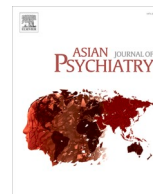




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People's worry about long-term impact of COVID-19 pandemic on mental health

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Research has shown that the COVID-19 pandemic clearly brought huge impact on mental health of various populations in Asia (Tandon, 2021a) as well as in other part of the world (Vindegaard and Benros, 2020). Current evidence is limited to immediate mental health impact of the COVID-19 pandemic (Singh et al., 2020). An unsolved question is if the COVID-19 pandemic have a long-term impact on mental health (Dehghani et al., 2022). Traumatic experiences during the COVID-19 pandemic may cause a long-term impact on mental health of community adults, as often observed in a post-disaster setting. Poor development of cognitive and non-cognitive ability skills under limited chance of education and poor communication with teachers and peers may increase a risk of psychopathology of children and adolescents in future (Bhatia, 2020; Rider et al., 2021; Stavridou et al., 2020). A recent study by Japan Ministry of Health, Labour, and Welfare showed people's strong need to study the long-term impact of the COVID-19 pandemic, as described below (Japan Ministry of Health, Labour, and Welfare, 2022).

In the first survey conducted on 11–14 Sept 2020, about 10,000 people aged 15 or over living in Japan who were registered users of a survey company ($n = 4.4$ million) were invited to participate in an online questionnaire survey, with a sampling framework to match sex, age groups, and geographical regions to the national population of Japan; a total of 10,981 respondents participated (Japan Ministry of Health, Labour, and Welfare, 2021). Of these respondents, a follow-up survey

was conducted on 19–30 November 2021, using a similar online questionnaire; a total of 8322 (75.8%) of respondents to the first survey participated.⁶ These surveys were conducted by the INTAGE RESEARCH Inc. The study plan was approved by the Research Ethics Committee of this research organization. Informed consent was obtained online after the aim and procedure were explained to the participants.

Among questions asked in the follow-up questionnaire, we pick up three major questions on past and future mental health status of respondents and/or their children: (1) how respondents would rate the change of their mental health status, with a five-point response option (worse, somewhat worse, no change, somewhat better, better); (2) how respondents would rate their worries that their experiences of difficulties and life changes due to the COVID-19 pandemic might affect their own mental health status in future, with a five-point response option (not at all, little, neutral (neither worries or no worries), some, and very much); (3) how respondents would rate their worries that the COVID-19 pandemic might affect their child(ren)'s mental health status in future, with the same five-point response option. The last question was asked only for respondents who had a child(ren).

The sample consisted of almost equal numbers of men and women, with a larger sample from people aged 70 years or older (29.3%). About one fifth (22.3%) of respondents reported that their mental health status became worse (worse or somewhat worse) in the past one year due to the

Abbreviations: COVID-19; Coronavirus Disease 2019.

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Table 1

Reported changes of respondent’s mental health in the past 1 year due to COVID-19 among respondents and worries about their own and their children’s mental health in future in a national representative Internet survey conducted on 19-30 November 2021 by the Japan Ministry of Health, Labour, and Welfare (table was made based on its 2022 report).

Sex and age groups	Change in respondent’s mental health in the past 1 year due to COVID-19								Worries about long-term impact of COVID-19 on respondent’s mental health				Worries about long-term impact of COVID-19 on mental health of respondent’ child(ren)			
	Worsened		No change		Better		P for sex diff. ^a	N/A	Worried		P for sex diff. ^a	N ^b	Worried		P for sex diff. ^a	
	N	n	%	n	%	n			%	N			n	%		n
Total	8322	1858	22.3	6233	74.9	231	2.8	N/A	8322	1925	23.1	N/A	5345	1153	21.6	N/A
Men	4256	775	18.2	3371	79.2	110	2.6	Ref	4256	851	20.0	Ref	2644	486	18.4	Ref
15-19 y.o.	57	10	17.5	40	70.2	7	12.3		57	14	24.6		-	-	-	
20-29 y.o.	288	69	24.0	205	71.2	14	4.9		288	55	19.1		25	6	24.0	
30-39 y.o.	477	123	25.8	329	69.0	25	5.2		477	119	24.9		162	61	37.7	
40-49 y.o.	688	141	20.5	524	76.2	23	3.3		688	167	24.3		338	111	32.8	
50-59 y.o.	731	130	17.8	577	78.9	24	3.3		731	170	23.3		443	102	23.0	
60-69 y.o.	750	118	15.7	625	83.3	7	0.9		750	134	17.9		561	64	11.4	
70+ y.o.	1265	184	14.5	1071	84.7	10	0.8		1265	192	15.2		1115	142	12.7	
Women	4046	1079	26.7	2846	70.3	121	3.0	p<0.001	4046	1072	26.5	p<0.001	2696	667	24.7	p<0.001
15-19 y.o.	62	17	27.4	42	67.7	3	4.8		62	14	22.6		-	-	-	
20-29 y.o.	318	88	27.7	205	64.5	25	7.9		318	82	25.8		63	30	47.6	
30-39 y.o.	467	148	31.7	297	63.6	22	4.7		467	143	30.6		242	116	47.9	
40-49 y.o.	663	191	28.8	445	67.1	27	4.1		663	211	31.8		370	165	44.6	
50-59 y.o.	673	210	31.2	450	66.9	13	1.9		673	212	31.5		422	110	26.1	
60-69 y.o.	690	176	25.5	502	72.8	12	1.7		690	179	25.9		560	92	16.4	
70+ y.o.	1173	249	21.2	905	77.2	19	1.6		1173	231	19.7		1039	154	14.8	
Other sexuality	20	4	20.0	16	80.0	-	-	p=0.758	20	2	10.0	p=0.401	5	0	0.0	p=0.592

^a P for difference compared from men was shown. Age difference were statistically significant for all three variables in either group of men or women (p<0.001). No statistical test for age difference was made in the other sex group.

^b The question was asked only for respondents who were 20 years old or above and had a child(ren).

COVID-19 pandemic, while only 2.8% reported that it became better (Table 1). However, most striking findings were that a similar proportion (23.1%) of respondents reported worries (some or very much) about their mental health status in future. The proportions were greater for women than men (26.5% vs 20.0%, respectively) (p < 0.001), with highest proportions among women aged 30–59 years old (30.6–31.8%). One fifth (20.6%) of respondents reported worries (some or very much worries) on mental health status of their child(ren) in future. The proportions were greater for women than men (24.7% vs 18.4%, respectively), with highest proportions among women aged 20–49 years old (44.6–47.9%).

These findings show that a non-negligible proportion of people had worries that difficulties and life changes may have a future risk of poor mental health of their own and children. It is most notable that about half of women aged 20–49-year-old, who were supposed to have a children and adolescences under age 20, worried about mental health of their children. To respond to people’s such worries and concerns, researchers are encouraged to propose immediate actions to mitigate the possible impact of COVID-19 pandemic on future mental health, but still based on currently available scientific evidence (Tandon, 2021b). In addition, a risk of psychopathology or mental health trajectories in a long-term follow-up even many years after the COVID-19 pandemic, both among adults and children/adolescences should be investigated among community residents and children and adolescents, by establishing an interdisciplinary large-scale longitudinal panel study. Such studies should also focus on important vulnerable groups, such as people infected by COVID-19, people who experienced death of family members due to COVID-19, health care workers, people who had preexisting psychopathology, or people who were isolated from family, relatives,

and friends.

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