

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Measurement and prevalence of sexual harassment in low and middle income countries: a systematic review and meta-analysis
<b>AUTHORS</b>	Ranganathan, Meghna; Wamoyi, Joyce; Pearson, Isabelle; Stöckl, Heidi

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Aurora Ferrer-Perez, Victoria Univ Illes Balears, Psychology
<b>REVIEW RETURNED</b>	04-Feb-2021

<b>GENERAL COMMENTS</b>	<p>As I have indicated in the Review checklist, this paper meets the criteria set by these scientific journal to be published. However, some aspects have been detected that need to be reflected on and revised:</p> <ul style="list-style-type: none"><li>- Firstly, the keywords that appear on page 1 do not correspond to those that appear on page 3.</li><li>- Secondly, the title and abstract of the article present it as a systematic review, but the method of the abstract refers to a meta-analysis. Nor do the objectives mention that a meta-analysis will be performed.</li><li>- Thirdly, the meta-analysis that has been carried out includes only 3 papers. This seems a number too small to be able to draw any relevant conclusions.</li></ul> <p>In summary, it seems important to decide whether the results obtained with only 3 papers are relevant enough to be included. And, if they are, the use of the meta-analysis should be included in the title, abstract and objectives of the article.</p>
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<b>REVIEWER</b>	Cioffi, Andrea Sapienza University of Rome
<b>REVIEW RETURNED</b>	10-Feb-2021

<b>GENERAL COMMENTS</b>	Article methodologically correct and free of structural errors. The chosen topic is original. The article provides an overall view of the state of evidence to date.
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<b>REVIEWER</b>	Lu, Li University of Macau
<b>REVIEW RETURNED</b>	26-Feb-2021

<b>GENERAL COMMENTS</b>	The study systematically reviewed the measurement and prevalence of sexual harassment in low and middle income countries, 49 studies were finally included and the register number was provided. It is of great realistic significance, while several
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issues should be addressed before publication. I have some comments as follows:

#### Abstract

- It would be better to provide information concerning prevalence of sexual harassment in Results of the Abstract, as it is one of your main objectives. For example, summarize 'the measurement dimensions and techniques used to measure prevalence rates across these studies are heterogenous with no international comparability. This presented a challenge for calculating an overall estimate or measuring a range.'

#### Introduction

- Page5, Line 35: It is somewhat arbitrary to conclude that 'Most scientific research focused on sexual harassment has historically focused on high income countries (e.g., USA)'. For example, as I searched, one meta-analysis on the prevalence of sexual harassment towards nurses included several studies from low and middle income countries. (DOI: 10.1111/jan.14296). As what you have mentioned, publication bias could be resulted if only favor studies that sexual harassment features in the titles and abstract.

- Page5, Line 54: It would be more clear to clarify the source of women population, as you did for the following study in Ethiopia (i.e., college employees), which could help readership to understand the differences in prevalence rates of sexual harassment across settings as well as cultures.

- The authors addressed their intentions well.

#### Methods, Search strategy and selection criteria

- Although authors mentioned 'Search terms were the names of all countries in low and middle income settings and the term 'sexual harassment' in any abstract or title' and provided their search strategy in Appendix 1. To be honest, it is difficult for readers to repeat the search process.

- Please provide citation for inclusion criteria (2), i.e., low and middle income countries (as defined by World Bank country classifications)

#### Methods, Data screening, extraction, and appraisal

- Authors excluded studies on health care professionals (e.g., nurses and doctors), as this population was well studied with two meta-analyses focused exclusively on this group in China. Actually, as I commented previously, apart from citation [20] and [21], I also searched one meta-analyses on the worldwide prevalence of sexual harassment towards nurses, which should also be mentioned as reasons that you excluded health care professionals.

- Page7, Line 50: I am not sure what the 'outcome' means. Does it mean the detrimental effects of sexual harassment investigated in the included studies?

- I would like to suggest the authors to move the details that describing exclusion of some studies and selection process to the 1ar part of Results.

	<p>Methods, Data Analysis - Why did not the author pool the prevalence of sexual harassment?</p> <ul style="list-style-type: none"> <li>- Para2, Line 48-50: You have to explain why you chose depression as the indicator of poor mental health, since there are many other aspects of poor mental health apart from depression, such as anxiety, hopelessness, etc.</li> <li>- Para2, Line 48-50: pooled OR and its 95%CI?</li> <li>- Have you measured the heterogeneity across studies, if yes, what are the criteria? Did you assess the publication bias?</li> </ul> <p>Results, Description of included studies</p> <ul style="list-style-type: none"> <li>- Line 43-44, figure1 shows there are 49 studies, since <math>43/49=87.8\%</math>, why were there 75% of studies primarily focused on either a workplace or educational setting?</li> <li>- Besides, it confused me that <math>43 + 10</math> is not equal to 49 (Studies (75%, <math>n=43</math>) were primarily focused on either a workplace or educational setting, with only ten studies focused on public spaces, such as public transport, streets).</li> <li>- Page 10, Line 3-8: 'Most studies had small sample sizes with less than 500 participants (<math>n=33</math>), some were medium size samples of 500-5000 (<math>n=19</math>) and a handful of studies with sample sizes above 5000 (<math>n=3</math>)'. Please explain why the total number of included studies (<math>33+19+3</math>) is not 49.</li> <li>- Page 12: I do not see the necessity to list the second column of Table1 since it has been listed in the first column.</li> </ul> <p>Results, Measurement approach for sexual harassment</p> <ul style="list-style-type: none"> <li>- Page 14: Please merge those two paragraphs in P14, it is somewhat wordy and narrate repeatedly.</li> </ul> <p>Results, Prevalence of sexual harassment</p> <ul style="list-style-type: none"> <li>- This section provides a lot of information. Please provide the full names for abbreviations, such as SEQ, AAUW, ETQ-MH, although there are information in Tables, it is also necessary to provide the full name when they first appear in the main text.</li> </ul> <p>Results, Sexual harassment and associations with mental health</p> <ul style="list-style-type: none"> <li>- Please try to simplify the description, especially Para1 and Para2 of this part. You may add columns in Table 4 for, such as populations or settings (students or workplace), which could be more clear and neat.</li> <li>- Please elaborate it in the Methods part why did you synthesis the OR to explore the relationship between sexual harassment and depression symptoms rather than other mental health situations.</li> <li>- Did the two ORs obtained from Akoku et al' s study based on separate sample size? If two ORs was analysed within same sample size, I do not think that it would be reasonable to pool them together.</li> </ul>
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	<ul style="list-style-type: none"> <li>- Since the screening scale, i.e., GHQ-12, PHQ-9 and MHI-5 were used (as shown in Table 4), I do think depressive symptoms should be used rather depression.</li> </ul> <p>Discussion</p> <ul style="list-style-type: none"> <li>- Low acknowledgment is one of the possible explanations. However, are there any studies describing afraid of being isolated or discriminated and stigma may lead to low reporting rates?</li> <li>- It is better to elaborate the detrimental effects of sexual harassment rather than repeating findings,</li> <li>- Please provide practical policy recommendations.</li> <li>- Please try to describe only the main results in the results section, do not discuss</li> <li>- I am not sure whether you can conclude that women experience a higher prevalence than men. The meta-analysis on nurses (DOI: 10.1111/jan.14296), they conclude that compared with male nurses, female nurses reported lower prevalence of sexual harassment according to their meta-regression. Does excluding healthcare professionals make such a big difference?</li> </ul> <p>Limitation</p> <ul style="list-style-type: none"> <li>- You mentioned, 'A further definitional complexity is around the conflation of sexual harassment with sexual violence by some studies.' So were only those studies using the term, 'sexual harassment' included? Or those studies using 'sexual violence' were also included? Or both? Not being clear makes me very confused.</li> </ul>
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### VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

As I have indicated in the Review checklist, this paper meets the criteria set by these scientific journal to be published. However, some aspects have been detected that need to be reflected on and revised:

Firstly, the keywords that appear on page 1 do not correspond to those that appear on page 3. Thank you for this comment. The reason that the two sets of keywords are different is because the key words on page 1 are those that are in a drop down list by the journal. There appears to be little scope to change or add to it. The closest match of key words that aligned with this topic were selected.

The key words on page 3 are the ones that are most relevant to this article. We are happy to align them with the ones offered by the drop-down menu if advised to do so.

Secondly, the title and abstract of the article present it as a systematic review, but the method of the abstract refers to a meta-analysis. Nor do the objectives mention that a meta-analysis will be performed.

We have included meta-analysis in the title and also mention it in the objectives section of the abstract.

Thirdly, the meta-analysis that has been carried out includes only 3 papers. This seems a number too small to be able to draw any relevant conclusions. In summary, it seems important to decide whether the results obtained with only 3 papers are relevant enough to be included. And, if they are, the use of the meta-analysis should be included in the title, abstract and objectives of the article.

We thank the reviewer for this feedback. We agree that a meta-analysis on three studies is a very small number and conclusions drawn have to be considered with caution (this is mentioned in the limitations section). This was primarily due to heterogeneity among outcome measures in almost all studies. We however believe that the meta-analysis should be included, as it provides the first pooled estimate of the association between sexual harassment and depression. And it highlights the need for better designed studies that link sexual harassment with depression and other mental health outcomes. Accordingly, we have included meta-analysis in the title, abstract and objectives of the article.

Reviewer: 2

Article methodologically correct and free of structural errors. The chosen topic is original. The article provides an overall view of the state of evidence to date.

We thank the reviewer for this feedback.

Reviewer: 3

The study systematically reviewed the measurement and prevalence of sexual harassment in low and middle income countries, 49 studies were finally included and the register number was provided. It is of great realistic significance, while several issues should be addressed before publication. I have some comments as follows:

Abstract

It would be better to provide information concerning prevalence of sexual harassment in Results of the Abstract, as it is one of your main objectives. For example, summarize 'the measurement dimensions and techniques used to measure prevalence rates across these studies are heterogeneous with no international comparability. This presented a challenge for calculating an overall estimate or measuring a range.'

We thank the reviewer for this comment and have made a small tweak to the abstract on page 2 in keeping with the word count.

Introduction

-Page5, Line 35: It is somewhat arbitrary to conclude that 'Most scientific research focused on sexual harassment has historically focused on high income countries (e.g., USA)'. For example, as I searched, one meta-analysis on the prevalence of sexual harassment towards nurses included several studies from low and middle income countries. (DOI: 10.1111/jan.14296). As what you have mentioned, publication bias could be resulted if only favour studies that sexual harassment features in the titles and abstract.

Thank you for this comment and for highlighting this meta-analysis. We have clarified this statement to specify that early research on sexual harassment focused on high income-countries. The sentence reads as:

Early scientific research on sexual harassment has focused on high income countries (e.g., USA) [15], [16]. For example, the 1992 U.S. National Health and Social Life Survey found the prevalence of workplace sexual harassment as 41% in women and 32% in men [17].

-Page5, Line 54: It would be more clear to clarify the source of women population, as you did for the following study in Ethiopia (i.e., college employees), which could help readership to understand the differences in prevalence rates of sexual harassment across settings as well as cultures.

Thank you. We have clarified that the sample was women in a general population sample. The sentence now reads as:

An epidemiological survey in China found that 12.5% of all women in a general population sample overall had experienced sexual harassment within the past year [19]

-The authors addressed their intentions well.

#### Methods, Search strategy and selection criteria

Although authors mentioned 'Search terms were the names of all countries in low and middle income settings and the term 'sexual harassment' in any abstract or title' and provided their search strategy in Appendix 1. To be honest, it is difficult for readers to repeat the search process.

We acknowledge that the search strategy is long, but we wanted to ensure that all potential articles in low- and middle-income countries could be sourced, and this is only possible by using every country name that might appear in the title, including potential differences in spelling, e.g. Viet Nam and Vietnam. Even though it stretches over six pages because of that, it took less than 30 minutes to replicate the search strategy in different databases.

Please provide citation for inclusion criteria (2), i.e., low and middle income countries (as defined by World Bank country classifications).

Thank you. We have added this citation on page 7.

#### Methods, Data screening, extraction, and appraisal

-Authors excluded studies on health care professionals (e.g., nurses and doctors), as this population was well studied with two meta-analyses focused exclusively on this group in China. Actually, as I commented previously, apart from citation [20]and [21], I also searched one meta-analyses on the worldwide prevalence of sexual harassment towards nurses, which should also be mentioned as reasons that you excluded health care professionals.

We thank the reviewer for suggesting this additional citation and have included it as part of the explanation for excluding studies of health professionals.

-Page7,Line 50: I am not sure what the 'outcome' means. Does it mean the detrimental effects of sexual harassment investigated in the included studies?

Yes, when we mention outcomes, we refer to the negative effects of sexual harassment that ranged from sleep disorders to mental health issues. We have clarified this in the text on page 7.

-I would like to suggest the authors to move the details that describing exclusion of some studies and selection process to the 1st part of Results.

Thank you. We have moved it to the earlier section on page 7.

Methods, Data Analysis

-Why did not the author pool the prevalence of sexual harassment?

Thank you for this question. The main reason we did not pool the prevalence of sexual harassment is due to a high level of heterogeneity across studies. There was inconsistency in study definitions of sexual harassment, differences in the types of measurement tools to estimate prevalence, particularly with regards to the measurement approach (e.g., some studies used a direct query approach, and some studies used a series of behavioural questions). Hence, in some studies, certain acts had a very high prevalence figure, whereas in some studies, a direct question would have a high prevalence rate.

-Para 2, Line 48-50: You have to explain why you chose depression as the indicator of poor mental health, since there are many other aspects of poor mental health apart from depression, such as anxiety, hopelessness, etc.

Thank you for this feedback. We were keen to include as many studies as possible in the mental health pooled indicator. But there were only three studies that were sufficiently similar in their measures of depression that allowed us to pool the ORs. Future studies should include other aspects of mental health and we have now included it as a future research question on page 24.

-Para 2, Line 48-50: pooled OR and its 95%CI?

We have amended the text to include 95% CI.

-Have you measured the heterogeneity across studies, if yes, what are the criteria? Did you assess the publication bias?

We did not measure heterogeneity across all studies, just the three studies included in the meta-analysis. As the other studies are being analysed through a narrative review, we do not think it is useful to measure heterogeneity as we are not pooling the results. Further, as discussed in the paper, there was heterogeneity across studies by study settings, definitions, measures of sexual harassment, outcomes measured, hence it was not possible to pool prevalence estimates.

Usually, a funnel plot would be used to assess publication bias. However, Cochrane guidelines state that: "As a rule of thumb, tests for funnel plot asymmetry should be used only when there are at least 10 studies included in the meta-analysis, because when there are fewer studies the power of the tests is too low to distinguish chance from real asymmetry." With all methods for assessing publication bias, they are impacted by the sample size (in our case very small) so it would be best to conclude that due to only including three studies, we cannot rule out that the results are not impacted by publication bias

Results, Description of included studies

-Line 43-44, figure 1 shows there are 49 studies, since  $43/49=87.8\%$ , why were there 75% of studies primarily focused on either a workplace or educational setting?

We apologise for this mistake. The number of studies focused on either a workplace or educational setting were 38 studies (77.5%). We have amended this on page 9/10.

-Besides, it confused me that  $43 + 10$  is not equal to 49 (Studies (75%,  $n=43$ ) were primarily focused on either a workplace or educational setting, with only ten studies focused on public spaces, such as public transport, streets.

Based on the above correction, 38 studies on workplace or educational setting and 11 studies on public spaces, such as public transport, streets or the community. The sentence on page 9 now reads as:

Studies (77.5%,  $n=38$ ) were primarily focused on either a workplace or educational setting, with only studies focused on public spaces, such as public transport, streets or the community

-Page 10, Line 3-8: 'Most studies had small sample sizes with less than 500 participants ( $n=33$ ), some were medium size samples of 500-5000 ( $n=13$ ) and a handful of studies with sample sizes above 5000 ( $n=3$ )'. Please explain why the total number of included studies ( $33+19+3$ ) is not 49.

Again, apologies for this error. For studies with less than 500 participants ( $n=28$ ), 500-5000 ( $n=18$ ) and above 5000 ( $n=3$ ). The sum total is 49. We have made this correction on page 10.

-Page 12: I do not see the necessity to list the second column of Table 1 since it has been listed in the first column.

We have deleted the second column with the dates of the studies.

Results Measurement approach for sexual harassment

-Page 14: Please merge those two paragraphs in P14, it is somewhat wordy and narrate repeatedly.

We have tried to edit this section and reduce words. We have kept to two paragraphs as the first paragraph described the approach to measurement (direct query/behavioural series of questions or physical/verbal/non-verbal sexual harassment) and the second paragraph refers to the scales used to measure sexual harassment.

Results, Prevalence of sexual harassment

-This section provides a lot of information. Please provide the full names for abbreviations, such as SEQ, AAUW, ETQ-MH, although there are information in Tables, it is also necessary to provide the full name when they first appear in the main text.

Thank you for raising this comment. We have elaborated the acronym when they first appear in the text after the table.

Results, Sexual harassment and associations with mental health

-Please try to simplify the description, especially Para1 and Para2 of this part. You may add columns in Table 4 for, such as populations or settings (students or workplace), which could be more clear and neat.

We have tried to streamline these two paragraphs and have added a column for the 'type of setting' in table 4.

-Please elaborate it in the Methods part why did you synthesise the OR to explore the relationship between sexual harassment and depression symptoms rather than other mental health situations.

Thank you for this comment. The reason we focused on symptoms of depression is because there were eight studies that presented mental health outcomes. After assessing the outcomes, it was concluded that the outcomes of depression, depressive symptoms and common mental disorders (including depression) could be combined for an overall outcome measure of depression as they were similar enough in their outcome definition. Four studies presented depression outcomes, but one did not provide the relevant data to be included in the meta-analysis (Zhu et al., 2019). This left the three studies with the depression outcomes to be pooled. (Akoku et al., 2019; Fernandes et al., 2012; Marsh et al., 2009)

Regarding the other four studies, the outcomes presented were 'psychological distress', (2 studies) 'mental health' and 'work related sleep problems'. One of the psychological distress studies (Norman et al, 2013) did not provide the relevant data, neither did the study presenting the 'mental health' outcome (Maurya et al 2014). The outcome of 'work related sleep problems' (Park et al, 2013) and the remaining 'psychological distress' (Mamaru et al., 2015) outcomes were not deemed similar enough to the measures of depression that we planned to include.

We have included some text below on page 8 to briefly mention this as we are limited by the word count:

Given the high heterogeneity across studies, we conducted a meta-analysis of only three studies that presented odds ratios (ORs) for exposure to sexual harassment on the outcome of poor mental health, namely depressive symptoms. We focused on depressive symptoms, as from all the studies that measured symptoms of poor mental health, only three studies were similar in their study definition, had extractable information and showed associations with symptoms of depression.

-Did the two ORs obtained from Akoku et al's study based on separate sample size? If two ORs was analysed within same sample size, I do not think that it would be reasonable to pool them together.

Thank you for bringing this to our attention. You are correct in that the two ORs from Akoku et al., 2019 should not have been pooled. Akoku et al., present seven ORs for the association between various forms of sexual harassment and the outcome of depression.

We have now pooled these Akoku ORs in order to produce one overall OR to represent the findings of this study to be included in the meta-analysis. Unfortunately, Akoku et al., does not provide frequency distributions for the variables, so we were unable to create an overall OR using the exact numbers.

-Since the screening scale, i.e., GHQ-12, PHQ-9 and MHI-5 were used (as shown in Table 4), I do think depressive symptoms should be used rather depression.

Thank you. Based on your feedback and the screening scale, we have used depressive symptoms instead of depression.

## Discussion

-Low acknowledgment is one of the possible explanations. However, are there any studies describing afraid of being isolated or discriminated and stigma may lead to low reporting rates?

We agree and have included text on page 24 on other reasons that were mentioned in a few studies on reasons for low reporting rates at the workplace and at schools. The text now reads as:

Furthermore, apart from measurement being an issue for under-reporting, in the workplace, fear of a negative impact on their jobs, feeling embarrassed, fear of being discriminated against by work colleagues, or a fear that their report will not be taken seriously are other reasons for low reporting rates. In school settings, fear of negative reprisal from teachers and peers, normalisation of sexual harassment and not being able to recognise it can also result in under-reporting,

-It is better to elaborate the detrimental effects of sexual harassment rather than repeating findings.

We thank the reviewer and have added a bit more text to page 24:

There is strong agreement that the consequences of sexual harassment are manifold and serious, irrespective of whether the focus of research is employees in working life or students and staff in higher education [11]. Research from high income countries have shown the impact of sexual harassment on depressive symptoms [90]. In our review, there is evidence of a significant negative association between sexual harassment and symptoms of depression. There however needs to be more empirical research in this area from LMICs by setting and different mental health outcomes, such as risk of anxiety, depression, post-traumatic stress disorder, as well as diminished self-esteem, self-confidence, and psychological well-being.

- Please provide practical policy recommendations.

The current systematic review and meta-analysis is focused on the prevalence, measurement and health effects of sexual harassment. We did not include any interventions in low- and middle-income countries. Given that we did not specifically look for intervention studies on preventing sexual harassment, we only feel comfortable to make the following statement on page 26:

As there is no sign that sexual harassment is abating, there is an urgent need to improve the measurement of sexual harassment and improved measures are particularly critical for large, repeat nationally representative surveys. Further, with improved measures and a better understanding of the prevalence of this issue, by setting, policies and programmes can be designed accordingly.

-Please try to describe only the main results in the results section, do not discuss.

We have attempted to make sure that there is no discussion in the results section.

-I am not sure whether you can conclude that women experience a higher prevalence than men. The meta-analysis on nurses (DOI: 10.1111/jan.14296), they conclude that compared with male nurses,

female nurses reported lower prevalence of sexual harassment according to their meta-regression. Does excluding healthcare professionals make such a big difference?

Thank you for this comment. We have added text on page 22 and 23 to clarify this:

For the 30 studies that were conducted on males and females, 19 studies disaggregated prevalence rates by sex and in all studies, except one study [70], females reported a higher prevalence of sexual harassment than males. In the one study [70] when there was higher reporting by males, it was related to the age difference between the individuals and the perpetrators who were in positions of authority. This aligns with evidence from high-income settings that some behaviours are more likely to be perceived as harassing by both sexes if they are engaged in by someone who has higher status or formal authority over the harassed. When there is no status differential the immediate threat is not apparent, which may elicit actual gender differences in how events are interpreted; men may perceive the behaviour as harmless social interaction, women may perceive an element of threat [88]. However, it is difficult to conclude that females experience a higher prevalence of sexual harassment than men as this varies by study setting. For instance, a global meta-analysis of nurses and workplace sexual harassment conclude that compared with male nurses, female nurses reported a lower prevalence of sexual harassment. However, this may also have to do with under-reporting of sexual harassment by females due to reasons, such as shame and embarrassment [28].

Limitation-You mentioned, 'A further definitional complexity is around the conflation of sexual harassment with sexual violence by some studies.' So were only those studies using the term, 'sexual harassment' included? Or those studies using 'sexual violence' were also included? Or both? Not being clear makes me very confused.

We only included studies that used the term 'sexual harassment' In fact, we excluded three studies that reported measuring sexual harassment, but measured sexual violence that was explicitly defined and measured as sexual violence or sexual abuse in the study with forced sex or rape (mentioned on page 14). The reason we raise it in the limitations section is to outline the issue around definitional complexity and the need to separate out sexual harassment from sexual violence. We have attempted to clarify this on page 25.

#### VERSION 2 – REVIEW

<b>REVIEWER</b>	Aurora Ferrer-Perez, Victoria Univ Illes Balears, Psychology
<b>REVIEW RETURNED</b>	08-Apr-2021

<b>GENERAL COMMENTS</b>	The authors have made all the requested modifications
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<b>REVIEWER</b>	Lu, Li University of Macau
<b>REVIEW RETURNED</b>	11-Apr-2021

<b>GENERAL COMMENTS</b>	Authors addressed my comments very well.
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