Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
People’s worry about long-term impact of COVID-19 pandemic on mental health

Norito Kawakami a,b, Yoshiharu Kim c, Mayuko Saito d, Sou Fujishiro e

a Department of Digital Mental Health, Graduate School of Medicine, The University of Tokyo, Bunkyo-ku, Japan
b Junpukai Foundation, Okayama, Okayama, Japan
c National Institute of Mental Health, National Center of Neurology and Psychiatry, Kodaira, Tokyo, Japan
d Department of Virology, Tohoku University Graduate School of Medicine, Sendai, Tohoku, Japan
e Aichi Prefectural Mental Health and Welfare Center, Nagoya, Aichi, Japan

ARTICLE INFO

Keywords:
Coronavirus Disease 2019
Mental disorders
Children and adolescence
Lay opinion
Population-based survey

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. 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).

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. 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
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 (24.7% vs 18.4%, respectively) (p < 0.001). One fifth (20.6%) of respondents reported worries (some or very much) about mental health status of their own and their children in future. The proportions were greater for women than men (26.5% vs 20.0%, respectively) (p < 0.001). The question was asked only for respondents who were 20 years old or above and had a child(ren).

| 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’s child(ren) |
|-------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------|
|                   | Worsened | % | No change | Better | P for sex diff. | Worried | % | P for sex diff. | Worried | % | P for sex diff. |
| Total             | N = 8322 | 1858 | 22.3 | 6233 | 74.9 | 231 | 2.8 | N/A | 8322 | 1925 | 23.1 | N/A |
| Men               | 4256 | 775 | 18.2 | 3371 | 79.2 | 110 | 2.6 | Ref | 4256 | 851 | 20.0 | 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 | - |
| 30-39 y.o.        | 477 | 123 | 25.8 | 329 | 69.0 | 25 | 5.2 | - | 477 | 119 | 24.9 | - |
| 40-49 y.o.        | 688 | 141 | 20.5 | 524 | 76.2 | 23 | 3.3 | - | 688 | 167 | 24.3 | - |
| 50-59 y.o.        | 731 | 130 | 17.8 | 577 | 78.9 | 24 | 3.3 | - | 731 | 170 | 23.3 | - |
| 60-69 y.o.        | 750 | 118 | 15.7 | 625 | 83.3 | 7 | 0.9 | - | 750 | 134 | 17.9 | - |
| 70+ y.o.          | 1265 | 184 | 14.5 | 1071 | 84.7 | 10 | 0.8 | - | 1265 | 192 | 15.2 | - |
| Women             | 4046 | 1079 | 26.7 | 2846 | 70.3 | 121 | 3.0 | p < 0.001 | 4046 | 1072 | 26.5 | 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 | - |
| 30-39 y.o.        | 467 | 148 | 31.7 | 297 | 63.6 | 22 | 4.7 | - | 467 | 143 | 30.6 | - |
| 40-49 y.o.        | 663 | 191 | 28.8 | 445 | 67.1 | 27 | 4.1 | - | 663 | 211 | 31.8 | - |
| 50-59 y.o.        | 673 | 210 | 31.2 | 450 | 66.9 | 13 | 1.9 | - | 673 | 212 | 31.5 | - |
| 60-69 y.o.        | 690 | 176 | 25.5 | 502 | 72.8 | 12 | 1.7 | - | 690 | 179 | 25.9 | - |
| 70+ y.o.          | 1173 | 249 | 21.2 | 905 | 77.2 | 19 | 1.6 | - | 1173 | 231 | 19.7 | - |
| Other             | 20 | 4 | 20.0 | 16 | 80.0 | - | - | p < 0.001 | 20 | 2 | 10.0 | p < 0.001 |

* P for difference compared from men was shown. Age difference was 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.

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

References

- Bhattacharya, R., 2020. Editorial: Effects of the COVID-19 pandemic on child and adolescent mental health. Curr. Opin. Psychiatry 33, 268–270.
- Debghani, A., Zoaei, E., Kahani, S.M., Alavinejad, E., Debghani, M., Meftahi, G.H., Arefinezhad, M.R., 2022. The potential impact of Covid-19 on CNS and psychiatric sequelae. Asian J. Psychiatr. 72, 103097.
- Japan Ministry of Health, Labour, and Welfare, 2021. A survey of mental health in relation to new coronavirus infection: a summary finding (the authors’ translation of ‘Shingata korona uirusu kansensho ni kakawaru mentaruherusu ni kansuru chousa no kekka gaiyou’), 2021 (Japanese) [https://www.mhlw.go.jp/stf/newpage_18041.html]. (Accessed April 21, 2022).
- Japan Ministry of Health, Labour, and Welfare, 2022. A report on mental health and its impact in relation to new coronavirus infection (the authors’ translation of ‘Shingata korona uirusu kansensho ni kakawaru mentaruherusu ni kansuru chousa houkokuho’), 2022 (Japanese) [https://www.mhlw.go.jp/stf/newpage_24921.html]. (Accessed on April 21, 2022).
- Rider, E.A., Anari, E., Varin, P.H., Sparrow, J., 2021. Mental health and wellbeing of children and adolescents during the covid-19 pandemic. BMJ 374, 1730.
- Singh, S., Roy, D., Sihra, K., Parveen, S., Sharma, G., Joshi, G., 2020. Impact of COVID-19 and lockdown on mental health of children and adolescents: a narrative review with recommendations. Psychiatry Res. 293, 113429.
- Stavrakos, A., Stergiopoulos, A.A., Panagoulia, E., Mestris, G., Thirios, A., Mougiakos, T., Tzouvelekis, L., Tsitsika, A., 2020. Psychosocial consequences of COVID-19 in children, adolescents and young adults: a systematic review. Psychiatry Clin. Neurosci. 74, 615-616.
- Tandon, R., 2021a. COVID-19 and the Asian Journal of Psychiatry: keeping 2020 in the rear-view mirror. Asian J. Psychiatry 56, 102569.
- Tandon, R., 2021b. COVID-19 and suicide: just the facts. Key learnings and guidance for action. Asian J. Psychiatry 60, 102695.
- Vindegaard, N., Benros, M.E., 2020. COVID-19 pandemic and mental health consequences: systematic review of the current evidence. Brain Behav. Immun. 89, 31–542.