues are still stigmatized in China and male university students may be less likely to seek mental health information and education due to fear of social judgment or perceived weakness (Chen et al., 2014). Therefore, mental health education programs in China should consider tailoring their approach to reach male university students specifically and address the unique barriers they face in accessing mental health information and education.

Furthermore, the main gender difference in the recognition of psychological problems in core literacy among Chinese university students suggests that mental health education programs in China should prioritize this aspect of MHL. This is consistent with previous research showing that recognizing and identifying mental health problems is a key component of MHL (Kutcher et al., 2016). Moreover, the fact that female Chinese students performed significantly better than male Chinese students in this aspect of MHL may indicate that female may be more interested in paying attention to information about mental health (Swami, 2012). Therefore, mental health education programs could incorporate gender-sensitive content that addresses gender-specific mental health issues or use gender-tailored strategies to promote MHL among male and female students.

In conclusion, this study provides valuable insights into the level of MHL and gender differences in MHL among Czechia and Chinese university students. The findings suggest that mental health education programs in the Czech Republic have been successful in promoting equal MHL among male and female university students. In contrast, mental health education programs in China may need to consider gender-specific approaches to promote MHL among male university students and prioritize the recognition of psychological problems in core literacy. Future research should investigate the effectiveness of gender-specific approaches to mental health education in promoting MHL and improving mental health outcomes among university students.

4.3. Differences in Parental Level of Education

The findings of the study revealed a significant difference between Czechia and Chinese university students concerning parental education in terms of their MHL scores. Specifically, Czech students had a higher total score and scored higher in the knowledge and ability factor when compared with their Chinese counterparts in both secondary groups. This difference was even more pronounced when at least one parent had a university degree as the Czech students' MHL scores were significantly higher than those of Chinese students. Furthermore, the study indicated that higher levels of parental education in the Czech group were associated with higher MHL scores, while the same effect was not observed in the Chinese group.

The possible explanation for these findings could be the differences in the education systems and cultural backgrounds between Czechia and Chinese students. European countries, such as the Czech Republic, have a long tradition of higher education and boast about some of the oldest and most respected universities in Europe (De Wit, 2002). Therefore, the Czech Republic has a relatively mature system of mental health education in higher education, so parents of Czech students also received good mental health education and studies have shown that parents' MHL also has a positive effect on the mental health of their children (Mendenhall & Frauenholtz, 2015). In contrast, China has seen a rapid expansion in its higher education system in recent decades, with an increasing number of students seeking admission to universities. According to a report published by the Organization for Economic Co-operation and Development (OECD) in 2020, there were approximately 11 million students in 2000 enrolled in higher education institutions in China, whereas by 2018, this number had grown to over 48 million students(Shuo, 2022). However, the quality of education in China has been a concern, with some reports suggesting that the education system is overly focused on rote learning and standardized testing rather than critical thinking and creativity (Guo et al., 2019). These differences in education systems may have contributed to the variation in MHL scores between Czechia and Chinese students, particularly in terms of their knowledge and ability. In addition, even though China's colleges and universities have improved, the generation of parents lacks educational resources and schools cannot help them obtain information about mental health and cultivate related awareness. Therefore, the education received by parents is not very helpful for children's MHL.

In conclusion, the findings suggest that differences in education systems, parental education and cultural attitudes towards mental health may all play a role in shaping MHL scores. Further research is needed to explore these factors in more depth and to identify effective strategies for promoting MHL in different populations.

5. Summary

This study compared the MHL levels of Czechia and Chinese university students using a questionnaire survey. First of all, this study compared the average scores of MHL of university students in the two countries and the results showed that the scores of Czech students were significantly higher than those of Chinese students in terms of total scores and scores of each dimension. To a certain extent, this suggests that compared with the Czech Republic, Chinese universities have greater room for improvement in mental health education, at least Sichuan Province in China still needs more investment in mental health education resources. According to a study, Chinese university students have higher levels of stress, anxiety and depression than their peers in other countries. The study found that over 60% of Chinese university students reported experiencing high levels of stress, compared with 36% of students in the United States (Lian & Wallace, 2020). Therefore, the mental health education in Chinese higher education has a lot to learn from Czech education.

Second, this study compared gender differences in the MHL of students in the two countries. From this, we can find that Czech students have no significant differences in the total score and scores of each dimension, while Chinese students have significantly higher scores for female than male for symptom recognition in core literacy. It may be that Chinese female students are more interested in paying attention to mental health information under the condition of limited mental health education, such as identifying psychological problems more accurately. China's higher education needs to improve the system of mental health education.

Third, we analyzed the relationship between parental education and students' MHL. The key finding is that the higher the education level of parents of Czech students, the higher the MHL of students, while the education level of parents of Chinese students has little relationship with the level of MHL of students. This result may reflect the lack of educational resources in the past in China as well as the difficulty for parents to receive systematic mental health education.

Through these comparisons, this study provides a clear comparison of the cross-country differences in MHL in the Czech Republic and China, identifies problems and makes suggestions for improvement in the mental health education of university students in the two countries. First of all, there is a lot of room for improvement in mental health education where Chinese students live. In addition to basic theoretical knowledge, they need to alleviate the stigma of mental health, discrimination against people with psychological problems and skills to regulate their own psychological conditions (Dunne et al., 2018). In addition, even if the MHL of Czech students is better than that of Chinese students, there is room for improvement, for example, integrating mental health education into the curriculum of relevant programs, such as psychology or health-related courses, to raise awareness about mental health and promote good mental health practices among students. The results of some studies on Czech students suggest focusing on implementing physical activity into an individual's life, as it appears that active individuals show higher levels of satisfaction with their health and life in general, so it can be assumed that this may also have the impact on the level of MHL (Kvintová & Sigmund, 2016; Kvintova et al., 2014; Sigmund et al., 2014).

The limitations of this study are the uneven number of people at the sampling level and the regional limitations of the Chinese student population. For example, most parents of Chinese students are both in the primary category and much considerably fewer in the secondary category. The sample of Czech students also has a similar problem, which may influence the statistical effect. Second, the sample of Chinese students is limited to a certain university in Sichuan Province. Regarding the fact that China is a large country, a sample of one university may not accurately reflect the real situation in Chinese higher education. Future research could expand the ecological validity of the sample.

Author contributions: All authors have sufficiently contributed to the study and agreed with the results and conclusions.

Declaration of interest: No conflict of interest is declared by authors.

Ethics declaration: The research protocol of the study was approved by the Ethics Committee of the Faculty of Education of Palacky University on 2.24.2023 with approval code: IGA_PdF_2023_028.

Funding: The study was supported by the project "The internal research grant Selected topics of psychological research in the field of educational psychology".

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