

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Association of socioeconomic factors and the risk for unintentional injuries among children in Japan: a cross-sectional study
AUTHORS	Sato, Nobuhiro; Hagiwara, Yusuke; Ishikawa, Junta; Akazawa, Kouhei

VERSION 1 – REVIEW

REVIEWER	Khaula Khatlani Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland and Griffin Hospital-Yale University, Derby, Connecticut, USA.
REVIEW RETURNED	20-Feb-2018

GENERAL COMMENTS	<p>Comments for “Socioeconomic factors do not increase the risk for unintentional injuries among children in Japan: a cross sectional study”</p> <p>Line 68: Moreover, the average age of married.....</p> <p>Comment: This line doesn't justify the rationale of the study since younger maternal age is associated with higher incidence of childhood unintentional injuries. This particular sentence gives the feeling that one of the important risk factors for such injuries doesn't exist in Japan and yet they accounted for it.</p> <p>Comment: Children who were cared for by people other than parents, such as grandparents in the daytime were excluded but living with grandparents is used as a variable in the analysis. Are the authors referring to primary caregiving or any caregiving? Was there any overlap between grandparents who were caring for the children and those who were not and simply living with them and how was that determined? It is confusing. Please elaborate further.</p> <p>Comment: Did the authors collect data on any other non-socioeconomic factor in the study, such as children's gender and medical/mental health condition of the children, which might affect children's behavior or parental supervision and eventually affect the outcome? Overall, the socioeconomic factors weren't adjusted for any non-socioeconomic factor in the study.</p> <p>Line 177: First, these results could be attributed to the injury mechanism.</p> <p>Comment: The authors had information on injury mechanism. I</p>
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	<p>wonder if they checked to see if socioeconomic factors varied by 'mechanism of injury', 'management after injury' and 'time of injury'.</p> <p>Comment: And were there any deaths reported among those who visited hospital after injury?</p> <p>Line 183: Second, younger age of children, may affect the relationship....</p> <p>Comment: Please elaborate further how younger age of children can affect the relationship between the risk of unintentional injuries and socioeconomic factors. Does the parental/adult/caregiver supervision modify this relationship in any way? Suggest referring to: Caregiver Supervision Practices and Risk of Childhood Unintentional Injury Mortality in Bangladesh.</p> <p>Khatlani K, Alonge O, Rahman A, Hoque DME, Bhuiyan AA, Agrawal P, Rahman F. Int J Environ Res Public Health. 2017 May 11;14(5). pii: E515. doi: 10.3390/ijerph14050515</p> <p>Line 222: Finally, different injury severities might....</p> <p>Comment: The authors could use 'management after injury' as a proxy variable for injury severity as more severely injured children would be taken to hospital.</p>
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REVIEWER	Nashwa Nabil Kamal Public Health Department, Faculty of Medicine, Minia University
REVIEW RETURNED	22-Feb-2018

GENERAL COMMENTS	<p>It is an important subject to study, it was addressed using the correct study design, yet the following are some comments:</p> <p><u>In the abstract</u></p> <p>There is no introduction</p> <p><u>For introduction</u></p> <p>Why you did not ask about electric shocks as a type of unintentional injury?</p> <p><u>For methodology</u></p> <p>you should mention that unintentional injury is the dependant factor in the multiple regression analysis</p> <p>Also in the methodology section you mentioned that the Continuous data with skewed distributions are shown as medians and interquartile ranges, and categorical data as proportions, but it did not apply in the results</p>
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	<p><u>For Results:</u></p> <p>You did not ask about the effect of physical disability or handicapping in children as a risk factor</p> <p>You do not include fathers' occupation in the socioeconomic risk factors</p> <p>You did not mention the statistical tests used in table 3</p>
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REVIEWER	Aisha Jafri Johns Hopkins Bloomberg School of Public Health, USA
REVIEW RETURNED	01-Mar-2018

GENERAL COMMENTS	<p>I am concerned about the sample biases resulting from the exclusion criteria. For example, while it is encouraging that the poverty rates between the study population and the census are similar, access to internet is a large socioeconomic barrier for the most vulnerable households. Second, households missing data on parent education were excluded, but I am wondering what was the type (e.g. at random, not at random) of missingness in terms of how it could impact the validity of the conclusions.</p> <p>How was the sample size calculated?</p> <p>For the model, I am wondering if there is an issue with multicollinearity between sets of variables such as "living with grandfather" and "living with grandmother." Also, what is the reference category for "type of housing"?</p>
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REVIEWER	Shirin Wadhvaniya Johns Hopkins International Injury Research Unit, Johns Hopkins Bloomberg School of Public Health
REVIEW RETURNED	26-Mar-2018

GENERAL COMMENTS	<ul style="list-style-type: none"> - The title of the paper seems like a finding. I would suggest revising it. - Introduction - Findings from the previous studies that looked at the relationship between socioeconomic status and unintentional injuries in Japan could be included in this section. - Methods - This section needs some more information. How many questions were in the survey? Average time taken to complete the survey? What was the recall period for unintentional injuries? In this survey, unintentional injuries include morbidity or both mortality and morbidity? It is not clear from the methods section as to how 1000 respondents were selected. I have concerns with the representativeness. A major disadvantage of the study is that only those who have access to internet/computer would be able to participate in the study. Again, those who are more aware about the issue are more likely to respond to the web-based survey and there may be a selection bias. - Results - line 148 - 150: Findings related to father's education and number of siblings is not statistically significant. Discussion - line 169 - 174: The results from this study are compared with those from a study conducted in US and a Greek
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	<p>town. Are these populations comparable? line 190 - 191: What disadvantages of socioeconomic classes are being referred to here? The study did not show any difference in the incidence of injuries by socioeconomic characteristics. line 197 - 203 and line 209 - 211: Are any child injury prevention interventions included in the home visits or health checkups?</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Khaula Khatlani

Please leave your comments for the authors below

In current times, the study question is relevant and pertinent from public health stand-point, particularly as it helps the policy makers make decisions about resource allocation. However, it is intriguing to see if the socioeconomic factors varied by any non-socioeconomic variable, thus impacting the unintentional injuries among children. Please see attached file (Comments.docx) for full comments.

Line 68: Moreover, the average age of married.....

Comment: This line doesn't justify the rationale of the study since younger maternal age is associated with higher incidence of childhood unintentional injuries. This particular sentence gives the feeling that one of the important risk factors for such injuries doesn't exist in Japan and yet they accounted for it.

Response: We thank the reviewer for their careful review. We have removed this sentence from the Introduction.

Comment: Children who were cared for by people other than parents, such as grandparents in the daytime were excluded but living with grandparents is used as a variable in the analysis. Are the authors referring to primary caregiving or any caregiving? Was there any overlap between grandparents who were caring for the children and those who were not and simply living with them and how was that determined? It is confusing. Please elaborate further.

Response: We appreciate these helpful suggestions. In Japan, primary caregivers during the daytime are typically parents, grandparents, kindergarten teachers, or nursery teachers. We excluded five households whose primary caregiver was an aunt or sister during the daytime (page 7, lines 151-152). We have added this information to the Method (page 5, lines 88-91) and Result (page 7, line 152) sections. Grandparents who were cared or not and simply living with children was determined using the questionnaire, which asked whether children were living with grandparents and whether the grandparents were the primary caregiver.

Comment: Did the authors collect data on any other non-socioeconomic factor in the study, such as children's gender and medical/mental health condition of the children, which might affect children's behavior or parental supervision and eventually affect the outcome? Overall, the socioeconomic factors weren't adjusted for any non-socioeconomic factor in the study.

Response: Thank you for your comment. We did not collect data on gender or medical/mental health conditions of the children. In the Limitation section, we have acknowledged this as an issue (page23, line 252- page 24, line 254). From the multivariate analysis results shown in Table 6 in our revised article, we adjusted for the number of children, presence of older siblings, and presence of infants with logistic regression analysis.

Line 177: First, these results could be attributed to the injury mechanism.

Comment: The authors had information on injury mechanism. I wonder if they checked to see if socioeconomic factors varied by 'mechanism of injury', 'management after injury' and 'time of injury'.

Response: We appreciate the reviewer for their careful review of the manuscript. As requested, we have added "mechanism of injury" to Table 3. Furthermore, we have added Table 4, which shows the association between socioeconomic factors and "time of injury." We have also added Table 5, which shows the association between socioeconomic factors and "management after injury." Consistent with the main results, there was no relationship between socioeconomic factors and the variables in these tables. Therefore, we have removed these sentences in the Discussion section.

Comment: And were there any deaths reported among those who visited hospital after injury?

Response: We did not collect data on outcomes after visiting the hospital.

Line 183: Second, younger age of children, may affect the relationship....

Comment: Please elaborate further how younger age of children can affect the relationship between the risk of unintentional injuries and socioeconomic factors. Does the parental/adult/caregiver supervision modify this relationship in any way? Suggest referring to:

Caregiver Supervision Practices and Risk of Childhood Unintentional Injury Mortality in Bangladesh. Khatlani K, Alonge O, Rahman A, Hoque DME, Bhuiyan AA, Agrawal P, Rahman F. Int J Environ Res Public Health. 2017 May 11;14(5). pii: E515. doi:10.3390/ijerph14050515

Response: We appreciate your suggestions and the reference provided. Although the relationship between younger ages and the risk of unintentional injuries is still unclear, this may be related to greater supervision. Caregiver supervision could modify the relationship between the risk of unintentional injuries and socioeconomic factors because more than half of unintentional injuries were witnessed by caregivers in our study. We have added this information and the reference to the Discussion section (page 22, lines 210-214)

Line 222: Finally, different injury severities might....

Comment: The authors could use 'management after injury' as a proxy variable for injury severity as more severely injured children would be taken to hospital.

Response: We agree with the reviewer's comment. Therefore, we have removed this sentence from the Limitation section, and modified 'Strengths and limitations of this study' (page 3, line 47).

Reviewer: 2

Reviewer Name: Nashwa Nabil Kamal

Please leave your comments for the authors below

It is an important subject to study, it was addressed using the correct study design, yet the following are some comments:

We thank the reviewer for the positive comment.

In the abstract

There is no introduction

Response: As requested, we have added an introduction as the "Objectives" section in the abstract (page 2, lines 18-20).

For introduction

Why you did not ask about electric shocks as a type of unintentional injury?

Response: We appreciate the opportunity to clarify this point. We included all injuries, but data on electric shocks were not reported. We added "all injuries" to the Method Section (page 6, line 112).

For methodology

you should mention that unintentional injury is the dependent factor in the multiple regression analysis

Response: Thank you for your suggestion. As requested, we have added this information to the Method section (page 7, line 131).

Also in the methodology section you mentioned that the Continuous data with skewed distributions are shown as medians and interquartile ranges, and categorical data as proportions, but it did not apply in the results

Response: Thank you for your comment. As shown in the Results section, we used the median and interquartile range for the age of the respondents (page 8, lines 154-155). We used proportions of basic household characteristics and mechanism of injury in the Result section and table 1. (page 8, para157-160).

For Results:

You did not ask about the effect of physical disability or handicapping in children as a risk factor

Response: Our study did not measure any other non-socioeconomic factors, except for the number of children, and the presence of infants or older siblings. Therefore, we have acknowledged this potential limitation in the Limitation section (page23, line 253- page 24, line 254).

You do not include fathers' occupation in the socioeconomic risk factors

Response: As suggested, we have added the father's occupation and analyzed this data in the Method, and table 3-6. (page 7, line 134).

You did not mention the statistical tests used in table 3

Response: As shown in the Method section, we used Pearson's chi-squared test or Fisher's exact test in Table 3 (page 6, lines 125-126).

Reviewer: 3

Reviewer Name: Aisha Jafri

Please leave your comments for the authors below

I am concerned about the sample biases resulting from the exclusion criteria. For example, while it is encouraging that the poverty rates between the study population and the census are similar, access to internet is a large socioeconomic barrier for the most vulnerable households.

Response: We completely agree with the reviewer's suggestion. Therefore, we have acknowledged this potential limitation in the Limitations section (page 23, lines 238-243).

Second, households missing data on parent education were excluded, but I am wondering what was the type (e.g. at random, not at random) of missingness in terms of how it could impact the validity of the conclusions.

Response: We thank the reviewer for this insightful comment. As suggested, we have discussed this issue in the Limitation section (page 23, lines 248-252).

How was the sample size calculated?

Response: We appreciate the opportunity to clarify this point. The sample size calculation was performed on the basis of a statistical power of 80%, two-sided P-value of 0.05, an event rate of 25%, and a relative risk of socioeconomic disadvantage of 1.2, obtained from previous studies [3-5]. Therefore, the case sample size was 824. We added this information in the Method section (page 6, lines 121-123).

For the model, I am wondering if there is an issue with multicollinearity between sets of variables such as "living with grandfather" and "living with grandmother."

Response: We thank the reviewer for their careful review of the manuscript. In our study, there were no significant differences in socioeconomic factors in terms of the incident rate of unintentional injuries among preschool children. Therefore, we considered that there was no multicollinearity between those variables.

Also, what is the reference category for "type of housing"?

Response: We appreciate the opportunity to clarify this point. As shown in the Method section, type of housing was divided into house and apartment categories (page 6, line 110) .

Reviewer: 4

Reviewer Name: Shirin Wadhvaniya

Please leave your comments for the authors below

- The title of the paper seems like a finding. I would suggest revising it.

Response: We appreciate your suggestion. We have changed the title to "Association of socioeconomic factors and the risk for unintentional injuries among children in Japan: a cross-sectional study" (page 1, lines 1-2).

- Introduction - Findings from the previous studies that looked at the relationship between socioeconomic status and unintentional injuries in Japan could be included in this section.

Response: Thank you for your comment. As suggested, we have added a previous study in the Introduction section (page 4, lines 70-72).[6]

- Methods - This section needs some more information. How many questions were in the survey?

Response: We thank the reviewer for this insightful comment. The questionnaire included 20 questions about basic and socioeconomic characteristics and 17 questions concerning unintentional injuries. As requested, we have added this information to the Method section (page 5, lines 98-99).

Average time taken to complete the survey?

Response: We did not measure average time taken to complete the survey.

What was the recall period for unintentional injuries?

Response: We thank the reviewer for their careful review of the manuscript. As suggested, we have discussed this issue in the Limitation section (page 23, line 245).

In this survey, unintentional injuries include morbidity or both mortality and morbidity?

Response: We included only morbidity in the survey. Unfortunately, we did not measure the associated mortality.

It is not clear from the methods section as to how 1000 respondents were selected. I have concerns with the representativeness.

Response: We appreciate the opportunity to clarify this point. The sample size calculation was performed on the basis of a statistical power of 80%, two-sided P-value of 0.05, an event rate of 25%, and relative risk of socioeconomic disadvantage of 1.2, obtained from previous studies [3-5]. Therefore, the case sample size was 824. As shown in the Method section, the participants were selected in January 2015 from a database of 1,370,000 candidates compiled by a private Japanese company specializing in questionnaire-based research. We extracted data for 1000 households with preschool children under 6 years of age. All participants lived in Japan. Region was used as a variable for stratified random sampling (page 5, lines 82-88). We added this information to the Method section (page 6, lines 121-123).

A major disadvantage of the study is that only those who have access to internet/computer would be able to participate in the study. Again, those who are more aware about the issue are more likely to respond to the web-based survey and there may be a selection bias.

Response: We completely agree with the reviewer's comment. Therefore, we have acknowledged this potential limitation in the Limitations section (page 23, lines 238-243).

- Results - line 148 - 150: Findings related to father's education and number of siblings is not statistically significant.

Response: As shown in the Results section, there were no significant differences in the incident rates of unintentional injuries across all groups, although there was tendency for which the risk of unintentional injuries was higher among preschool children with high-school graduate fathers and those in families with more siblings (page 10, lines 167-page 11, lines 170).

Discussion - line 169 - 174: The results from this study are compared with those from a study conducted in US and a Greek town. Are these populations comparable?

Response: We thank the reviewer for their careful review of the manuscript. We compared data from the 0-4 age groups from these studies, which is comparable to our study population (page 21, lines 196-199).

line 190 - 191: What disadvantages of socioeconomic classes are being referred to here? The study did not show any difference in the incidence of injuries by socioeconomic characteristics.

Response: Here, we wanted to express that the age of the children in our study might help to decrease the risk of unintentional injuries in lower socioeconomic classes. As suggested, we have

changed this sentence (page 22, lines 214-216).

line 197 - 203 and line 209 - 211: Are any child injury prevention interventions included in the home visits or health checkups?

Response: Thank you for your comment. Yes, child injury prevention interventions are included. In Japan, the Ministry of Health, Labour and Welfare has been promoting the "Healthy Parents and Children 21" campaign, which is a national campaign to improve the health standards of mothers and children. A decrease in the mortality rate of children who experience unintentional injury is one of the evaluation indices for this campaign [7]. Home visits or health checkups are based on this campaign.

Reference

1. Engstrom K, Diderichsen F, Laflamme L: Socioeconomic differences in injury risks in childhood and adolescence: a nation-wide study of intentional and unintentional injuries in Sweden. *Inj Prev* 2002, 8(2):137-142.
2. Khatlani K, Alonge O, Rahman A, Hoque DME, Bhuiyan AA, Agrawal P, Rahman F: Caregiver Supervision Practices and Risk of Childhood Unintentional Injury Mortality in Bangladesh. *Int J Environ Res Public Health* 2017, 14(5).
3. Laursen B, Nielsen JW: Influence of sociodemographic factors on the risk of unintentional childhood home injuries. *Eur J Public Health* 2008, 18(4):366-370.
4. Rivara FP, Calonge N, Thompson RS: Population-based study of unintentional injury incidence and impact during childhood. *Am J Public Health* 1989, 79(8):990-994.
5. Petridou E, Anastasiou A, Katsiardanis K, Dessypris N, Spyridopoulos T, Trichopoulos D: A prospective population based study of childhood injuries: the Velestino town study. *Eur J Public Health* 2005, 15(1):9-14.
6. Fujiwara T, Yamaoka Y, Morisaki N: Self-Reported Prevalence and Risk Factors for Shaking and Smothering Among Mothers of 4-Month-Old Infants in Japan. *J Epidemiol* 2016, 26(1):4-13.
7. Yamamoto N, Honda C, Nagata S: Current trends and age-based differences of unintentional injury in Japanese children. *Biosci Trends* 2016, 10(2):152-157.

VERSION 2 – REVIEW

REVIEWER	Khaula Khatlani Griffin Hospital-Yale University, Connecticut, United States.
REVIEW RETURNED	18-May-2018
GENERAL COMMENTS	Tables 3,4,5 results section are useful addition. However, for the sake of clarity the numbers in these tables should be accompanied by percentages: n (%).
REVIEWER	Nashwa Nabil kamal Faculty of Medicine El Minia University, Egypt
REVIEW RETURNED	09-Jun-2018
GENERAL COMMENTS	Authors did all my required corrections
REVIEWER	Aisha Jafri Johns Hopkins School of Public Health, USA
REVIEW RETURNED	04-Jun-2018
GENERAL COMMENTS	(1) For the statement "The injury mechanism was defined as the injury that the respondent considered to be the most severe," how

	<p>was severity defined by the study?</p> <p>(2) The phrase "low social class" or "low class" can be interpreted as an offensive term in some settings. Low socioeconomic status would be more appropriate</p> <p>(3) The statement "Taken together, our data and those from previous studies, confirm that the relationship between unintentional injury and socioeconomic factors differs for each nation" requires a greater literature search</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Khaula Khatlani

Please leave your comments for the authors below

Tables 3,4,5 results section are useful addition. However, for the sake of clarity the numbers in these tables should be accompanied by percentages: n (%).

Response: We thank the reviewer for their careful review. We have added percentages to Tables 3, 4, and 5.

Reviewer: 3

Reviewer Name: Aisha Jafri

Please leave your comments for the authors below

(1) For the statement "The injury mechanism was defined as the injury that the respondent considered to be the most severe," how was severity defined by the study?

Response: We appreciate your comment. We defined the most severe injury as the injury mechanism considered the most severe when the child experienced multiple unintentional injuries. As suggested, we have added this information to the Methods section (page 6, line 118-120).

(2) The phrase "low social class" or "low class" can be interpreted as an offensive term in some settings. Low socioeconomic status would be more appropriate

Response: We appreciate this helpful suggestion. As requested, we have revised these phrases (page 24, line 215-216, 222).

(3) The statement "Taken together, our data and those from previous studies, confirm that the relationship between unintentional injury and socioeconomic factors differs for each nation" requires a greater literature search

Response: As requested, we have referenced other studies in this section1-4 (page 25, line 236).

Reviewer: 2

Reviewer Name: Nashwa Nabil kamal

Please leave your comments for the authors below

Authors did all my required corrections

Response: We appreciate your review.

Reference

1. de Lourdes Drachler M, de Carvalho Leite JC, Marshall T, et al. Effects of the home environment on unintentional domestic injuries and related health care attendance in infants. *Acta Paediatr* 2007;96(8):1169-73. doi: 10.1111/j.1651-2227.2007.00385.x
2. Nathens AB, Neff MJ, Goss CH, et al. Effect of an older sibling and birth interval on the risk of childhood injury. *Inj Prev* 2000;6(3):219-22.
3. Chowdhury AH, Hanifi SMA, Mia MN, et al. Socioeconomic inequalities in under-five mortality in rural Bangladesh: evidence from seven national surveys spreading over 20 years. *Int J Equity Health* 2017;16(1):197. doi: 10.1186/s12939-017-0693-9
4. Fang X, Jing R, Zeng G, et al. Socioeconomic status and the incidence of child injuries in China. *Soc Sci Med* 2014;102:33-40. doi: 10.1016/j.socscimed.2013.11.022