

# Post-COVID mental health of librarians in Vietnam

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## **Abstract:**

This study aims to measure the mental well-being levels of librarians in Vietnam in the new normal context after the COVID-19 pandemic. The findings are expected to advocate for future policy interventions regarding mental health care for staff in Vietnam's libraries and information centres since the pandemic has made coping with crises globally recognised as an integral part of life. On this ground, a survey was designed and administered online for librarians across Vietnam to self-rate their psychological general well-being using the World Health Organization (WHO)-5 together with the Revised Life Orientation Test (LOT-R) and Strahan-Gerbasi's 1972 short version of the Marlow-Crowne Social Desirability Scale. The results show that despite the low mid-COVID mental health, there was a statistically significant increase in mental health scores in the new normal. Approximately two-thirds of the surveyed librarians were infected with COVID-19. In both mid- and post-COVID mental health scores, there were significant differences between the infected and uninfected groups, between different marital and parenthood statuses, and between different age groups, seniority levels, and types of positions.

**Keywords:** COVID-19 pandemic, information professionals, librarians, mental health status/condition, mental well-being.

**Classification numbers:** 1.2, 4.1

## **1. Introduction**

The COVID-19 pandemic has significantly impacted people's mental health (MH), with rates of depression and anxiety increasing by more than 25% in 2020 [1]. In the new normal, two Google searches for "post-COVID MH" and "new-normal stress" yielded an overwhelming number of results (i.e., 623,000,000 and 875,000,000, respectively) in less than half a second. Similar searches on Google Scholar returned 62,900 and 63,600 records within a third of a second.

Major sources from medical and social sciences databases (such as Scopus and PubMed) show that employment sectors researched for mid- and post-COVID MH include healthcare professionals and frontline workers (emergency responders, retail workers, and essential service providers) [2-4], education professionals and students [5-7], technology and information technology professionals [8, 9], social and community workers [10, 11], and small business owners and entrepreneurs [12-14]. Although library jobs were commonly identified as experiencing high levels of stress during the

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COVID-19 pandemic [15-19], the post-COVID mental health of librarians has not yet been investigated.

Library- and COVID-related literature from mid-2020 (when the library sector transitioned into the new normal) to mid-2022 only touched on issues such as rethinking the roles of libraries during the pandemic [20], coordinating responses to the pandemic [21-26], facilitating access to health information [27-31], documenting the pandemic [32-34], studying users' information behaviours during the pandemic [35-37], supporting users' mental health [38, 39], assessing the impact of the pandemic on certain services/areas of operation [40-46], and remodelling particular services/programmes to meet new demands [47-58].

Even in the IFLA Journal special issue on libraries and COVID-19 published in March 2022, there were no articles on the post-COVID-19 mental health of librarians but only stories that showed how the library profession evolved in the initial two years of the pandemic: challenges and opportunities in times of crisis [59, 60], adaptation of libraries on a national scale [19, 61-63], novel approaches to service delivery [64-70], and issues of information access and misinformation [71-75].

Like other highly stressful professions during the pandemic, the library and information sectors also need research evidence on MH for future policy interventions regarding MH care for library staff. The pandemic has made people realise that COVID-19 is "not a crisis which can be over, but a new era..." [76, 77], and coping with crises is now an integral part of life [78-80]. For this reason, it is essential to assess the impact of the pandemic on the MH of the library community. As the new normal has come, one way to assess such impact is to find evidence on the MH of librarians in the post-COVID period. However, the findings about librarians' current (post-COVID) MH status could be more significant if viewed as the result of changes since a noticeable and recent past time point, such as the mid-COVID period. To achieve this, data on librarians' mid-COVID MH should also

be collected. Conducting this research is therefore more urgent than ever to avoid longer recall periods, which can induce recall errors due to memory decay.

This study was conducted within the library community in Vietnam because the research team could access the regional contact lists of libraries and information centres in Vietnam. As of 2017, Vietnam has 47,797 libraries (including 748 academic libraries, 18,098 public libraries, and 28,951 school libraries) [81]. Besides these three main types of libraries, this study also targeted museums, archives, special libraries, and private or community information centres to assess their librarians', staff members', information specialists', or professionals' mental well-being using the WHO-5 Well-being Index developed by the WHO in 1998 [82] and other established scales. All subjects will be hereafter referred to as librarians, libraries or information centres as libraries or the library community, and library careers or information professions as library careers.

## **2. Methodology**

### **2.1. Study design**

The study was designed as a cross-sectional survey using a self-administered questionnaire distributed via Google Forms to 780 email addresses randomly selected from three regional library contact lists (260 emails from each list). Considering the population size to be approximately 50,000 (47,797 libraries plus museums, archives, etc.), or 250,000 (estimating an average of five members per library or information centre), the minimum sample size required, with a 95% confidence interval and a  $\pm 5\%$  margin of error, is 381 or 384, respectively [83]. From 20 July to 30 September 2022, when the survey was closed, 431 responses were received. Table 1 shows the demographics of the surveyed sample.

Ample empirical evidence suggests that people often undervalue MH [84-86] and are reluctant to share their MH status [87-89] due to misconceptions that low MH status equates to mental illness or a

**Table 1. Characteristics of the surveyed sample.**

		Frequency	Percent
Region	1 North	135	31.3
	2 Central	142	32.9
	3 South	154	35.7
Library type	1 public libraries	152	35.3
	2 school libraries	113	26.2
	3 academic libraries	150	34.8
	4 other	16	3.7
Library size	1 less than 5 staff	148	34.3
	2 5-10 staff	70	16.2
	3 11-20 staff	99	23.0
	4 more than 20 staff	114	26.5
Age	2 20-30 years old	37	8.6
	3 31-40 years old	238	55.2
	4 41-50 years old	138	32.0
	5 51-60 years old	18	4.2
	1 less than 5 years	30	7.0
Seniority	2 5-10 years	79	18.3
	3 11-15 years	156	36.2
	4 16-20 years	92	21.3
	5 more than 20 years	74	17.2
	Position	1 staff	268
2 manager		80	18.6
3 director		83	19.3
Specialisation	1 administration	39	9.0
	2 information resource	109	25.3
	3 information service	97	22.5
	4 information technology	35	8.1
	5 other	151	35.0
Qualification	1 vocational school diploma	78	18.1
	2 junior college degree	88	20.4
	3 university degree	152	35.3
	4 postgraduate degree	113	26.2
Gender	1 male	158	36.7
	2 female	272	63.1
	3 other	1	.2
Marriage	1 married	376	87.2
	2 unmarried	55	12.8
Children	1 have children	348	80.7
	2 does not have children	83	19.3

Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

lack of MH literacy [90-92], as well as the stigma and discrimination associated with MH [93, 94]. This distinct perception towards MH and MH research, along with attitudinal barriers to MH promotion, necessitates addressing ethical concerns in any MH-related study [95-97]. Consequently, the goals, design, and tools used in the survey, along with any potential ethical concerns, were clearly communicated to the Research Management Board of the School of Social Sciences and Humanities at Can Tho University. These details were also explained to potential respondents. Informed consent was implied when respondents completed and submitted the survey. Additionally, the survey included information on the importance of MH care, the national scope of the survey, the reliability and use of the WHO-5 Well-being Index, the significance and confidential treatment of the data provided, and the time frames of the mid-COVID (1 April 2020 to 17 March 2022) and new normal (from 17 March 2022 - present) periods.

## 2.2. Survey questionnaire

Prior to official data collection, the survey questionnaire was piloted twice with the same 20 participants over three weeks to establish test-retest reliability. The questionnaire was also reworded where necessary to ensure ease of reading, comprehension, and response, with an estimated completion time of 5 to 10 minutes. Table 2 justifies the functions of all the questions included in the survey.

One way to make information about Vietnamese librarians' current MH status more significant is to explore how their mental well-being has changed from a noticeable past time point to the present. Therefore, the WHO-5 was used twice to collect data on their current (post-COVID) mental well-being and their mid-COVID MH status. These two data sets can then be compared using a paired-sample t-test, which can determine whether there is a statistically significant difference in the mean scores measured from the same person's response to two different but related questions using the same scale [101].

**Table 2. Questions used for the survey.**

Questions	Contents	Function/Use	Tools/Aids
1-8	Geographic location, library type and size, age, seniority, position, specialization, qualification, gender, marriage and children	To compare mid- and post-COVID MH across different demographic groups.	N/A
9	COVID-19 infection	The infection rate can show COVID influence on the library community in Vietnam. The uninfected and infected ones can be compared on mid- and post-COVID MH.	N/A
10	Self-assessed scores of mid-COVID mental well-being	The reported MH scores can depict Vietnamese librarians' MH then and now. The scores can be used in a number of analyses to support the recommendations on MH care.	The WHO-5 Well-being Index (6-point 5-item scale; the raw score ranges from 0 to 25, 0 representing the worst possible and 25 best possible quality of life).
12	Self-assessed scores of post-COVID mental well-being		
11	Concerns or worries during the COVID pandemic	The most commonly reported concerns will support the recommendations on MH care.	The concerns, mental and work challenges, and MH care practices from the worldwide library community [17]. MH care practices are also consulted from the guidelines of the American Library Association [98].
13	Concerns or worries after the COVID pandemic	The sum of concerns or worries can show a correlation with mid- and post-COVID MH.	
14	MH care practices that are already or are not in place at the respondent's library	The most commonly reported solutions, either already in place or not, will support the recommendations on MH care. the sum of solutions can show a correlation with mid- and post-COVID MH	
15	Mental challenges as perceived by the respondent at present	The most commonly reported challenges will guide the recommendations on MH care.	
16	Work challenges as perceived by the respondent at present	The sum of challenges can show a correlation with mid- and post-COVID MH.	
17	How important the respondent thinks (A) MH is to their own work and (B) MH care is to their or their manager's management practices	The percentage will help anticipate how easy or difficult it is to implement MH advocacy in the library community in Vietnam.	
18	How optimistic the respondent feels about (A) the future of the library career and (B) the world's future	The scores will supplement those gained from Questions 10 and 12, and show how essential it is to improve optimism.	Two 5-point single-item scales
19	Measurement of the respondent's general optimism		The Revised Life Orientation Test (5-point 6-item scale; raw scores range from 1 to 30; scoring is kept continuous - no benchmark for being an optimist or pessimist) [99].
20	Measurement of the respondent's tendency towards socially desirable responding	The score will be used for partial correlation calculation to remove the influence of socially desirable responses in correlation analyses on MH.	Strahan-Gerbasi's 1972 short version of the Marlowe-Crowne Social Desirability Scale (dichotomous 10-item scale, raw scores range from 1 to 10, 10 representing the highest tendency to socially desirable responding) [100].

Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

**2.3. Data analysis**

The data collected were screened and cleaned before being analysed using IBM SPSS Statistics 20. There were no missing data as all questions were mandatory.

The MH status was analysed using various parametric statistical techniques such as correlation,

partial correlation, T-tests, and ANOVA. Therefore, the assumptions for these techniques, including outliers, normality, linearity, and homoscedasticity, were all considered.

To determine the reliability of these variables, Cronbach's alpha coefficients were checked where applicable. Table 3 shows that most values range from acceptable to good and excellent internal consistency

**Table 3. Cronbach's alpha values of the questions or scales used.**

	Cronbach's alpha	N of items	Status	Scale name
Q10midcovidMHtotal	.922	5	validated scale	WHO-5 1998
Q12postcovidMHtotal	.922	5	validated scale	WHO-5 1998
Q19optimismtotal	.818	6	validated scale	LOT-R 1994
Q20sodesiretotal	.725	10	validated scale	Marlowe-Crowne Social Desirability 1972 Scale

Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

reliability (Excellent >.9, Good >.8, Acceptable >.7, Questionable >.6, Poor >.5, Unacceptable <.5) [102]. Additionally, correlations among the variables were calculated to investigate reliability at an inter-variable level (Table 4). The Pearson product-moment correlation coefficients obtained showed medium to strong correlations between these variables (small correlation:  $r=.10$  to  $.29$ , medium correlation:  $r=.30$  to  $.49$ , large correlation:  $r=.50$  to  $1.0$ ) [103].

**Table 4. Correlations among the variables.**

		Q10midcovidMHtotal	Q12postcovidMHtotal	Notes
Q10midcovidMHtotal	Pearson correlation	1	<b>.749**</b>	mid-COVID MH correlates with post-COVID MH
	Sig. (2-tailed)		.000	
	N	431	431	
Q11summidcause	Pearson correlation	<b>-.815**</b>	-.592**	mid-COVID MH correlates with the number of concerns during the pandemic
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q13sumpostcause	Pearson correlation	-.644**	<b>-.802**</b>	post-COVID MH correlates with the number of concerns after the pandemic
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q14sumsolution	Pearson correlation	<b>.803**</b>	<b>.853**</b>	mid- and post-COVID MH correlate with each library's total MH care solutions
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q15sumspichallenge	Pearson correlation	-.724**	<b>-.807**</b>	post-COVID MH correlates with the number of mental challenges perceived
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q16sumwkchallenge	Pearson correlation	-.710**	<b>-.791**</b>	post-COVID MH correlates with the number of work challenges perceived
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q18Alibfutureopti	Pearson correlation	.779**	<b>.866**</b>	post-COVID MH correlates with optimism about the future of libraries
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q18Bworldfutureopti	Pearson correlation	.502**	<b>.584**</b>	post-COVID MH correlates with optimism about the world future
	Sig. (2-tailed)	.000	.000	
	N	431	431	
Q19optimismtotal	Pearson correlation	.641**	<b>.841**</b>	post-COVID MH correlates with general optimism
	Sig. (2-tailed)	.000	.000	
	N	431	431	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

### 3. Results

#### 3.1. COVID-19 infection rate

Table 5 shows that approximately two-thirds of the surveyed librarians were infected with COVID-19. Among those infected, nearly one-fourth contracted the virus through their work and service. This number could be higher if all infected individuals could clearly identify their infection sources.

**Table 5. COVID-19 infection rate among librarians across Vietnam.**

	Frequency	Percent
1 Not infected yet	141	32.7
2 Infected thru activities outside	136	31.6
3 Infected thru servicing and working	64	14.8
4 Unable to identify infection sources	90	20.9
Total	431	100.0

Source: Authors' survey on "Post-COVID MH of librarians in Vietnam" in 2022.

#### 3.2. Comparison of mid-COVID and post-COVID mental health

A paired-samples t-test was conducted to determine if there was a significant change in the librarians' MH from the mid-COVID period to the new normal. There was a statistically significant increase in MH scores from the mid-COVID period (M=10.37, SD=5.667) to the new normal (M=14.00, SD=5.805),  $t(430)=-18.497$ ,  $p<.0005$  (two-tailed) (Appendix 1). The mean increase in MH scores was -3.63, with a 95% confidence interval ranging from -4.007 to -3.237. The eta squared (.44) indicated a large effect size (.01 = small effect, .06 = moderate effect, .14 = large effect) [103].

#### 3.3. Comparison of mid- and post-COVID mental health between the uninfected and infected ones

An independent samples t-test was conducted to compare the mid-COVID and post-COVID MH scores for the uninfected and infected groups (Appendix 2).

For mid-COVID MH, there was a statistically significant difference in scores between the uninfected (M=13.68, SD=6.34) and infected (M=8.77, SD=4.5) groups,

$t(210)=8.23$ ,  $p<.0005$  (two-tailed). The magnitude of the differences in the means (mean difference = 4.92, 95% CI: 3.74 to 6.09) was large (eta squared =.14).

For post-COVID MH, there was also a statistically significant difference in scores between the uninfected (M=15.98, SD=6.3) and infected (M=13.03, SD=5.3) groups,  $t(237)=4.78$ ,  $p<.0005$  (two-tailed). The magnitude of the differences in the means (mean difference =2.95, 95% CI: 1.73 to 4.16) was moderate (eta squared =.05).

#### 3.4. Differences in mid- and post-COVID mental health across regions, library types, and sizes

Three one-way between-groups ANOVAs with Tukey HSD and Games-Howell post-hoc tests were conducted to explore differences in mid- and post-COVID MH across regions, library types, and sizes. Subjects were divided into three to four groups according to their geographical locations and the types and sizes of their libraries.

The results of either standard or Welch's ANOVA tests indicated no statistically significant difference in the mid- and post-COVID MH scores among the three regions, the four library types and sizes (Appendix 3).

#### 3.5. Differences in mid- and post-COVID mental health across age and seniority levels, positions, specialisations, and qualifications

Five additional one-way between-groups ANOVAs with Tukey HSD and Games-Howell post-hoc tests were conducted to explore differences in mid- and post-COVID MH across age and seniority levels, positions, specialisations, and qualifications. Subjects were divided into three to five groups according to their age, seniority levels, positions, specialisations, and qualifications.

Of the five ANOVA tests on mid-COVID MH scores, only two showed statistically significant differences at the  $p\leq.05$  level. One was for the four age groups,  $F(3, 427)=4.8$ ,  $p=.003$ , with a significant difference between the 31-40 and 41-50-year-old groups (mean difference=-2.275,  $\omega^2=.03$ ). The other was for the five seniority groups,  $F(4, 426)=3.3$ ,  $p=.01$ , with the 5-10 years seniority group differing significantly from the over 20 years group (mean difference=-2.916,  $\omega^2 = .02$ ).

For the post-COVID MH scores, these five ANOVA tests show three statistically significant differences at the  $p \leq .05$  level. One was for the four age groups,  $F(3, 427)=3.8$ ,  $p=.01$ , with a significant difference between the 31-40 and 41-50-year-old groups (mean difference=-2.061,  $\omega^2=.02$ ). Another was for the five seniority groups,  $F(4,426)=4.2$ ,  $p=.002$ , with the less than 5 years seniority group differing significantly from the 5-10 years group (mean difference=4.133,  $\omega^2=.03$ ) and this group from the over 20 years group (mean difference=-2.930,  $\omega^2=.03$ ). The third was for the three position groups, Welch's  $F(2, 178.7)=3.2$ ,  $p=.04$ , with the staff group differing significantly from the manager group (mean difference=-1.664, est.  $\omega^2=.01$ ).

### **3.6. Comparison of mid-COVID and post-COVID mental health between genders, marital and parenthood statuses**

Three independent samples t-tests were conducted to compare the mid-COVID and post-COVID MH scores between genders, marital statuses, and parenthood statuses.

Of the three t-tests on mid-COVID MH, there was only one showing a statistically significant difference, which was between the married ( $M=10.16$ ,  $SD=5.6$ ) and unmarried groups ( $M=11.85$ ,  $SD=6$ ),  $t(429)=-2.083$ ,  $p=.04$  (two-tailed). The magnitude of the difference in the means (mean difference=-1.698, 95% CI:-3.299 to -.096) was small (eta squared=.01).

There was a statistically significant difference in post-COVID MH scores between the married group ( $M=13.72$ ,  $SD=5.7$ ) and the unmarried group ( $M=15.85$ ,  $SD=6.0$ ),  $t(429)=-2.56$ ,  $p=.01$  (two-tailed), and between those with children ( $M=13.73$ ,  $SD=5.7$ ) and those without children ( $M=15.12$ ,  $SD=6.2$ ),  $t(429)=-1.97$ ,  $p=.05$  (two-tailed). The magnitude of the differences in means for the former case (mean difference=-2.13, 95% CI:-3.77 to -.49) was small (eta squared=.02), and for the latter (mean difference =-1.39, 95% CI:-2.78 to-.004) was also small (eta squared=.01).

## **4. Discussion**

### **4.1. The mid- to post-COVID change in librarians' mental health**

There was a statistically significant increase in MH scores from the mid-COVID period ( $M=10.37$ ,  $SD=5.667$ ) to the new normal ( $M=14.00$ ,  $SD=5.805$ ),  $t(430)=-18.497$ ,  $p<.0005$  (two-tailed), with a large effect size (eta squared=.44). What does this mean in reality?

According to the WHO-5 1998 scale manual, a raw score below 13 indicates poor well-being and suggests testing for depression under the Depression (ICD-10) Inventory [104]. To monitor possible changes in mental well-being, the manual advises obtaining the percentage score by multiplying the raw score by 4, giving a score ranging from 0 to 100. A percentage score of 0 represents the worst possible, whereas a score of 100 represents the best possible quality of life. A 10% difference in the percentage score indicates a significant change in mental well-being [105]. In this case, the mean raw score of mid-COVID MH multiplied by 4 and subtracted from that of the post-COVID MH gives 14.52%. This is a significant change in MH among librarians in Vietnam from the mid-COVID period to the new normal.

This change is also reflected in the decreasing magnitude of difference in MH between the uninfected and infected groups. In the mid-COVID period, this difference is large (mean difference=4.92,  $t(210)=8.23$ , eta squared=.14). In the new normal, this difference is moderate (mean difference=2.95,  $t(237)=4.78$ , eta squared=.05).

### **4.2. No statistically significant difference in mid- and post-COVID MH between the three regions of Vietnam, the four library types and sizes**

There was no statistically significant difference at the  $p \leq .05$  level found in mid- and post-COVID MH scores of librarians in the North, Central, and South of Vietnam, in the four library types (public, school, academic libraries, and others including museums, archives, information centres, etc.), and in the four

library sizes (by the number of staff members). This finding is noteworthy for two reasons.

*First*, there has been no research investigating whether there are differences in COVID impacts or COVID-related MH scores between the three regions in general or between different organisations within a field or industry across the country. This is a significant research direction because it can shed light on the causes of such differences, whether administrative measures, geographical features, or biological traits.

*Second*, it is often assumed that public libraries and large libraries are under higher levels of stress and strain because they have more users to serve and more work to handle. Therefore, this finding helps librarians in different parts of the country, and different library types and sizes, see that they have been in a similar situation during and after the COVID pandemic. Research into whether there are differences in the types of challenges or sources of stress they have been facing can support this finding. Overall, this finding is understandable because in each region surveyed, there are all types and sizes of libraries, as shown in Table 6.

**Table 6. Four library types and sizes across the three regions of Vietnam.**

		Q1region			Total
		1 North	2 Central	3 South	
Q2libtype4	1 public lib	60	72	20	152
	2 school lib	14	39	60	113
	3 academic lib	57	22	71	150
	4 others	4	9	3	16
Total		135	142	154	431
Q3libsize	1 less than 5 staff	20	60	68	148
	2 5-10 staff	22	30	18	70
	3 11-20 staff	56	23	20	99
	4 more than20 staff	37	29	48	114
Total		135	142	154	431

Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

### 4.3. Statistically significant differences in mid- and post-COVID MH across age and seniority levels, and types of positions

For mid-COVID MH, the two age groups that differ significantly are the 31-40 and 41-50-year-old groups ( $M_{31-40}=9.53$ ,  $M_{41-50}=11.80$ ). The two seniority groups that differ significantly are the 5-10-year group and the over-20-year group ( $M_{5-10}=8.96$ ,  $M_{>20}=11.88$ ).

The significant difference in MH between the 31-40 and 41-50 age groups, which are adjacent age groups, should be especially noted in management since it indicates the point where MH varies significantly during a crisis like the COVID-19 pandemic.

Additionally, it is noteworthy that the 41-50 age group has the highest MH score compared to the other age groups. This finding aligns to some extent with previous studies [106-109], despite differing research contexts. The fact that the 41-50 age group scored highest in this study suggests that this age group remained the most resilient during the pandemic, least affected by it, or toughened up to handle the crisis.

The 5-10 year seniority group has the lowest MH score, mainly because this group is predominantly composed of those in the 31-40 age group, which has the lowest MH level. This also explains why the 11-15-year seniority group has the second-lowest MH score. The over-20-year seniority group's second highest MH score may come from those in the 41-50 age group, which has the highest MH level.

For post-COVID MH, in addition to the previously mentioned significant differences in the mid-COVID period, there are two new significant differences: one between the less than 5-year and the 5-10-year seniority groups ( $M_{<5}=16.50$ ,  $M_{5-10}=12.37$ ), and one between the staff and manager groups ( $M_{staff}=13.59$ ,  $M_{manager}=15.25$ ).

In the new normal, the youngest age group (primarily the less-than-5-year seniority group) recovered the most quickly ( $M_{mid}=12$ ,  $M_{post}=16.5$ ). This quick recovery increased the difference in MH with the 5-10 seniority

group, who appeared to recover slowly ( $M_{mid}=8.96$ ,  $M_{post}=12.37$ ) because, as discussed above, this group includes those in the 31-40 age group, who are in the busiest part of their lives.

The absence of a statistically significant difference in mid-COVID MH between the three types of positions indicates that staff, managers, and directors experienced similar stress levels during the pandemic. However, in the new normal, the manager group has the highest MH scores ( $M_{manager}=15.25$ ) compared with the director group ( $M_{director}=14.11$ ) and the staff group ( $M_{staff}=13.59$ ). This is already reflected in reality, where mid-management is often either the least or most stressed group within organisations.

#### **4.4. Statistically significant differences in mid- and post-COVID MH between different marital and parenthood statuses**

Three independent-samples t-tests on genders, marital, and parenthood statuses found statistically significant differences (with small effect sizes) in mid- and post-COVID MH scores between different marital and parenthood statuses.

In mid-COVID MH, the married group scored lower than the unmarried group ( $M_{married}=10.16$ ,  $M_{unmarried}=11.85$ ). This lower MH score is assumed to be due to the greater burdens the married individuals had to handle in their everyday lives, which were exacerbated during the pandemic. The mean number of causes for low mid-COVID MH for the married group ( $M_{married}=5.54$ ) versus the unmarried group ( $M_{unmarried}=4.51$ ) confirms this assumption. This difference is 3.89 versus 2.62 in the post-COVID period; both differences are statistically significant with small effect sizes (.01 and .02). However, some research findings suggest that the married group can cope better and are less likely to experience income reduction-induced MH problems during the pandemic, thanks to the protective effects of their marriage [110-112].

Although there was no statistically significant difference in MH between those with and without

children during this period, the very small or negligible effect size in this case suggests that a statistically significant difference could be found in other samples and settings.

The small mean difference in MH scores (mean difference =-.36) between those without children and their counterparts suggests that the pandemic's impact on them was as severe. A study measuring parental well-being during COVID-19 in Germany by M. Huebener, et al. (2021) [113] used a difference-in-differences (DiD) design, which showed significant declines in well-being for individuals with children relative to those without dependent children. S.T. Strömmer, et al. (2022) [114] found that young people in the UK, upon the abrupt onset of lockdown, felt shocked, confused, and ignored by the government and media. According to J.J. Janssens, et al. (2021) [115] and H. Sabato, et al. (2021) [116], young people's MH was affected during the pandemic because they suddenly lost the freedom, balance, and social connections they had before the pandemic.

In the post-COVID MH, besides the statistically significant difference between the married and unmarried groups ( $M_{married}=13.72$ ,  $M_{unmarried}=15.85$ ), there is now a significant difference between those with and without children ( $M_{child}=13.73$ ,  $M_{nochild}=15.12$ ), as indicated by the effect size in the mid-COVID MH case.

## **5. Conclusions**

This study has provided an overall picture of the mental well-being of librarians in Vietnam in the new normal context after the COVID-19 pandemic. In general, librarians' MH has increased significantly from a level considered poor during mid-COVID times. Some librarians contracted the virus through their service and work, confirming why library jobs faced higher stress levels during the pandemic. The difference in MH scores between infected and uninfected librarians has changed from large to moderate from mid- to post-COVID periods. Significant differences were also found in mid- and post-COVID MH scores between different

marital and parenthood statuses, age groups, seniority levels, and types of positions. It is expected that these findings will be among the sources of evidence for any potential consideration or planning of providing MH care for staff in Vietnam’s libraries and information centres, be it MH care in response to crises such as the COVID pandemic, or the daily MH care for staff who have learnt from the pandemic that “coping with crises is now an integral part of life” [78-80].

**Table 2. Paired samples test.**

		Paired differences					t	df	Sig. (2-tailed)
		95% confidence interval of the difference							
		Mean	Sd.deviation	Std. error mean	Lower	Upper			
Pair 1	Q10midcovidMHtotal - Q12postcovidMHtotal	-3.622	4.065	.196	-4.007	-3.237	-18.497	430	.000

Source: Authors’ survey on “Post-COVID mental health of librarians in Vietnam” in 2022.

**APPENDICES**

**Appendix 1. Paired-samples t-test on mid-COVID and post-COVID mental health.**

**Table 1. Paired samples statistics.**

		Mean	N	Std. deviation	Std. error mean
Pair 1	Q10midcovidMHtotal	10.37	431	5.667	.273
	Q12postcovidMHtotal	14.00	431	5.805	.280

Source: Authors’ survey on “Post-COVID mental health of librarians in Vietnam” in 2022.

**Appendix 2. Independent samples t-test on mid- and post-COVID mental health between the uninfected and infected ones.**

**Table 1. Group statistics.**

	Q9getcovid2group	N	Mean	Std. deviation	Std. error mean
Q10midcovidMHtotal	1 not infected yet	41	13.68	6.367	.536
	2 infected	90	8.77	4.496	.264
Q12postcovidMHtotal	1 not infected yet	41	15.98	6.334	.533
	2 infected	90	13.03	5.278	.310

Source: Authors’ survey on “Post-COVID mental health of librarians in Vietnam” in 2022.

**Table 2. Independent samples t-test.**

		Levene's equality of variances		t-test for equality of means			95% confidence interval of the difference			
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Q10midcovidMHtotal	Equal variances assumed	24.348	.000	9.240	429	.000	4.915	.532	3.870	5.961
	Equal variances not assumed			8.225	210.141	.000	4.915	.598	3.737	6.093
Q12postcovidMHtotal	Equal variances assumed	8.078	.005	5.087	429	.000	2.948	.579	1.809	4.087
	Equal variances not assumed			4.778	237.375	.000	2.948	.617	1.732	4.163

Source: Authors’ survey on “Post-COVID mental health of librarians in Vietnam” in 2022.

**Appendix 3. One-way between-groups ANOVAs on mid- and post-COVID mental health across regions, library types, and sizes.**

**Table 1. Differences in mid-COVID mental health across regions, library types, and sizes.**

		N	Mean	SD	Std. Error	Levene's test Sig.	df <sup>a</sup>	F <sup>a</sup>	Sig. <sup>a</sup>	Statistically significant difference in scores <sup>b</sup>	Magnitude of the difference (Omega Sqr <sup>c</sup> )
Region	1 North	35	.84	.465	470	.082	2 428	881	415		- .0006
	2 Central	42	0.61	.446	457						
	3 South	54	0.62	.033	486						
	Total	31	0.37	.667	273						
Library type	1 public lib	52	0.44	.266	427	.028	3 66.988	089	966		- .006
	2 school lib	13	0.13	.158	579						
	3 academic lib	50	0.44	.481	448						
	4 others	6	0.81	.687	.922						
	Total	31	0.37	.667	273						
Library size	1 less than 5 staff	48	0.82	.229	512	.062	3 427	.484	060		.01
	2 5-10 staff	0	.17	.062	605						
	3 11-20 staff	9	.71	.189	521						
	4 more than 20 staff	14	1.11	.535	518						
	Total	31	0.37	.667	273						

a. If Levene's test Sig. ≤ .05, df, F, and Sig. are Welch's ANOVA statistics.  
 b. If "yes", the Mean Difference (I-J) in Tukey HSD or Games-Howell post-hoc tests is provided for groups that differ significantly.  
 c. If Welch's ANOVA statistics are used, this is the estimated omega squared.  
 Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

**Table 2. Differences in post-COVID mental health across regions, library types, and sizes.**

		N	Mean	SD	Std. Error	Levene's test Sig.	df <sup>a</sup>	F <sup>a</sup>	Sig. <sup>a</sup>	Statistically significant difference in scores <sup>b</sup>	Magnitude of the difference (Omega Sqr <sup>c</sup> )
Region	1 North	35	4.07	.649	486	.400	2 428	593	553		- .002
	2 Central	42	3.58	.643	474						
	3 South	54	4.31	.096	491						
	Total	31	4.00	.805	280						
Library type	1 public lib	52	4.31	.148	418	.005	3 67.327	655	583		- .002
	2 school lib	13	3.31	.349	597						
	3 academic lib	50	4.19	.864	479						
	4 others	6	4.06	.206	.802						
	Total	31	4.00	.805	280						
Library size	1 less than 5 staff	48	4.48	.538	537	.005	3 212.423	.505	060		.01
	2 5-10 staff	0	2.57	.537	662						
	3 11-20 staff	9	3.59	.429	546						
	4 more than 20 staff	14	4.60	.128	480						
	Total	31	4.00	.805	280						

a. If Levene's test Sig. ≤ .05, df, F, and Sig. are Welch's ANOVA statistics.  
 b. If "yes", the mean difference (I-J) in Tukey HSD or Games-Howell post-hoc tests is provided for groups that differ significantly.  
 c. If Welch's ANOVA statistics are used, this is the estimated omega squared.  
 Source: Authors' survey on "Post-COVID mental health of librarians in Vietnam" in 2022.

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Linh Ngoc Le: Literature review, Methodology, Data collection and analysis, Writing, Revision; Tri Nguyen Thi Kim, Hieu Quang Doan, Lap Cong Lu: Data collection; Vuong Nguyen Hoang Vinh, Trang Thi Huynh: Methodology; Mai Huynh Nguyen: Data analysis; Nhung Tran Thi Ngoc: Literature review.

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## COMPETING INTERESTS

The authors declare that there is no conflict of interest regarding the publication of this article.

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