

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Differences between frequent emergency department users in a secondary rural hospital and a tertiary suburban hospital in central Japan: a prevalence study
AUTHORS	Kaneko, Makoto; Inoue, Machiko; Okubo, Masashi; Furgal, Allison; Crabtree, Benjamin; Fetters, Michael

VERSION 1 - REVIEW

REVIEWER	Lasse Raatiniemi Oulu University hospital, Finland
REVIEW RETURNED	28-Apr-2020

GENERAL COMMENTS	<p>This is a well performed observational study investigating frequent users in ED in Japan.</p> <p>The main concern is that results may not be directly generalizable to other countries. However, frequent use is a common problem and more studies are needed.</p> <p>The main limitation is that the severity/comorbidity of the frequent use is not reported.</p> <p>Introduction: I strongly recommend to shorten the introduction. In the current form it is too long and detailed. page 7 line 28-36 I recommend to move to discussion</p> <p>Methods: Describe the unemployment rate of the study region, median age etc. Geography.</p> <p>Results: A study flow chart is needed. Why do you not report missing data. If not any, state this. page 12 line 21-30: something is missing. What is comparator?</p> <p>Discussion: ok</p>
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REVIEWER	Yohann Chiu Université de Sherbrooke, Canada
REVIEW RETURNED	23-Jun-2020

GENERAL COMMENTS	<p>Thank you for the opportunity to review this manuscript by , investigating health care expenditures for frequent ED users in Japan. It is straightforward and the results are interesting. I have a few comments, though I suspect that they are minor.</p> <p>1) The abstract could benefit from 2-3 additional sentences,</p>
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	<p>especially in the Objectives section. I realize that there is no Background section, but this is important for readers, as they may be able to grasp the context and challenges earlier (in particular regarding abstract-only readers).</p> <p>2) At p.7 (of the proof), the authors say “In Japan, research on frequent ED users has been investigated in only one single center study”. Should this sentence be nuanced? For instance, the following reference could be included in the introduction and the discussion https://doi.org/10.15369/sujms.32.73 (though I realize it is very recent).</p> <p>3) Based on the discussion, I understand that differences in health care systems of Japan (e.g. Kaigo Hoken) and other countries may explain the very low proportion (0.66%) of frequent users found in this study. This is very interesting. However, this is one of the key result of the study and I feel that more could be said (for instance about other age categories). Could the authors elaborate a little more on these differences? This would help the reader understand the reasons why differences are so pronounced.</p> <p>4) The study by Takeuchi et al. also took place in a tertiary hospital, with a catchment area similar to the one in the present study (170,000 vs 167,000). What do the authors mean by “The differences may be attributable to a different setting” at p.15?</p> <p>5) There is an incomplete sentence at p.7: “Despite this international literature, research on frequent ED use in countries with well-developed comprehensive national health insurance such as Japan.”. In the same spirit, there is no period at the end of “For factors such as in-hospital death, receiving public assistance, use</p> <p>6) of ambulance and hospitalization, the majority were accounted for by the non-frequent ED users (1-4 visits)” (p.14).</p> <p>7) Table 1 legend should read “The secondary hospital is THE only public institution [...]”.</p> <p>8) The STROBE checklist has been rightly used and should be mentioned in the text in my opinion.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer 1

Thank you very much for your feedback. We hope that we addressed the problems you raised.

Reviewer’s comment #1

This is a well performed observational study investigating frequent users in ED in Japan.

The main concern is that results may not be directly generalizable to other countries. However, frequent use is a common problem and more studies are needed.

The main limitation is that the severity/comorbidity of the frequent use is not reported.

Response #1

As you indicated, limitations of this study include external validity of the findings and lack of information on the severity/comorbidity. We acknowledged these points as limitations. We are going to assess the severity/comorbidity in future research to overcome the limitation.

Reviewer’s comment #2

Introduction:

I strongly recommend to shorten the introduction. In the current form it is too long and detailed. page 7 line 28-36 I recommend to move to discussion

Response #2

In response to the reviewer's comment, we moved this part from the Introduction to the Discussion.

(page 27, lines 240-243)

These findings contrast with the previous Japanese study where 1.39% frequent ED users (≥ 4 visits/year) occupied 6.75% of all ED visits and the previous study did not report the utilized health care expenditures.

Reviewer's comment #3

Methods: Describe the unemployment rate of the study region, median age etc. Geography.

Response #3

In response to the reviewer's comment, we added the unemployment rate and proportion of the population aged 65 years and over in each city in Table 1.

Reference

Statistics of Japan, e-Stat: Portal Site of Official Statistics of Japan. <https://www.e-stat.go.jp/regional-statistics/ssdsview/municipality>. (in Japanese) (accessed July 1, 2020)

Reviewer's comment #4

Results: A study flow chart is needed.

Response #4

We added a study flow chart in Figure 1.

Reviewer's comment #5

Why do you not report missing data. If not any, state this.

Response #5

We were able to capture all reported variables without missingness. To clarify this point, we added the sentence as below.

(page 11, lines 187-188)

We did not have missing data for each reported variable.

Reviewer's comment #6

page 12 line 21-30: something is missing. What is comparator?

Response #6

We appreciate the opportunity to clarify this point. This was the comparison between frequent ED users and non-frequent ED users. Therefore, we edited the sentence as below in the Results section.

(page 12, lines 205-208)

The proportion of the patients among frequent ED users who used an ambulance ($p < 0.001$), who were admitted to a hospital ($p = 0.006$), or were evaluated by internal medicine ($p = 0.003$), surgery ($p = 0.001$), and orthopedics ($p < 0.001$) were lower than those of the non-frequent ED users.

Reviewer 2

We appreciate the opportunity to respond to the reviewer's comments.

Reviewer's comment #1

The abstract could benefit from 2-3 additional sentences, especially in the Objectives section. I realize that there is no Background section, but this is important for readers, as they may be able to grasp the context and challenges earlier (in particular regarding abstract-only readers).

Response #1

According to your suggestion, we revised the Objectives section in the abstract as below:

(page 3, lines 39-41)

Although frequent Emergency Department (ED) use is a global issue, little research has been conducted in a country like Japan where universal health insurance is available.

Reviewer's comment #2

At p.7 (of the proof), the authors say "In Japan, research on frequent ED users has been investigated in only one single center study". Should this sentence be nuanced? For instance, the following reference could be included in the introduction and the discussion
<https://doi.org/10.15369/sujms.32.73> (though I realize it is very recent).

Response #2

According to the comment, we added the reference and edited the sentences as below:

(page 7, lines 109-112)

In Japan, research on frequent ED users has been investigated in single center studies.^{11,12} Also, there is no research about health care expenditure of frequent ED users in Japan. For example, in the study by Takeuchi et al., they found frequent ED users comprised 1.4% of all ED users and occupied 6.8% of all ED visits.¹¹

Reference

Ikeda K, Harada T, Tarumi Y, et al. Association between Public Assistance and Frequent Emergency Department Visits in Urban Areas of Japan: A Case-Control Study. *Showa Univ J Med Sci.*2020;32(1):73-80

Reviewer's comment #3

Based on the discussion, I understand that differences in health care systems of Japan (e.g. Kaigo Hoken) and other countries may explain the very low proportion (0.66%) of frequent users found in this study. This is very interesting. However, this is one of the key result of the study and I feel that more could be said (for instance about other age categories). Could the authors elaborate a little more on these differences? This would help the reader understand the reasons why differences are so pronounced.

Response #3

In response to the reviewer's comment, we discussed age categories based on the previous literature. In our study, the proportion of patients who were older than or equal to 65 years among all ED visitors was 38.2%. This is relatively higher than those in the previous studies in other countries

such as 16.6%-22.1% (US) , 25.1% (Canada) and 34.5% (Taiwan). Therefore, older patients could not explain the low rate of frequent ED users in our study. Thus, we added the sentence as below.

(page 17, lines 278-284)

In our study, the proportion of patients who were older than or equal to 65 years among all ED visitors was 38.2%. This is relatively higher than those in the previous studies in other countries such as 16.6%-22.1% (US)^{28,29}, 25.1% (Canada)³⁰ and 34.5% (Taiwan)⁸. Therefore, older patients could not explain the low rate of frequent ED users in our study. Thus, as we discussed above, the Japanese health care systems such as Kaigo Hoken or universal health care coverage could explain our results.

Reference

Hunt KA, Weber EJ, Showstack JA, Colby DC, Callaham ML.Characteristics of Frequent Users of Emergency Departments. *Ann Emerg Med.* 2006;48(1):1-8

Knowlton A, Weir BW, Hughes BS et al. Patient demographic and health factors associated with frequent use of emergency medical services in a midsized city. *Acad Emerg Med.*2013;20(11):1101–1111

Reviewer's comment #4

The study by Takeuchi et al. also took place in a tertiary hospital, with a catchment area similar to the one in the present study (170,000 vs 167,000). What do the authors mean by “The differences may be attributable to a different setting” at p.15?

Response #4

Because the tertiary hospital in the study by Takeuchi et al. was located near a metropolitan area, the patients might visit the hospital from a wider range of areas compared with the present study's setting. Therefore, we clarified this point.

(page 15, lines 245-247)

Because this tertiary hospital was located near a metropolitan area, the patients might have visited the hospital from a wider range of areas compared with the present study's setting.

Reviewer's comment #5

There is an incomplete sentence at p.7: “Despite this international literature, research on frequent ED use in countries with well-developed comprehensive national health insurance such as Japan.”. In the same spirit, there is no period at the end of “For factors such as in-hospital death, receiving public assistance, use of ambulance and hospitalization, the majority were accounted for by the non-frequent ED users (1-4 visits)” (p.14).

Response #5

We revised the sentences as below:

(page 7, lines 106-109)

Although such studies about frequent ED use were conducted, research on frequent ED use is little in countries with well-developed comprehensive national health insurance such as Japan.

(page 13, lines 216-218)

For factors such as in-hospital death, receiving public assistance, use of ambulance and hospitalization, the majority were accounted for by the non-frequent ED users (1-4 visits).

Reviewer's comment #7

Table 1 legend should read "The secondary hospital is THE only public institution [...]".

Response #7

According to the reviewer's feedback, we revised the sentence as below:

(page 30, lines 476-477)

The secondary hospital is the only public institution for providing inpatient care for mental health in the area.

Reviewer's comment #8

The STROBE checklist has been rightly used and should be mentioned in the text in my opinion.

Response #8

We reported that we followed the STROBE checklist in the Methods section.

(page 8, lines 133-135)

In the present study, we followed the Strengthening the Reporting of Observational Studies in Epidemiology. (STROBE) statement.¹⁴

Reference

von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies [published correction appears in Ann Intern Med. 2008 Jan 15;148(2):168]. Ann Intern Med. 2007;147(8):573-577.

VERSION 2 – REVIEW

REVIEWER	Yohann M. Chiu Université de Sherbrooke, Canada
REVIEW RETURNED	12-Jul-2020

GENERAL COMMENTS	<p>The authors have successfully addressed all the previous comments. I have three minor comments left:</p> <p>1) Regarding the editor's previous comment, I do not understand how the fact that all ED patients were included is a strength for the manuscript (p. 5). Do the authors suggest a form of exhaustiveness in the data used?</p> <p>2) p.3 "global" should be written "global".</p> <p>3) p.8 There are two commas in the sentence "In the present study, we followed the Strengthening the Reporting of Observational studies in Epidemiology. (STROBE) statement.".</p>
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VERSION 2 – AUTHOR RESPONSE

Reviewer 2

We appreciate the opportunity to respond to the reviewer's comments.

Reviewer's comment #1

Regarding the editor's previous comment, I do not understand how the fact that all ED patients were included is a strength for the manuscript (p. 5). Do the authors suggest a form of exhaustiveness in the data used?

Response #1

According to your suggestion and to clarify our intention, we changed the strength of the manuscript as below.

(page 5, lines 74-78)

This study was an exhaustive investigation that evaluated all emergency department (ED) visitors over one year in the two hospitals. Including the entire population of eligible individuals precludes the need for inferential statistics and inherent risks of extrapolation had only a sample of eligible participants been chosen for investigation.

Reviewer's comment #2

p.3 "globall" should be written "global".

Response #2

We corrected the typo.

Reviewer's comment #3

p.8 There are two commas in the sentence "In the present study, we followed the Strengthening the Reporting of Observational studies in Epidemiology. (STROBE) statement.".

Response #3

We corrected the typo.