Innovative Journal of Pediatrics
Volume 33 · Issue 3 · e130598

OPEN PEER REVIEW

The Effects of Long-term Social Distancing on Sleep and Mood in Adolescents During the COVID-19 Pandemic

Seonkyeong Rhie

SUBMITTED	REVISED	ACCEPTED	DOI
10 Aug 2022	5 Feb 2023	9 Feb 2023	10.5812/ijp-130598

About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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1 Original submission

2 comments · 8 Sep 2022 – 29 Sep 2022

Morteza Taheri Reviewer

MAJOR REVISION 8 Sep 2022

The subject is interesting and practical at the same time. The strength of your work is the significant number of participants in the research. However, it would be better to make some corrections as follows:
Abstract:
*In the fourth line of the abstract, in addition to sleep, the word "modd" is also mentioned, but it is not used in the title. The overall objective and title should be consistent, so please correct this.
suggested title:
the effects of long-term social distancing due to the COVID-19 pandemic on sleep patterns and mood

*Regarding sleep behavior, why have you used sleep duration and sleeping time when other parameters are important in sleep behavior? If you have an explanation, please provide it.

*Mention the measurement tools used in the research in the methodology part of the abstract.

* In the results section of the abstract, use p-values to present the research results.
*You have stated: "How can it be possible for two years of people exposed to growth that their weight and height do not change". Please explain what you mean by this.

*Rewrite the keywords based on the MeSH standard.

Introduction:
-Some students may go directly to school in their parents' cars or on public transportation and may not be exposed to the sun, so be careful when saying this: "This is because going to school affects sleep offset and increases activity and sunlight exposure on the way to school"

-In the introduction, you wrote the following sentence: "Online classes and social distancing were associated with decreased quality of sleep and amount of activity among teens in the early phase of the pandemic". Why is it necessary to conduct the research again, and how do you justify the differences between your research and this research?

-In the introduction section, more theoretical foundations and research on the topic should be mentioned and discussed in greater depth. It seems that your introduction is very short.
For example, factors that can affect the sleep behavior of students at this age include physical activity levels and nutritional quality, so refer to these factors. You can use the following references:
*Makaracı Y, Yücetaş Z, Devrilmez E, Soslu R, Devrilmez M, Akpınar S, Popovic S. Physical Activity and Nutrition Education Programs Changes Body Mass Index and Eating Habits of 12th Grade Students: An Intervention during the COVID-19 Pandemic. Annals of Applied Sport Science.
*Abdul Rahim N, Zainol Abidin MZ, Shalan NA, Bin Karim Z, Abdul Aziz NU, Avin FA. COVID-19 Lockdown: Physical Activity, Sedentary Behaviour, and Academic Motivation Among Undergraduates University Students in Malaysia. Annals of Applied Sport Science.:0-.
*Vancini RL, Viana RB, dos Santos Andrade M, de Lira CA, Nikolaidis PT, de Almeida AA, Knechtle B. YouTube as a Source of Information About Physical Exercise During COVID-19 Outbreak. International Journal of Sport Studies for Health. 2021 Oct 31;4(2).

Research Methods:
*Mention the validity and reliability of the research tools in the methodology section.
statistical method
*What kind of test is this? "Two-tailed tests with p-values?"

*It would be better to use figures to report the research results. You have used only tables.
Discussion:
What are your recommendations for future studies?
*You have mentioned very good points in the discussion, but it would be better to mention the physiological mechanisms underlying the research results.

Golnaz Ghazizadeh Esslami Reviewer

MINOR REVISION 29 Sep 2022

Dear Editor in chief:
Thank you for referring this manuscript to me.
The effects of social distancing on sleep in adolescents during
the COVID-19 pandemic.
I would like to thank the authors for sharing their experience with the academic and clinical communities and reminding us of the importance of studying the factors associated with teenagers' sleep quality and presenting such a well-written cohort.
My comments:
I do accept this manuscript with minor revisions for the reasons below:
First, the subject was developed with creativity and the novelty was appreciable. Appropriate sleep quality can have a great impact on teenagers' educational and occupational future and could also provide awesome advantages for the promotion of teenagers' society by means of physical and psychological health improvement. Second, the manuscript was considered timely and relevant to a current problem, as nowadays many communities are thinking of extending the online classes during the COVID-19 pandemic to the post-COVID-19 period due to many approved benefits. Third, the study was well designed, properly accomplished and had an appropriate methodology with sufficient explanation of statistics.
The authors are kindly requested to edit the following points in the manuscript to make it more applicable.
1. It would be better to explain more about the exact features of social distancing and define the social limitations during the study period, as it may differ in different parts of the world.
2. It is recommended that the authors mention the most prevalent types of online classes and differences in students' homework during different stages of the study.
3. Replace the word min with "minute".
4. Please state the average start and finish times of schools before and during the COVID-19 pandemic, if available.
5. In the last paragraph of the results, it seems that in the sentence: "They also slept 16 min later and woke up 12 min later, sleeping for 3 min less on weekends during social distancing", 4 min should be substituted.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

January 13, 2023

Editor-in-Chief of the Iranian Journal of Pediatrics

Dear Editor,

I truly appreciate the meticulous comments from the Editor and the Reviewers and hope that the revised manuscript addresses the concerns appropriately.

It is with great pleasure that I resubmit the revised version of our manuscript “The effects of social distancing on sleep in adolescents during the COVID-19 pandemic” by Seonkyone Rhie to the *Iranian Journal of Pediatrics*. We sincerely responded to each comment and have made modifications to the manuscript. We believe that our study has benefited from insightful suggestions. I look forward to receiving a positive letter for publication in *Iranian Journal of Pediatrics.* I apologize that the response to reviewers is late because of the pandemic.

Thank you in advance for your kind consideration. I look forward to your favorable response.

Sincerely yours,

Seonkyong Rhie, M.D.

POINT-BY-POINT RESPONSE TO REVIEWERS' COMMENTS:

We are submitting point-by-point responses to the reviewers' comments and have revised our manuscript accordingly. We have carefully considered each of the reviewers' comments. Specific changes are marked and highlighted in red in the manuscript, and we are submitting both the revised manuscript and a point-by-point response to the review.

Reviewer 1:

Comment 1

The subject is interesting and practical at the same time. The strength of your work is the number of significant participants in the research. But it is better to make some corrections as follows:

Abstract:

*In the fourth line of the abstract, except for sleep, the word "modd" is also pointed, while the word is not used in the title, so you should have the same general purpose and title, so correct it.

suggested title:

the effects of long-term social distancing, due to the COVID-19 pandemic, on their sleeping patterns and mood.

Response 1

We appreciate the Reviewer's comment and careful review.

This study focused on the effect of sleep patterns and mood in adolescents. The title was changed as below (highlighted):

The effects of long-term social distancing on sleep and mood in adolescents during the COVID-19 pandemic

Comment 2

*In regards to sleep behavior, why have you used sleep duration and sleeping time, while there are other parameters that are important in sleep behavior, if you have an explanation, please explain.

Response 2

This study aimed to measure sleep patterns and behaviors. Sleep duration is the simplest objective measure that responds well to the external environment. Sleep consistency or efficiency could be beneficial items; however, they is not suitable for large-scale surveys.

Comment 3

*Mention the measurement tools in the research in the methodology part of the abstract.

Response 3

This study used stratified data, which is recommended for analysis using complex sample methods. We have written this in the abstract as follows:

In this cohort study, data from the 2018–2020 Korea Youth Risk Behavior Web-based Survey (KYRBS) were used to compare teens' sleep patterns in 2020 with those in 2018–2019.

Comment 4

* In the results section of the abstract, use p-values to present the research report.

Response 4

I describe the results using an estimated value with a 95% confidence interval instead of p-values. Although I have changed it as follows, word count is over your journal limitation:

They also slept 10 minutes later (9.743 (95% CI 7.954-11.530)), with wake-up times of 3–5 minutes later on weekdays (4.684 (3.449-5.919)). On weekends during social distancing, they slept 16 minutes later (15.721 (14.077–17.366)), with wake-up times of 12 minutes later (12.309 (10.393–14.225)). Although they slept five minutes less on weekdays (-5.059 (-6.817 to-3.301)) and three minutes less on weekends (-3.413 (-5.419 to-1.407)), their overall sleep satisfaction increased, and differences in sleep duration between weekdays and weekends decreased in 2020.

Comment 5

*you have stated that: "How can it be possible for two years of people exposed to growth that their weight and height do not change" please explain how have you referred to it?

Response 5

I cannot find that statement. However, I wrote, “From 2018–2020, the height and body weight of the participants did not change.” In the results, I stated “Heights were 165.4±8.5 cm in 2018, 165.5±8.6 cm in 2019, and 166.2±8.4 cm in 2020. Weights were 58.6±12.5 kg in 2018, 58.9±12.9 kg in 2019, and 60.0±13.2 kg in 2020.”

Comment 6

*Rewrite the keywords based on the mesh standard.

Response 6

Based on the mesh standard, I changed it as below

school start time, adolescent, sleep efficiency, online classes, COVID-19

Comment 7

Introduction:

-Maybe some students go directly to the school with their parents' cars or public transportation and are not exposed to the sun, so be careful when saying this: "This is because going to school affects sleep offset and increases activity and sunlight exposure on the way to school"

Response 7

I changed it as

This is because going to school affects sleep offset and increases sunlight exposure and the possibility of activity on the way to school

Comment 8

-In the introduction, you gave such a sentence: "Online classes and social distancing were associated with decreased quality of sleep and amount of activity among teens in the early phase of the pandemic", so what is the necessity of conducting the research again, and how do justify the differences between your research and this research

Response 8

I state: Online classes and social distancing were associated with decreased quality of sleep and amount of activity among teens in the early phase of the pandemic. These results demonstrate the short-term effect of social distancing, mostly due to rapid changes in the social environment. Therefore, I want to show the long-term effects of social distancing with adaptation to social change.

Comment 9

-In the introduction section, more theoretical foundations and research should be mentioned and expanded on the topic. It seems that your introduction is very short.

For example, one of the effective factors that can affect the sleeping behavior of students at this age is the level of physical activity and the quality of nutrition, so refer to these factors

and you can use the following references:

*Makaracı Y, Yücetaş Z, Devrilmez E, Soslu R, Devrilmez M, Akpınar S, Popovic S. Physical Activity and Nutrition Education Programs Changes Body Mass Index and Eating Habits of 12th Grade Students: An Intervention during the COVID-19 Pandemic. Annals of Applied Sport Science.

*Abdul Rahim N, Zainol Abidin MZ, Shalan NA, Bin Karim Z, Abdul Aziz NU, Avin FA. COVID-19 Lockdown: Physical Activity, Sedentary Behaviour, and Academic Motivation Among Undergraduates University Students in Malaysia. Annals of Applied Sport Science.:0-.

*Vancini RL, Viana RB, dos Santos Andrade M, de Lira CA, Nikolaidis PT, de Almeida AA, Knechtle B. YouTube as a Source of Information About Physical Exercise During COVID-19 Outbreak. International Journal of Sport Studies for Health. 2021 Oct 31;4(2).

Response 9

As per your recommendation, I have added a few references (18). Moreover, the effect of physical activity on sleep is presented in the introduction.

Comment 10

Research Methods:

*Mention the validity and reliability of the research tools in the methodology section statistical method

*What kind of test is this? "Two-tailed tests with p-values?"

*In the report of research results, it is better to use figures. You have used the tables only.

Response 10

This survey was analyzed using complex sample methods that used stratified data. Therefore, I have added the reference (16) and these were described in the Methods section, with the subtitle study design and statistical analysis. However, I apologize that I cannot draw a figure that demonstrates the results well.

Comment 11

Discussion:

recommendations for future studies?

*you've mentioned very good points in the discussion, but it is better to mention the physiological mechanisms in the research results.

Response 11

Thank you for your recommendation. We have added more references to the Discussion section. However, I am sorry that I cannot describe the physiological aspects that are beyond the scope of this study. This survey did not include physiological results of adolescent sleep.

Reviewer 2:

Dear Editor in chief:

Thank you for referring this manuscript to me.

The effects of social distancing on sleep in adolescents during COVID-19 pandemic.

I would like to thank the authors for sharing their experience with the academic and clinical communities and reminding us the importance of studying the factors associated with the teenagers sleep quality and presenting such a well written cohort.

My comments:

I do accept this manuscript with minor revisions for the reasons below:

First, the subject was developed with creativity and the novelty was appreciable. Appropriate sleep quality can have a great impact on teenagers educational and occupational future and could also provide awesome advantages for the promotion of teenager’s society by means of physical and psychological health improvement. Second, the manuscript was considered timely and relevant to a current problem, as nowadays many communities are thinking of extending the online classes during the Covid19 pandemic to the post COVID19 period due to many approved benefits. Third, the study was well designed, properly accomplished and had an appropriate methodology with sufficient explanation of statistics.

Comment 1

You are kindly requested to edit the following points in your manuscript to make it more applicable.

1. It would be better to explain more about the exact features of social distancing and define the social limitations during the study period, as it may differ in different parts of the world.

Response 1

Thank you for your recommendation during social distancing in Korea in 2020. Most schools had the autonomy to decide on online classes; a third to two-thirds of the students attended face-to-face classes and the others joined online classes by turn. (Method, 2.2) However, this anonymous online survey does not ask whether online classes are held or not, and this is the weak point of this study, presented in the discussion.

Comment 2

2. It is recommended to mention the most prevalent types of online classes and differences in students' home work during different stages of the study.

Response 2

I added it to method section

These online classes are synchronous – live classes use cameras […]

Comment 3

3. Replace the word min with “minute”

Response 3

As your kind recommendation, I changed it all and highlighted minutes.

Comment 4

4. Please state the average start and finishing time of schools before and during the COVID19 pandemic, if available.

Response 4

The school start and finish times were the same before and during social distancing. I described this as follows:

live classes […] run at the same time as in-person school hours (students went to school at 9 am and returned home between 2 pm to 6 pm in 2018–2019).

Comment 5

5. In the last paragraph of result, it seems that in the sentence: “They also slept 16 min later and woke up 12 min later, sleeping for 3 min less on weekends during social distancing”, 4 min should be substituted.

Response 5

As you mentioned, 16 min and 12 min make up 4 min; however, on weekends, they begin to sleep 15.721 (14.077 – 17.366) later and get up 12.309 (10.393 – 14.225) later, and sleep durations are -3.413 (-5.419 – -1.407) shorter (Table 3).

Therefore, I changed it as follows:

9.743 (7.957 – 11.530) minutes later and woke up 4.684 (3.449 – 5.919) minutes later on weekdays in 2020, as compared to sleep durations in 2018 and 2019. Therefore, their sleep duration significantly decreased by five minutes after the COVID-19 outbreak. They also slept 15.721 (14.077 – 17.366) minutes later and woke up 12.309 (10.393 – 14.225) minutes later, sleeping -3.413 (-5.419 – -1.407) minutes less on weekends during social distancing. The differences in sleep duration between the weekdays and weekends did not change significantly. However, the weekly sleep duration decreased significantly by up to 32 minutes.

2 Revision 1

2 comments · 27 Jan 2023 – 30 Jan 2023

Morteza Taheri Reviewer

ACCEPT 27 Jan 2023

The revisions are accepted.

Golnaz Ghazizadeh Esslami Reviewer

MINOR REVISION 30 Jan 2023

Thanks for editing. Please consider the following comments:

1. In response 5 to reviewer 1, height and weight have actually changed slightly according to the numbers you provided, so how can you say that they have not changed?

2. As a suggestion, regarding reviewer 1's comment, in response 7, rewrite the sentence "This is because going to school affects sleep offset and increases sunlight exposure and the possibility of activity on the way to school" as follows:

This is because going to school affects sleep offset and may increase sunlight exposure and the possibility of activity on the way to school.

3. In the methods section, "These online classes are synchronous — live classes use cameras and run at the same time as in-person school hours" should be changed to:
These online classes were synchronous — live classes used cameras and ran at the same time as in-person school hours.

4. In the conclusion: "To the best of our knowledge, this study is the largest national study on the effects of social distancing on teens' sleep" in the first sentence and "This study is unique as it proportionally samples all the teens in a country as the cohort" in the last sentence are similar. It would be better to say this in the first sentence:
To the best of our knowledge, this study is the largest national study on the effects of social distancing on teens' sleep which proportionally samples all teens in a country as a cohort.

3

Revision 2

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

February 2, 2023

Editor-in-Chief of the Iranian Journal of Pediatrics

Dear Editor,

I truly appreciate the comments from the Editor and the Reviewers and hope that the revised manuscript addresses the concerns appropriately.

It is with great pleasure that I resubmit the revised version of our manuscript “The effects of social distancing on sleep in adolescents during the COVID-19 pandemic” by Seonkyeong Rhie to the *Iranian Journal of Pediatrics*. Moreover, reviewers’ kind recommendation made this paper clear and improved. I believe that this study has benefited from insightful suggestions.

Thank you in advance for your kind consideration. I look forward to your favorable response.

Sincerely yours,

POINT-BY-POINT RESPONSE TO REVIEWERS' COMMENTS:

We are submitting point-by-point responses to the reviewers' comments and have revised our manuscript accordingly. We have carefully considered each of the reviewers' comments. Specific changes are marked and highlighted in red in the manuscript, and we are submitting both the revised manuscript and a point-by-point response to the review.

Reviewer 2:

Comment 1

In response 5 to reviewer 1, height and weight have actually slightly changed according to your mentioned numbers, so how do you say that they have not changed?

Response 1

Thank you for your kind recommendation, and I found my mistake. As I reanalyzed my data with ANOVA (not complex sample methods), the body weight and height were not statistically same, therefore I re-wrote it as below.

→ Weighted proportions of men were 51.9%. The participants' height and body weight are changed across the three years (p-value < 0.001).

Comment 2

As a suggestion, regarding to the reviewer 1 comment, in the response 7, rewrite the sentence "This is because going to school affects sleep offset and increases sunlight exposure and the possibility of activity on the way to school" as below:

This is because going to school affects sleep offset and may increase sunlight exposure and the possibility of activity on the way to school.

Response 2

Thank you for your recommendation, I re-wrote it as below:

→ This is because going to school affects sleep offset and may increases sunlight exposure and the possibility of activity on the way to school

Comment 3

In methods, “These online classes are synchronous — live classes use cameras and run at the same time as in-person school hours” should change in to:

These online classes were synchronous — live classes used cameras and ran at the same time as in-person school hours.

Response 3

Thank you for your kind advice, I changed it as you wrote.

Comment 4

In the conclusion Part: “To the best of our knowledge, this study is the largest national study on the effects of social distancing on teens’ sleep” in the first sentence and “This study is unique as it proportionally samples all the teens in a country as the cohort” in the last sentence are similar. It would be better to say this in the first sentence:

To the best of our knowledge, this study is the largest national study on the effects of social distancing on teens’ sleep which proportionally samples all teens in a country as a cohort.

Response 4

As you recommend, I changed it as below. However, I deleted it in heighted and revised script.

→ To the best of our knowledge, this study is the largest national study on the effects of social distancing on teens' sleep which proportionally samples all teens in a country as cohort. During social distancing due to COVID-19, teens fell asleep and woke up later, and slept less both on weekdays and weekends. Although the total amount of sleep per week decreased, the difference in sleep durations between weekdays and weekends did not change. More students felt unhealthy but fewer students felt stressed and sleep deprived. ~~This study is unique as it proportionally samples all the teens in a country as the cohort.~~

3 Revision 2

0 comments

No public comments in this round.