PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Worldwide prevalence of obesity among firefighters: a systematic review protocol
AUTHORS	Melo Keene von Koenig Soares, Edgard; Smith, Denise; Grossi Porto, Luiz Guilherme

VERSION 1 – REVIEW

REVIEWER	Jane Brice MD, MPH Professor University of North Carolina USA
REVIEW RETURNED	15-May-2019

GENERAL COMMENTS	Thank you for the opportunity to review this interesting manuscript. I hope my suggestions will be useful to you in revision. Abstract 1. Please include information about your outcomes in the methods section of the abstract. 2. In the article summary section, I do not think that being the "first" to do something is a strength or a weakness. Introduction 1. There are many grammatical and syntax errors in the work. Examples below. a. First sentence, public is repeated. b. First sentence second paragraph, delete "the" before firefighters. c. Line 56, page one – "firefighter's career" 2. The introduction is good but fails to explain why this work is important. I get that obesity is bad but what will a global perspective tell us? How will this help us understand the problem better? How will it inform our interventions? 3. In your objectives, I do not think age will help you to understand or distinguish recruits from experienced professionals. A person may be a recruit at 35 or have been in the fire service for 15 years. You can't tell from their age. Methods 1. Why did you choose those databases? There are others that might help you more such as CINAHL. 2. What is BF%? Please spell out the first usage. 3. I am extreme concern about your plan to include only studies written in English, Spanish, and Portuguese. This leaves out all of Asia, much of Europe, and all of Russia. It seems to me VERY hard to determine global obesity rates when you leave out at least half of the world. I firmly believe you should modify your title and objective to reflect the population you will be studying. 4. It would add strength to your study to have a second reviewer extract data from a random sample of the selected studies to

	ensure accurate data collection and entry. A Kappa should be measured as well. 5. In the quality assessment section, who will the reviewers be? 6. How will the analysis be handled? Do you intend a meta-analysis?

REVIEWER	Philippe Gendron Ph.D. student (Biomedical sciences) Department of Anatomy Université du Québec à Trois-Rivières Québec Lecturer (Kinesiology) Department of Physical Activity Sciences Université du Québec à Trois-Rivières Québec
REVIEW RETURNED	22-May-2019

GENERAL COMMENTS	Definitively, this systematic review protocol is relevant to study obesity prevalence in the fire service and its peculiarities by country and region, job status, type of firefighter and gender. It should add substantive and reliable information to the fire service and occupational health literature. However, a few clarifications/modifications would help improve the paper before publication. First, I checked carefully if it is reported in the manuscript that the systematic review is planned or in progress but couldn't find anything. As it is requested by the editors, the date of the study should be included in the manuscript. In the introduction, it is mentioned that 33% of the recruits were obese in one study conducted in Massachusetts. It is important however to mention that this sample of participants was composed of firefighters and ambulance personnel. Or, is there another study that reports obesity prevalence in firefighter recruits only? The objectives are concise and relevant. The last one proposes to determine if obesity prevalence has changed over the years in the Fire Service In other words, is obesity prevalence a function only of age and years of service, or also of the time period? In the table, it is mentioned that overweight prevalence is an outcome. This overweight prevalence should be cautiously interpreted, knowing that the 'BMI ≥ 25 kg/m2' criterion misclassified a high proportion of male firefighters in many studies, as is widely known. In the data analysis section, one can read: "Whenever it is not possible to have a non-firefighter representative data set from the population, data from WHO will be sought". Should one understand that national databases of all represented regions will supply the main stream of the data, and if no data are available in a given region, data from WHO will be sought? What will be the procedure to find population data in regions where national databases are only available in languages other than English, Portuguese or Spanish? It is likely that most published articles are in English, even when the study (of obesity prevalence in firefighters) was run in a region where the official language is not English, Portuguese or Spanish. In such cases, and to obtain population data of the corresponding region, a procedure must be set up, and described, to obtain, compile and interpret these foreign data. Again in the data analysis section, consider the following sentence: "If possible, we will compare the US data in regard to

	the region of the country that the data came from". If the statement means: "For US data, firefighters' data stemming from a state/region will be compared to population data of the same region when available.", it would be relevant to do the same for all countries (when regional data are available) to add precision and relevance to the comparisons: it is frequent to observe considerable cultural/political differences between regions in a same country.

REVIEWER	Freya MacMillan Western Sydney University, Australia
REVIEW RETURNED	26-Aug-2019

GENERAL COMMENTS	The topic area is important and this review could be useful to highlight the need for strategic interventions for firefighters. However, as it currently stands, this protocol needs a lot of refining before it is publishable in I do not think this manuscript is of quality to be published in BMJ. My main concern about this manuscript is that the search strategy has not been constructed well and this flaw makes me hesitant around the rigour of remaining elements of the manuscript. The search strategy has not been described in terms of PICO and is limited. The manuscript also requires careful proof editing by someone with English as their first language. I have given specific feedback on the writing up until the end of the Introduction section only but there are similar typos and sentence structure issues throughout the manuscript that would need to be addressed prior to considering publication. British spelling is also required throughout (eg analysed not analysed). Intro • Introduction, first sentence: does not make sense. Delete the second 'public.' • Line 26: 'high' rather than 'highly.' • Page 4, final sentence: 'career' rather than 'careers.' • Page 5, line 35: delete 'the' before 'US adults.' What do you mean by US adults? The general US adult population? Line 37: 'other' rather than 'others.' New sentence required in line 41 starting 'German firefighters.' Methods: • BF abbreviation needs defined. • There are issues with the way the search strategy has been put together. All 3 dot points should be combined and terms such as body mass index should be grouped together otherwise these individual terms will blow out the search immensely. Truncation should be used too. There are other key terms that have not been considered, such as BMI. Eg the terms should be displayed as ((Firefight*) AND (obesity or overweight or weight or excess weight or adiposity or waist or 'body mass index' or BMI or 'body fat')). • Line 7 on page 7 is not clear to me. Limitations around searching should consider whether there is a limit on the year of publications of included articles that you will include (eg published anytime or with a date limit). What is currently written here is not relevant or clear. • Line 37 page 7: what do you mean by 'obesity based on other variables?' This is not clear.

	• Data extraction, page 7: It is not time efficient or necessary for 2 reviewers to independently perform the database searches. Did you rather mean that 2 reviewers would independently review returned hits based on title and abstract? • It is stated that authors will not be contacted for additional information as all information should be reported in manuscripts. This is an incorrect statement. As is very commonly understood in research literature, should be reported and actual reporting are not the same. You will undoubtedly come across some missing information. It is worth considering attempting to contact authors and allowing them the chance to provide any missing information. • Line 18, page 18: what results from the 2 reviewers will be shared? The list of included studies or the data that they have extracted from included papers? Or are you referring to ratings of quality of studies? This whole data extraction section is written unclearly. What data is reviewer EMKVKS extracting? What do you mean by difficulties in data storage? • Can you describe the main areas of study design and conduction that the risk of bias tool explores (eg what are the 9 questions examining – is it things like validity/reliability of the measurement tools etc)? • Data analysis – it would be useful to explore the possibility of some association analyses rather than just a narrative analysis. Later you talk about comparing obesity prevalence based on various characteristics – it sounds like you are doing statistical analyses then? You need to report what statistical analyses you will be undertaking and why (eg is it to explore associations between obesity and sample characteristics?). Are you suggesting to actually do your own analyses of the NHANES and other data with data from your review OR rather will you discuss your findings in the context of population level data in your discussion? This needs to be clear. • Why does data for men and women have to be presented separately to be included in your review? Justification is not provided for this It would have been useful to end with a summary for why this review is important – why is this review so necessary to be undertaken? What will it add to already existing literature? Have any previous reviews of firefighters been conducted? What did they find?

VERSION 1 – AUTHOR RESPONSE

Reviewer #1: Abstract
Please include information about your outcomes in the methods section of the abstract

--Thank you for your comment. The method and analysis section has been updated to incorporate this, and other changes in the manuscript.

Reviewer #1: Abstract
In the article summary section, I do not think that being the “first” to do something is a strength or a weakness.

--Thank you for your comment. We humbly disagree with the reviewer. We do understand what the reviewer means, that this is not a direct strength that emanates from the research methods of the protocol; however, novelty is often something evaluated in research and considered a strength.

Reviewer #1: Introduction
There are many grammatical and syntax errors in the work. Examples below. a. First sentence, public is repeated. b. First sentence second paragraph, delete "the" before firefighters. c. Line 56, page one – "firefighter's career"

--We thank all reviewers for their comments. Due to comments related to typos and/or minor language errors, the manuscript has undergone a full and in-depth review by one of our senior authors, who is a native speaker.
All recommended changes have been made.

Reviewer #1: Introduction
The introduction is good but fails to explain why this work is important. I get that obesity is bad but what will a global perspective tell us? How will this help us understand the problem better? How will it inform our interventions?

--Thank you for your comment. The end of the introduction has been updated with the following statement:
"There is an important need to understand the obesity prevalence in the Fire Service due to its relation to health and job performance. Understanding if this is a phenomenon isolated to US firefighters or occurring globally. It is also important to understand potential factors that could be associated with such phenomenon, from ageing to job status. An increased understanding of obesity would be important for fire service leaders and policymakers in order to create effective strategies to decrease obesity and lead to better health and job performance in the Fire Service".

Reviewer #1: Introduction
In your objectives, I do not think age will help you to understand or distinguish recruits from experienced professionals. A person may be a recruit at 35 or have been in the fire service for 15 years. You can't tell from their age.

--Thank you for your comment. We agree with your statement and have adjusted the text, excluding the comparison between recruits and experienced firefighters. However; we will collect data on years of service when available.

Reviewer #1: Methods
Why did you choose those databases? There are others that might help you more such as CINAHL.

--Thank you for your insightful comment. We chose PubMed, Medline, Web of Science and Sportdiscus because we believe that firefighter research will be published more frequently in occupational medicine journals and/or exercise/fitness journals, which are adequately represented in these databases. However, due to your suggestion, we consulted reference librarians from the Universidade de Brasília and added the following databases:
Academic Search Premier (EBSCO), CINAHL (EBSCO), SciTech Premium Collection (ProQuest), Sports Medicine & Education Index (ProQuest), Research Library (ProQuest), and Scopus.
The manuscript has been adjusted accordingly.

Reviewer #1: Methods
What is BF%? Please spell out the first usage

--Thank you for your comment. It has been spelled out.

Reviewer #1: Methods
I am extreme concern about your plan to include only studies written in English, Spanish, and Portuguese. This leaves out all of Asia, much of Europe, and all of Russia. It seems to me VERY hard

to determine global obesity rates when you leave out at least half of the world. I firmly believe you should modify your title and objective to reflect the population you will be studying.
--Thank you for your insightful comment. The authors agree that ideally, every possible language should be used to perform the search e.g., Chinese, Greek, Japanese, German and etc. However, we believe that this procedure might not be strictly necessary or feasible, since it's not possible to cover all available languages in the world. There are various journals that are not based in English speaking countries that publish articles in English to increase visibility. In a pilot search using our terms, we found papers (published in English) from the following countries: Iran, Brazil, Italy, Russia, South Korea, Chile, Germany, Croatia. This section of the eligibility has been updated. Also, Medline/Pubmed retrieves some journals that have only the abstract in English. If this happens during data collection procedures, we will do our best to translate it or, if translation is not possible, include a specific point of limitation in the manuscript, reporting the quantity. Of note, other systematic reviews on different health-related outcomes associated with obesity prevalence retrieved on Medline/Pubmed use only English or English plus author's native languages as inclusion criteria. The manuscript has been updated accordingly.

Reviewer #1: Methods
It would add strength to your study to have a second reviewer extract data from a random sample of the selected studies to ensure accurate data collection and entry. A Kappa should be measured as well.

--Thank you for your comment. Due to comments from reviewers, we have decided to have two reviewers perform the data extraction. Cohen's Kappa coefficient will be calculated both for data collection and entry. Of note, any disagreement will be solved by one of the senior authors, as already stated. This section has been updated in the manuscript.

Reviewer #1: Methods
In the quality assessment section, who will the reviewers be?

--Thank for your question. Quality assessment will be performed by one of the protocol authors (EMKVK) and another invited reviewer who did not actively participate in the study design and in writing of this protocol. The second reviewer will be a co-author of the final study.

Reviewer #1: Methods
How will the analysis be handled? Do you intend a meta-analysis?

--Thank you for your important comment. Data analysis will be descriptive. We believe that socio-cultural differences among firefighters from different countries/regions and institutions around the world lends itself to a more qualitative appreciation of data; thus, we are not performing a meta-analysis. When we mention prevalence comparison based on characteristics, we intended to describe prevalence and 95% confidence interval in a table or graph. Regarding the NHANES analysis, this section has been rewritten, and we believe that the issue has been clarified.

Reviewer #2:
First, I checked carefully if it is reported in the manuscript that the systematic review is planned or in progress but couldn't find anything. As it is requested by the editors, the date of the study should be included in the manuscript.

--Thank you for your comment. We updated the manuscript accordingly. We also updated the registration at PROSPERO, so the status of the review can be monitored.
"The systematic review process will start once the protocol has been gone through full external peer review process at the BMJ Open (estimated date: 12 January 2020)".

Reviewer #2:
In the introduction, it is mentioned that 33% of the recruits were obese in one study conducted in Massachusetts. It is important however to mention that this sample of participants was composed of firefighters and ambulance personnel. Or, is there another study that reports obesity prevalence in firefighter recruits only?
--Thank you for your insightful comment. That is an important correction to be made; the manuscript has been adjusted as follows:

"Several studies have reported that US firefighter recruits begin their career with an elevated BMI [24–26]. Few studies report the actual obesity prevalence within firefighter recruits. One study performed in Tucson, Arizona reported an obesity prevalence of 15.6% in firefighter recruits [27]. A separate study from Massachusetts that included both firefighter and ambulance personnel recruits found a prevalence of 33%[28]. Research has also shown that a significant weight gain occurs during a firefighter's career [28,29]. A recent case-control study which retrospectively examined all available autopsy records of US firefighters between 1999 and 2014 has shown obesity prevalence estimates as high as 59.2% among firefighters who died due to cardiac issues (cardiac cases) and 47.7% among noncardiac trauma controls [15]".

Reviewer #2:
The objectives are concise and relevant. The last one proposes to determine if obesity prevalence has changed over the years in the Fire Service In other words, is obesity prevalence a function only of age and years of service, or also of the time period?

--Thank you for your comment. Yes, that is correct. We believe that both objectives will help us try to answer this important question.

Reviewer #2:
In the table, it is mentioned that overweight prevalence is an outcome. This overweight prevalence should be cautiously interpreted, knowing that the 'BMI ≥ 25 kg/m2' criterion misclassified a high proportion of male firefighters in many studies, as is widely known.

--Thank you for your comment. We absolutely agree with your concern. BMI ≥ 25 kg/m2 is not an adequate criterion to identify obese firefighters, however, in the general population having a BMI between 25-29.9 kg/m2 is associated to different health outcomes than having a BMI of 18.5-24.9 kg/m2. Thus, reporting overweight prevalence in FFs is also important since future research may identify either positive or negative health outcomes that occur differently in "overweight" FFs. We will extract data on overweight and obesity as they are published, based on author's definition. In the manuscript, we will highlight that overweight FF should not be considered as obese.

Reviewer #2:
In the data analysis section, one can read: "Whenever it is not possible to have a non-firefighter representative data set from the population, data from WHO will be sought". Should one understand that national databases of all represented regions will supply the main stream of the data, and if no data are available in a given region, data from WHO will be sought? What will be the procedure to find population data in regions where national databases are only available in languages other than English, Portuguese or Spanish? It is likely that most published articles are in English, even when the study (of obesity prevalence in firefighters) was run in a region where the official language is not English, Portuguese or Spanish. In such cases, and to obtain population data of the corresponding region, a procedure must be set up, and described, to obtain, compile and interpret these foreign data.

--Thank you for your important comment. In order to clarify this, that section has been re-written:
"In order to compare firefighter data with the general population, we will utilise the World Health Organization's (WHO) age-standardised obesity prevalence that is available for almost all countries. In case a study already provides an age-standardised obesity prevalence of its country of origin[38,39], this data will have priority over the WHO data. When possible, we will compare firefighter vs general population-based obesity using a table or figure.
Since obesity is a multidimensional issue, its prevalence may vary significantly from region to region, particularly in large countries. Thus, we will attempt to perform a comparison between the general adult population from the region or state from which study participants belong. US state data will be retrieved from the Centers for Disease Control and Prevention database (Behavioral Risk Factor Surveillance System). Brazil's regional comparison will be performed using information from the "Vigilância de Doenças Crônicas por Inquérito Telefônico" database. For state or regional data from other countries, researchers will attempt to contact authors via e-mail to request information if such data is available and could be shared by the authors; a maximum of two attempts will be performed, each one separated by one week. In case state or regional data is already available in a manuscript from the same country, it will be used for comparison".

Reviewer #2:
Again in the data analysis section, consider the following sentence: “If possible, we will compare the US data in regard to the region of the country that the data came from”. If the statement means: “For US data, firefighters’ data stemming from a state/region will be compared to population data of the same region when available.”, it would be relevant to do the same for all countries (when regional data are available) to add precision and relevance to the comparisons: it is frequent to observe considerable cultural/political differences between regions in a same country

--Thank you for your important comment. In order to clarify this, that section has been re-written:
“Since obesity is a multidimensional issue, its prevalence may vary significantly from region to region, particularly in large countries. Thus, we will attempt to perform a comparison between the general adult population from the region or state from which study participants belong. US state data will be retrieved from the Centers for Disease Control and Prevention database (Behavioral Risk Factor Surveillance System). Brazil’s regional comparison will be performed using information from the “Vigilância de Doenças Crônicas por Inquérito Telefônico” database. For state or regional data from other countries, researchers will attempt to contact authors via e-mail to request information if such data is available and could be shared by the authors; a maximum of two attempts will be performed, each one separated by one week. In case state or regional data is already available in a manuscript from the same country, it will be used for comparison”.

Reviewer #3: Introduction
Introduction, first sentence: does not make sense. Delete the second ‘public.’

--We thank all reviewers for their comments. Due to comments related to typos and/or minor language errors the manuscript has undergone a full and in-depth review by our senior author who is a native speaker.
The recommended change has been made.

Reviewer #3: Introduction
Line 26: ‘high’ rather than ‘highly.’

--Thank you for your comment. The recommended change has been made.

Reviewer #3: Introduction
Page 4, final sentence: ‘career’ rather than ‘careers.’

--Thank you for your comment. The recommended change has been made.

Reviewer #3: Introduction
Page 5, line 35: delete ‘the’ before ‘US adults.’ What do you mean by US adults? The general US adult population?

--Thank you for your comment. Changes were made to make the statement clearer:
“the national obesity prevalence (US adults)”

Reviewer #3: Introduction
Page 5, line 37: ‘other’ rather than ‘others.’ New sentence required in line 41 starting ‘German firefighters.’

--Thank you for your comment. Changes were made accordingly.

Reviewer #3: Methods
BF abbreviation needs defined.

--Thank you for your comment. It has been spelled out.

Reviewer #3: Methods
There are issues with the way the search strategy has been put together. All 3 dot points should be combined and terms such as body mass index should be grouped together otherwise these individual terms will blow out the search immensely. Truncation should be used too. There are other key terms that have not been considered, such as BMI. Eg the terms should be displayed as ((Firefight*) AND (obesity or overweight or weight or excess weight or adiposity or waist or 'body mass index' or BMI or 'body fat')).

--Thank you for your insightful comment. The suggestion is very good and we incorporated the suggestion adding commas also to excess weight. Due to small differences in how some databases interpret the truncation, we decided to expand the search term and use various options. The new search term was updated in the manuscript as follows:
((Firefighter OR Firefighting OR Firefighters OR Firefighter's OR Firefighters') AND (obesity OR overweight OR "excess weight" OR adiposity OR waist OR "body mass index" OR bmi OR "body fat")).

Reviewer #3: Methods
Line 7 on page 7 is not clear to me. Limitations around searching should consider whether there is a limit on the year of publications of included articles that you will include (eg published anytime or with a date limit). What is currently written here is not relevant or clear

--Thank you for your comment. The statement was re-written to ensure clarity:
"There will be no time limit i.e., studies may have been published in any year. Searches will be limited to peer-reviewed journals. Grey literature will not be included".

Reviewer #3: Methods
Line 37 page 7: what do you mean by 'obesity based on other variables?' This is not clear.

--Thank you for your comment. The recommended change has been made. Additional detail was given:
"Prevalence data must be calculated from body mass index (BMI), per cent body fat (%BF) or waist circumference. The method employed to measure body fat percentage will also be recorded to account for possible differences among methods. Although other variables may be used to define obesity, e.g., waist-to-height ratio; these indices are probably not often used in firefighter studies; also, their agreement with traditional indices are unknown and may overestimate obesity in the Fire Service[44]. Thus, the authors decided to include only obesity prevalence data that used BMI, %BF and waist circumference".

Reviewer #3: Methods
Data extraction, page 7: It is not time efficient or necessary for 2 reviewers to independently perform the database searches. Did you rather mean that 2 reviewers would independently review returned hits based on title and abstract?

--Thank you for this comment. We thank you for the suggestion as this will be rather beneficial for the future systematic review. This section has been re-written, as follows:
"One reviewer will perform the literature search; results will be saved into a reference manager; duplicates will be eliminated using the provided software tools. Remaining files will be shared with the second reviewer. The two reviewers will independently screen titles and abstracts for eligibility".

Reviewer #3: Methods
It is stated that authors will not be contacted for additional information as all information should be reported in manuscripts. This is an incorrect statement. As is very commonly understood in research literature, should be reported and actual reporting are not the same. You will undoubtedly come across some missing information. It is worth considering attempting to contact authors and allowing them the chance to provide any missing information

--Thank you for your comment. We agree with your suggestion and the text has been updated as follows:
"Authors of included or screened articles may be contacted to obtain additional information, i.e., in case important information is missing from the manuscript, but authors are likely to have it. One reviewer will send an e-mail to the corresponding author's e-mail address, based on information in the article; a maximum of two attempts will be made, each separated by one week".

Reviewer #3: Methods
Line 18, page 18: what results from the 2 reviewers will be shared? The list of included studies or the data that they have extracted from included papers? Or are you referring to ratings of quality of studies? This whole data extraction section is written unclearly. What data is reviewer EMKVKS extracting? What do you mean by difficulties in data storage?

--Thank you for your important comment. The data extraction section has been rewritten in order to comply with your and other reviewers' requests.

Reviewer #3: Methods
Can you describe the main areas of study design and conduction that the risk of bias tool explores (eg what are the 9 questions examining – is it things like validity/reliability of the measurement tools etc)?

--Thank you for your comment. The Joanna Briggs Institute's critical appraisal checklist for studies reporting prevalence data has questions evaluating the sampling frame, sample size, data analysis, validity of the methods and response rate. The questionnaire is attached as supplemental material. The second paragraph of the quality assessment section has been updated:
"We will perform a risk of bias assessment using the Joanna Briggs Institute's critical appraisal checklist for studies reporting prevalence data as suggested by Munn et al.,[49] which contains nine simple questions (Supplementary File 2) that evaluate risk of bias in topics such as: sampling frame, sample size, data analysis, validity of the methods and response rate i.e. the proportion of individuals who agreed to participate from all who were invited".

Reviewer #3: Methods
Data analysis – it would be useful to explore the possibility of some association analyses rather than just a narrative analysis. Later you talk about comparing obesity prevalence based on various characteristics – it sounds like you are doing statistical analyses then? You need to report what statistical analyses you will be undertaking and why (eg is it to explore associations between obesity and sample characteristics?). Are you suggesting to actually do your own analyses of the NHANES and other data with data from your review OR rather will you discuss your findings in the context of population level data in your discussion? This needs to be clear.

--Thank you for your important comment. Data analysis will be descriptive. We agree that further statistical analysis could be very interesting. However we believe that socio-cultural differences among firefighters from different countries/regions and institutions around the world from point towards a more qualitative approach to the data; thus, we are not performing a meta-analysis. When we mention prevalence comparison based on characteristics, we intended to describe prevalence and 95% confidence interval in a table or graph. Regarding the NHANES analysis, this section has been rewritten, and we believe that the issue has been clarified.

Reviewer #3: Methods
Why does data for men and women have to be presented separately to be included in your review? Justification is not provided for this

--Thank you for your insightful comment. Obesity prevalence in women and men are different. The magnitude of the differences is related to social/economic factors and gender inequality. In most countries, women have a higher obesity prevalence than men. Such differences are basically unknown in the Fire Service. Thus, prevalence data that does not analyze men and women separately is likely biased. We added the following statement:

"Data from males and females will be analysed separately due to a sex-related difference in obesity prevalence[42,43]".

Reviewer #3:
It would have been useful to end with a summary for why this review is important – why is this review so necessary to be undertaken? What will it add to already existing literature? Have any previous reviews of firefighters been conducted? What did they find?

--Thank you for your insightful comment. The last paragraph of the introduction has been rewritten. This will be the first systematic review of firefighter's obesity prevalence, and this is highlighted in the strengths of the manuscript (strength and limitations section).

VERSION 2 – REVIEW

REVIEWER	Jane Brice University of North Carolina USA
REVIEW RETURNED	10-Nov-2019

GENERAL COMMENTS	The authors have addressed my concerns and I have no futher.

REVIEWER	Philippe Gendron Université du Québec à Trois-Rivières, Québec
REVIEW RETURNED	28-Oct-2019

GENERAL COMMENTS	Excellent corrections. Here is an additional comment: Methods used to define obesity are BMI, %BF and waist circumference. Will authors include obesity prevalences (BMI) based on self-reported weight and height measures obtained by a questionnaire? I think it would be relevant to include these prevalences in a specific section. It is likely that these are the only results available for some regions of the world. Moreover, self-reported body weight and height are reasonably accurate reflections of their measured values and could be used to estimate obesity prevalence in epidemiological studies of this population (Poston, W. S. C., Jitnarin, N., Haddock, C. K., Jahnke, S. A., & Day, R. S. (2014). Accuracy of self-reported weight, height and BMI in US firefighters. Occupational Medicine, 64(4), 246-254.).

REVIEWER	Freya MacMillan Western Sydney University, Australia
REVIEW RETURNED	18-Nov-2019

GENERAL COMMENTS	I am satisfied with their approach and the way that they have addressed my comments now.

VERSION 2 – AUTHOR RESPONSE

Reviewer #1:
The authors have addressed my concerns and I have no further.

--Thank you for your comment and review.

Reviewer #2:
Methods used to define obesity are BMI, %BF and waist circumference. Will authors include obesity prevalences (BMI) based on self-reported weight and height measures obtained by a questionnaire? I think it would be relevant to include these prevalences in a specific section. It is likely that these are the only results available for some regions of the world. Moreover, selfreported body weight and height are reasonably accurate reflections of their measured values and could be used to estimate obesity prevalence in epidemiological studies of this population (Poston, W. S. C., Jitnarin, N., Haddock, C. K., Jahnke, S. A., & Day, R. S. (2014). Accuracy of self-reported weight, height and BMI in US firefighters. Occupational Medicine, 64(4), 246-254.)

--Thank you for your comment. We originally intended to use self-report data, but we ended up not making it clear in the manuscript. Thus, we added the following comment to the methods section: Prevalence data must be calculated from body mass index (BMI), per cent body fat (%BF) or waist circumference. BMI prevalence data that originates from self-reported height and weight will also be included since they are reasonably accurate reflections of their measured values [44]. The method employed to measure body fat percentage will also be recorded to account for possible differences among methods.
We also updated the reference section.

Reviewer #3:
I am satisfied with their approach and the way that they have addressed my comments now

--Thank you for your comment and review.