

Trends in Psychiatric Admissions of Children and Adolescents during Early Corona Period Year (2020) Compared to Pre-Corona Year (2018): A Cross Sectional Study in Israel

Ali Saad¹, Hadeel Hamady^{1,2*}, Tanya Kronos¹, Ludmila Sandler¹, Dorit Itah²

Abstract

Background: The current study sought to assess the patterns and characteristics of psychiatric admissions among children and adolescents during the early corona period (2020) compared to a year before the corona pandemic started (2018), and analyzing on a deeper level the psychiatric admissions that were related directly to corona stressors and their correlations with sociodemographic variables.

Method: a cross-sectional study was conducted in The Child and Family Guidance Unit in The Galilee Medical Center, a psychiatric department for patients aged 6-18 years. The medical records of psychiatric admissions in the year 2020 and 2018 were analyzed on the same dates. Statistical analyses were performed with SPSS v.20. Since all the variables were not normally distributed according to Shapiro-Wilk, non-parametric tests were conducted, including Mann-Whitney U and Chi-Square tests.

Results: the study showed 17% increase in psychiatric admissions in 2020 compared with 2018. In 2018 most admissions were at November while in 2020 most of them were at May. The most common cause of admissions in 2018 was outbursts and violence 43% while in 2020 it was suicidal thoughts and behaviors 36%. Almost a third of patients admitted in 2020 reported a corona stressor in their admission, the majority was changes in daily routines.

Conclusion: Changing daily routine and inconsistency in school attendance may have been the main stress factor on children and adolescents and might have caused a rise in hospital admissions caused by suicidal thoughts and behaviors. Thus, future studies should monitor the mental health of children and adolescents during the continual corona pandemic.

Keywords: Psychiatric Admission; Child Psychiatry; Corona; Pandemics; Child Hospitalization; Mental Health Unusual

Introduction

The Corona pandemic is profoundly affecting the lives of children and adolescents around the world, bringing uncertainty into many aspects of their lives. The first case confirmed in Israel was on 21 February 2020, afterward, on 11 March 2020, Israel began enforcing social distancing and other restricting means to prevent the virus's spread similar to other countries [1]. During the measures Israel implied, schools have been closed, and most extracurricular activities for youth have been canceled. Thus, children and adolescents began experiencing a prolonged state of physical isolation from their peers, teachers, extended family, and community networks. Under these chaotic circumstances, children and adolescents may have experienced high levels of psychological distress and complete changes in their psychosocial environment. These circumstances are likely to have a substantial influence on mental health [2, 3] and may have impacted or encouraged psychiatric admissions to hospitals. Therefore, the current study aims to observe the trends and patterns of psychiatric admissions and hospitalizations among children and adolescents during the early period of the corona pandemic in the year 2020, to

Affiliation:

¹The Child and Family Guidance Unit, Galilee Medical Center, Nahariya, Israel

²Department of Occupational Therapy, Galilee Medical Center, Nahariya, Israel

*Corresponding author:

Hadeel Hamady, Department of Occupational Therapy, Galilee Medical Center, Nahariya- Road 89 Nahariya-Kabri, Israel

Citation: Ali Saad, Hadeel Hamady, Tanya Kronos, Ludmila Sandler, Dorit Itah. Trends in Psychiatric Admissions of Children and Adolescents during Early Corona Period Year (2020) Compared to Pre-Corona Year (2018): A Cross Sectional Study in Israel. *Journal of Pediatrics, Perinatology and Child Health* 6 (2022): 332-337.

Received: June 03, 2022

Accepted: June 10, 2022

Published: July 18, 2022

understand the exceptional patterns observed in this year, the data was compared to a year considered to be typical without a global pandemic 2018.

Israel, like many other countries, announced for the first time social distancing and closure on 12 March 2020, this was considered to be the beginning of the first wave of disease spread. Consequently, the daily lives of children have changed with the closure of all educational institutions including kindergartens. On 19 March the Prime Minister declared a national state of emergency and declared a lockdown. Since these circumstances might higher the experienced stress among children and adolescents, the logical assumption was to observe an increase in psychiatric admissions to emergency rooms (ER). Paradoxically, while literature describes many psychiatric implications and severe effects of social distancing on mental health [4, 5], studies on hospital admissions noted a decrease in psychiatric admission, especially during the first wave (February to May). A study in The Tel Aviv Sourasky Medical Center (TASMC) noted a reduction in psychiatric consultation requests in the ERs from about 140,000 each year from 2016 to 2019 compared to 111,750 in 2020 [6]. Similarly, the study of Ougrin and colleagues on 23 hospital emergency departments in ten different countries also showed a decrease in psychiatric emergencies from 1239 in 2019 to 834 in 2020 [7]. Additionally, a study by Ugueto and Zeni [8] comparing psychiatric admission in 2020 and 2019 showed an overall 40% reduction in admissions during 2020.

Despite the reduction in psychiatric admissions in the early months of 2020, many psychiatric admissions were related to stressors associated with the corona pandemic such as fear of contamination or social distancing. In the study of Ferrando and his colleagues [9] in New York, 25% of psychiatric emergency admission in 2020 were related directly to corona stressors. Moreover, Reece and Sams (2021) found that in Strong Memorial Hospital's Child and Adolescent Inpatient Unit between 13 March 2020 and 1 January 2021, 53% of psychiatric inpatient admissions of adolescents were related to corona stressors, the peak of psychiatric admissions related to corona stressors was in May (62.86%), June (66.66%) and July (60%).

In Israel, the studies that investigated the corona pandemic consequences on hospital admissions focused on the physical implication of the disease, especially among children that were infected by the coronavirus [10, 11]. In Schneider Children's Medical Center, the study of Gavish and her colleagues [12] investigated pediatric hospital admission to all kinds of wards, not just the psychiatric admissions during the lockdown. Few studies investigated the psychiatric admission of children during the corona period in Israel. Though Schreiber and his colleagues [6] in The Tel Aviv Sourasky Medical Center (TASMC) investigated psychiatric consultations in ER during 2020 for children and adults, their study focused on the frequency of the psychiatric consultations and did not investigate the characteristics of these consultations, especially among children and adolescents. Therefore, the current study did not only observe the frequency of psychiatric admission in 2020 and their relationship to corona

stressors but also investigate the characteristics of psychiatric hospitalization such as the common causes of admission, hospitalizations duration, and the frequency of re-hospitalization.

Methods

Aim

According to all described above, although Israel might be one of the leading countries around the world to control the spread of the coronavirus, the mental implication on children and adolescents are undeniable and might have encouraged psychiatric hospital admission. Therefore, the purpose of the current Brief Report is to identify the trends and patterns of psychiatric hospital admissions among children and adolescents in the early corona period 2020 compared with a typical year 2018. The study examined the difference between the characteristics of hospitalizations in 2018 compared to 2020 in terms of hospitalization duration, re-hospitalization frequency in the same year, and causes of admissions. Also, the study analyzed the causes of psychiatric hospitalizations in 2020 that are related directly to a corona stressor including change or lack in daily routines, social isolation, health-related anxiety, loss of beloved ones, or lack of receiving treatment in the community institutions. Also, the study investigated how the corona stressors observed are related to sociodemographic variables including age, gender, out-of-home placements (parents' home, a boarding school, or foster families), and type of educational framework (typical or special).

Procedure

The study is a cross-sectional study with purposive sampling. After receiving the approval of the Ethics Institutional Committee according to the Helsinki Declaration, the researchers analyzed the medical records of patients who were previously hospitalized in 2020 between the date 21.02.2020, where the first case of the corona was verified in Israel until the date of 09.12.2020 where the first batch of vaccines from Pfizer arrived in Israel, and also the medical records of patients who were previously hospitalized in 2018 in the same dates: 21.02.2018 to 09.12.2018. The study was conducted in The Child and Family Guidance Unit in The Galilee Medical Center, a psychiatric department for children and adolescents aged 6-18 years from all races and ethnicities.

Data analysis

Descriptive statistics were recruited from the medical data reported in The Chameleon Electronic Medical Record which is the system used in the medical center for reserving medical data. Statistical analyses were performed with SPSS v.20. Since all the variables were not normally distributed according to the Shapiro-Wilk test of normality besides the age, non-parametric tests were conducted. For the first hypothesis, a Mann-Whitney U test was conducted to analyze the differences between the years 2020 and 2018 in the duration of hospitalization and the frequency of re-hospitalization. For analyzing the differences between the years in causes for admissions a Chi-Square test was conducted. The second and third hypotheses were analyzed by descriptive

statistics to show the rate of psychiatric hospitalizations in 2020 that reported on corona stressors. The fourth hypothesis examined the relationship between the corona stressors variables and sociodemographic variables in the year 2020 by A Chi-square test, Age was rerouted into two groups, younger and older patients according to the median age of 15 years.

Results

First, the analyzation of descriptive statistics showed an increase in psychiatric admission of children and adolescents in the early corona year, from 91 admissions in 2018 to 109 admission in 2020. Additionally, in the year before the corona pandemic 2018 most admissions were in November (see Figure 3), the common age of patients admitted was 14 years old, and 56% of them were males. The most common cause of admission was outbursts and violence 43%, the second most common cause was suicidal thoughts and behaviors including self-harming behaviors 23% and the third was psychotic episodes 13% (See Figure 1). The median duration of hospitalizations was 57 days. Most patients were living at their parents' house (no out-of-home placements) and were learning in regular educational framework. Almost 20% of patients were released due to refusal to continue hospitalization. Among the rest of the patients that had an organized release, 45% had a change in educational placement from regular to special education, 27% were released to boarding schools or hostels.

In the year of the pandemic 2020 most admissions were at May (see Figure 3), the common age of patients was 15 years old and 64% of them were females. The most common cause form admission was suicidal thoughts and behaviors including self-harm 36%, the second most common cause was outbursts and violence 30%, and the third was eating disorders 14% (see Figure 2). The median duration of hospitalizations was 57 days. Most patients were living at their parents' house (no out-of-home placement) and were learning in regular education frameworks. Also 20% of

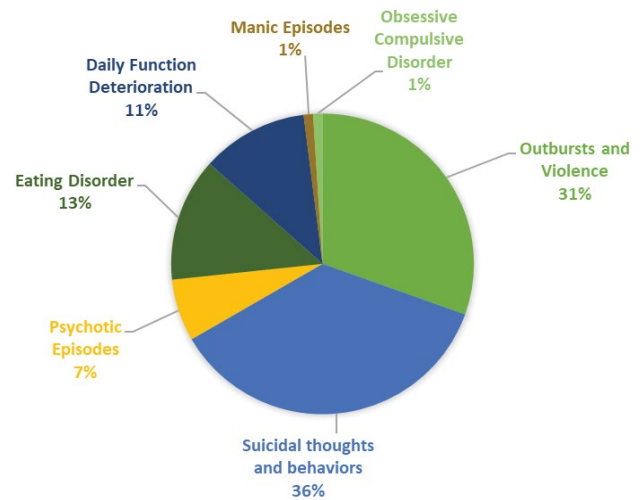


Figure 2: Percentile of admission causes in the year 2020.

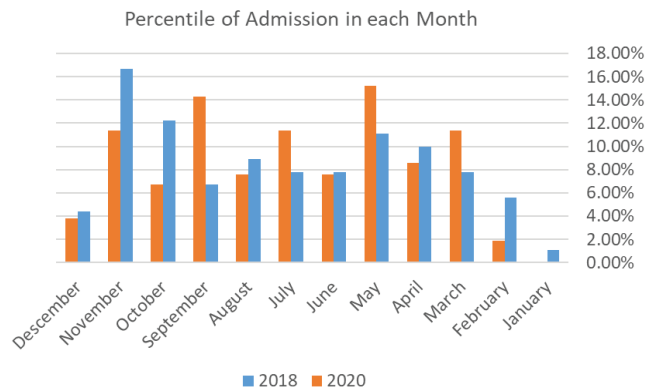


Figure 3: The percentile of admission in each month each year (2020 and 2018).

patients were released due to refusal to continue hospitalization but 9% of the refusals were due to fear of contamination by corona from the hospital. Among the rest of the patients that had an organized release, 23% had a change in educational placement from regular to special education and 19% were released to out-of-home placements (boarding schools of hostels).

The first hypothesis was not confirmed. It analyzed the differences between the year 2020 and 2018 in hospitalization duration, frequency of re-hospitalization and the common causes for admissions. The results of the Mann-Whitney U test showed that there was no significant difference in hospitalization duration between the years 2020 and 2018 $Z = -.509, p > .05, Sig = .611$. and in the frequency of re-hospitalizations, $Z = -.628, Sig = .530, p > .05$. For the last part of this hypothesis a Chi-square test was conducted to analyze whether there was an association between the year and the causes of admission, the test showed no significant association $X^2(1) = 8.097, Sig = .324, p > .05$. The second and third hypothesis were described in the analyzation of variables frequencies. The analyze of descriptive statistics showed that in the year 2020, 32% of the admitted patients reported about

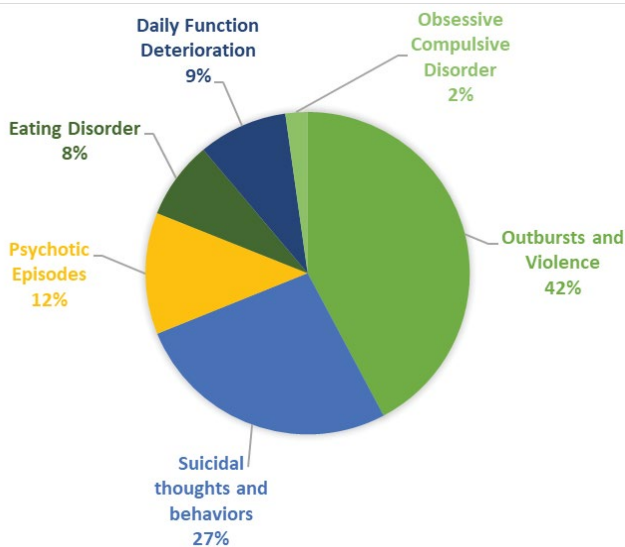


Figure 1: Percentiles of Admission Causes in the year 2018.

a reason for admission that is related to the corona stressors. The most common corona stressor reported was the changes in daily routines 67%, the second most common was anxieties related to the fear of contamination 16% and the third reason was social distance 10%. The fourth hypothesis was not confirmed. It examined the relationship between the corona stressors and the sociodemographic variables in the year 2020. The Chi-square test showed no significant association between the corona stressors reported for admission and gender $X^2(1) = 3.458$, Sig= .326, $p > .05$, Out-of-home placement $X^2(1) = 6.232$, Sig= .398, $p > .05$ and educational framework $X^2(1) = 6.972$, Sig= .640, $p > .05$. Age was recruited into two groups: young patients aged 15 years and less, old patients aged more than 15 years (according to the median age), the Chi-square test also showed no association $X^2(1) = 4.606$, Sig= .203, $p > .05$.

Discussion

The current study investigated the characteristics of psychiatric admissions to hospitals among children and adolescents in the early corona pandemic period (2020) compared with a typical year (2018). The study examined the difference between the two years in terms of hospitalization duration, repeated hospitalizations frequency, and causes of admission. In addition, the admissions in the year 2020 were analyzed to identify which of them were related directly to corona stressors. The study analyzed also, the relationship of these reported corona stressors to sociodemographic variables including age, gender, out-of-home placements (parent's home, boarding schools, or foster families), and type of educational framework the patient is enrolled in (typical or special).

First, the study found no significant differences in the hospitalizations characteristics between the two years in terms of hospitalization duration, frequency of re-hospitalization, and causes of admissions. This fact could indicate that in the early corona period (2020) the mental effect of the corona on children was at its beginning, therefore, there was no significant increase in psychiatric admissions observed and the rate of admissions was seemingly similar to previous years. Though, observations on the influence of the pandemic on children's psychiatric admissions rates from 2019 to 2021, found that after an initial decline in emergency contacts at the beginning of the first lockdown, the use of the centralized emergency service increased in 2021 to a significantly higher level than before the pandemic [13]. Thus, an increase in psychiatric admissions of children and adolescents is expected in the later corona periods (2021).

Though the current study did not find a significant difference in the causes of psychiatric admissions between 2020 and 2018, observing the descriptive statistics of the causes of admission shows a certain increase in the percentile of suicidal thoughts and behaviors including self-harm behaviors, to the level that in the year 2020 suicidal thoughts and behaviors were the most common cause of admissions (see Figure 2). This result is consistent with previous studies, Ougrin and his colleagues [7] showed an increase in the proportion of children and adolescents presenting with self-

harm from 50% in 2019 to 57% in 2020. And this increase is still rising in the later years, Marks and colleagues [13] indicated an increase in the year 2021 in suicidal ideation up to 15% compared with 2019, and an increase in self-harming up to 17%. This rise in psychiatric symptoms indicates an excessive deterioration in children's and adolescents' mental health and emphasizes the profound need in developing additional intensive community care and psychiatric emergency services with outreach capabilities to provide resources for this rising need.

Different from previous studies, the current study showed an increase in psychiatric admission of children and adolescents in the early corona year, from 91 admissions in 2018 to 109 admission in 2020 an increase of approximately 17%. Previous studies focused mostly on the period between March and May in 2020 which showed a decrement in psychiatric admission as in the current study [7, 8, 12, 14]. Most Admissions in 2018 were in November while in 2020 the distribution was different; most admission were at May (see Figure 3). This finding could be associated with school's onset and closures. Previously to the corona pandemic schools in Israel usually started consecutive learning after the holidays in November, but in the corona pandemic the learning schedule was not consequent and there were many closures of school. The first wave of the corona spread in Israel was February to May, therefore on 3 May schools were allowed to resume frontal learning with restrictions, starting from the first to the third grades. In that point children may have experienced another change in daily routine after two months of online learning children were supposed to conform again to frontal leaning in schools with restrictions and usual rules. This may have accelerated the pressure on them, thus it might explain the rise in psychiatric admissions rate in May. Literature showed that school periods and school onset may be significant stressors associated with an increased rate of psychiatric admissions [15] even before the corona pandemic, since children experience a change in daily routine. In the corona period a systematic review of Viner and his colleagues [16] showed a considerable harm on children and adolescents wellbeing due to school's closures. Thus, it's important to take this into account while determining the restrictions in the corona pandemic and to consider the mental consequences of change and inconsistency to children and adolescents.

Additionally, the study showed that approximately third of the in admission in 2020 patients reported about a corona stressor that is related to the deterioration in their mental state, mostly it was related to the changes in daily routines. In literature there even has been reports of higher rate of causes of admissions related to corona stressors (Reece & Sams., 2021). According to the International Classification of Functioning, Disability, and Health [17] daily function and routines are an essential part of maintaining health, those were deteriorated in the corona period by the changing restrictions and therefore impacted the wellbeing of many children and adolescents.

Lastly, the study did not find a significant association between the demographics variables and the corona stressors which could

indicate that the corona impacted all children and adolescents among all ages and from different educational frameworks and home placements. Though, it's important to note that in the year 2020 there has been a rise in the female admission compared with previous years (2018, 2017) this phenomenon was presented also in previous literature. In the systematic review and meta-analysis of Ma and his colleagues [18] on 23 studies to analyze the prevalence of the corona pandemic on the mental health of children and adolescents they noted that adolescent's females exhibited higher prevalence of depression and anxiety compared with males. Other studies of psychiatric admission of children and adolescents in the corona period also showed a majority of females (Reece & Sams, 2021) [7, 8] this could indicate that females are a more vulnerable population in pandemic crisis.

Limitations

This study had several limitations, first the study analyzed the reports of children in admission according to the written report in the medical record of the doctor that examined them in the emergency room, this report may not be sufficient and accurate. Second, the study did not analyze the children and adolescents who needed help in the community but did not admit to the hospital and third the study was conducted in Naharyia hospital, generally the admissions for this hospital is from citizens who live nearby therefore it could indicate a bias in the admitting populations and may not represent the general population.

Conclusion

The current study investigated the trends and characteristics of psychiatric admissions in the early corona period 2020. The finding of the study raises a considerable concern due to the impact of the corona pandemic restriction on the mental health of children and adolescents especially with the rise in suicidal thoughts and behaviors. Apparently this impacted children and adolescents among all ages. The current study showed that the changing daily routine and inconsistency in school attendance may have been the main stress factor of children and adolescents, thus authorities should consider developing special campaigns for gradual and mediated return to school in case of future waves or another pandemic. It's important to note that females might be a vulnerable population in cases similar to the corona pandemic for this reason future studies should investigate ways to assess this population. It has been indicated that compared to adults, this pandemic may continue to have increased long term adverse consequences on children's and adolescents' mental health [3]. As the pandemic continues, Future studies should investigate psychiatric admission characteristics of children and adolescents in the later period of the corona pandemic (2021 and 2022). Additionally, it is important to monitor the impact on children's and adolescents' mental health status and how to help them to improve their mental health outcomes in the time of the current or future pandemics

Declaration of conflicting interests

The authors declared no potential conflicts of interest with

respect to the research, authorship, and/or publication of this article.

Acknowledgments

The authors would like to thank the achieve staff for the technical help and support.

Authors' contributions

All authors have written and revised the manuscript. All authors read and approved the final manuscript.

Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Availability of data and materials

The datasets generated during and analyzed during the current study are not publicly available due to medical confidentiality, but are available from the corresponding author on reasonable request.

Statement of ethics

The Ethics Institutional Committee according to the Helsinki Declaration in the Galilee Medical Center approved the publication of the current article. The approval number is 0140-21-NHR.

References

1. GÜNER H R, Hasanoğlu I, Aktaş F. COVID-19: Prevention and control measures in community. *Turkish Journal of medical sciences* 50 (2020): 571-577.]
2. Banerjee D. The COVID-19 outbreak: Crucial role the psychiatrists can play. *Asian journal of psychiatry* 50 (2020): 102014.]
3. Meherali S, Punjani N, Louie-Poon S, et al. Mental health of children and adolescents amidst COVID-19 and past pandemics: a rapid systematic review. *International journal of environmental research and public health* 18 (2021): 3432.]
4. Sharma V, Majumder P, Barman R. Two Tents for Corona Virus–Mental Health Perspective. *Int J Psychiatr Res* 3 (2020): 1-3.
5. Fegert J M, Vitiello B, Plener P L, et al. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. *Child and adolescent psychiatry and mental health* 14 (2020): 1-11.]
6. Schreiber S, Tene O, Mordel C, et al. A decrease in psychiatric consultations at the emergency room and inpatient wards of a large general hospital in Israel during the SARS-CoV-2 (COVID-19) pandemic. *General hospital psychiatry* (2021).

7. Ougrin D, Wong B H C, Vaezinejad M, et al. Pandemic-related emergency psychiatric presentations for self-harm of children and adolescents in 10 countries (PREP-kids): a retrospective international cohort study. *European child & adolescent psychiatry* (2021): 1-13.
8. Ugueto A M, Zeni C P. Patterns of youth inpatient psychiatric admissions before and after the onset of the COVID-19 pandemic. *Journal of the American Academy of Child and Adolescent Psychiatry* (2021).
9. Ferrando S J, Klepacz L, Lynch S, et al. Psychiatric emergencies during the height of the COVID-19 pandemic in the suburban New York City area. *Journal of Psychiatric Research* 136 (2021): 552-559.
10. Kanthimathinathan H K, Pollak U, Shekerdemian L. Paediatric intensive care challenges caused by indirect effects of the COVID-19 pandemic. *Intensive Care Medicine* 47 (2021): 698-700.
11. Stein M, Ashkenazi-Hoffnung L, Greenberg D, et al. The Burden of COVID-19 in Children and Its Prevention by Vaccination: A Joint Statement of the Israeli Pediatric Association and the Israeli Society for Pediatric Infectious Diseases. *Vaccines* 10 (2022): 81.
12. Gavish R, Levinsky Y, Dizitzer Y, et al. The COVID-19 pandemic dramatically reduced admissions of children with and without chronic conditions to general paediatric wards. *Acta Paediatrica* 110 (2021): 2212-2217.
13. Marks K J, Whitaker M, Anglin O, et al. Hospitalizations of children and adolescents with laboratory-confirmed COVID-19-COVID-NET, 14 States, July 2021–January 2022. *Morbidity and Mortality Weekly Report* 71 (2022): 271.
14. Ougrin D. Debate: Emergency mental health presentations of young people during the COVID-19 lockdown. *Child and Adolescent Mental Health* 25 (2020): 171.
15. Nixon A, De Koninck J, Greenham S, et al. Psychiatric admissions of children and adolescents across school periods and daylight-saving transitions. *Journal of the Canadian Academy of Child and Adolescent Psychiatry* 30 (2021): 226.
16. Viner R M, Russell S, Saullé R, et al. Impacts of school closures on physical and mental health of children and young people: a systematic review. *MedRxiv* (2021).
17. World Health Organization. International classification of functioning. *Disability and Health (ICF)* (2001): 28-66.
18. Ma L, Mazidi M, Li K, et al. Prevalence of mental health problems among children and adolescents during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Affective Disorders*, 293 (2021): 78-89.