PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Complementary medicine in orthopedic and trauma surgery: A cross-sectional survey on usage and needs
AUTHORS	Kilper, Anica; Müller, Alexander; Huber, Roman; Reimers, Niklas; Schütz, Ludwig; Lederer, Ann-Kathrin

VERSION 1 – REVIEW

REVIEWER	Chun-Hao Tsai Department of Orthopedics,School of Medicine, China Medical University
REVIEW RETURNED	02-Feb-2020

GENERAL COMMENTS	This article reveals the role of Complementary and alternative medicine (CAM) used patients received orthopedics and trauma surgery in hospital. The value of this report is the application of the modified version of a questionnaire for complementary and integrative medicine and the first study investigating the demand and usage of CAM in orthopedic and trauma patients in Germany. This article shows most CAM is acupuncture, motion therapy, dietary supplements and yoga. The reasons for usage of CAM were body strengthening and health preservation) and body support. Linear regression analysis showed no significant influence of age, gender and health insurance status on general CAM usage. And most patients stated to use CAM due to fewer side-effects or as a recommendation of a friend or a doctor. It is an interesting study, however, there is some comments for the article: 1. The article does not mention the intensity of these different CAM treatments were used for. The different intensity or types of CAM may affect the outcome in convential medical treatment. 2. Is these CAM related to chief complaint for hospitalization? The relationship or network between medical need and CAM should been classified in detail.

REVIEWER	KUN HYUNG KIM PUSAN NATIONAL UNIVERSITY, SOUTH KOREA
REVIEW RETURNED	27-Feb-2020

GENERAL COMMENTS	Overall comments: This is a cross-sectional study of investigating the prevalence of CAM use and attitude of users in a specific population. Although this is a legitimate topic, several points need to be revised as suggested below: #1. Topic and abstract: I am not sure the term 'clinical relevance' well explains what authors have done through this study. Please

consider more straightforward and transparent topic which well matches with the contents and research objects. Please also refer to the standard reporting guideline of observational studies (STROBE). (Cleary mention the study design 'cross-sectional survey')

#2. Methods; population: Authors reported that orthopaedic and trauma surgical patients took part in the survey. This should have been clearly mentioned as a component of eligibility criteria. (Currently, it remains unclear that patients who have admitted in the orthopaedic, trauma departments were eligible or patients with such injury and were subject to surgery were eligible). A minor proportion of patients were admitted for cancer care (Table 1), and only 72% of respondents were subject to elective surgeries. Please clarify the inconsistency between the current description (orthopaedic/trauma surgical patients versus inclusion of cancer/non-operative patients).

#3. Methods and Results; Linear regression; Authors reported that linear regression analysis was performed to explore factors associated with 'general CAM usage'. However, I wonder the use of CAM was measured as dichotomous variable rather than continuous variable. It this is true, the analysis should be logistic regression analysis. In fact, there was no explanation on the type of variable for measuring CAM use. "General CAM use" was also not clearly defined (I assume that it refers to any past or current use of CAM listed in the questionnaire, although I am not sure about that). If authors have considered association between multiple co-variates and CAM use, multiple (logistic) regression analysis is a more appropriate method. In results, authors just provided descriptive illustration on the use of CAM and associated factors.

#.4 Discussion; I think authors can organise their findings and interpretations in more structured and succinct way. In the current manuscript, discussion on prevalence of CAM use, attitude of patients toward CAM use, and disclosure of CAM use to their physician seems mixed and not clearly described. Heterogeneity of study results were also addressed with regard to the study population and type of CAMs; nevertheless, please try to articulate the difference/similarity of current findings and existing literature in more succinct way and discuss impacts of heterogeneity on the study findings and interpretations.

#5. Limitations; Survey participants received the questionnaire from the nurse (not sure whether he/she was the dedicated research nurse or one of inpatient ward staffs who were also involved in the patient care) and returned the filled questionnaire to the same (I assume) person. Response bias can occur when patients respond to the questionnaire inaccurately or falsely due to the awareness or fear that the nurse who collect data may influence the inpatient care for them. Please address this possibility and describe how authors have considered this factor in the study design and analysis stage. Recall bias is also possible, since patients could not remember the past use (or no use) of CAM accurately at the time of survey.

VERSION 1 – AUTHOR RESPONSE

REVIEWER 1

[…] It is an interesting study, however, there is some comments for the article:

1. The article does not mention the intensity of these different CAM treatments were used for. The different intensity or types of CAM may affect the outcome in conventual medical treatment.

=> Thank you for this interesting point, which would be an exciting topic for further research in integrative surgery! Unfortunately, the questionnaire captured usage and type of used CAM, but not frequency or intensity of usage. You are absolutely right, different intensities and types of CAM may affect the outcome of conventional medical treatment, but we are not able to add something about this point right now.

2. Is these CAM related to chief complaint for hospitalization? The relationship or network between medical need and CAM should been classified in detail.

=> Again thank you! This is also an interesting point! We analyzed the chief complaint in relation to current CAM usage and added Table 2 to "Results" to show if current CAM usage is due to current hospitalization complaint or not.

REVIEWER 2

[…] Although this is a legitimate topic, several points need to be revised as suggested below:

#1. Topic and abstract: I am not sure the term 'clinical relevance' well explains what authors have done through this study. Please consider more straightforward and transparent topic which well matches with the contents and research objects. Please also refer to the standard reporting guideline of observational studies (STROBE). (Cleary mention the study design 'cross-sectional survey')

=> Thank you for your concern! As we agree with you, we changed the title to "Complementary medicine in orthopedic and trauma surgery: A cross-sectional survey on usage and needs". The phrase "clinical relevance" was deleted from the entire manuscript, subsections were reworded and the word "cross-sectional" was added to Methods. Thank you also for the important point to report according to STROBE! We read our manuscript carefully and revised some parts according to STROBE.

#2. Methods; population: Authors reported that orthopaedic and trauma surgical patients took part in the survey. This should have been clearly mentioned as a component of eligibility criteria. (Currently, it remains unclear that patients who have admitted in the orthopaedic, trauma departments were eligible or patients with such injury and were subject to surgery were eligible). A minor proportion of patients were admitted for cancer care (Table 1), and only 72% of respondents were subject to elective surgeries. Please clarify the inconsistency between the current description (orthopaedic/trauma surgical patients versus inclusion of cancer/non-operative patients).

=> We added "all orthopedic and trauma surgical patients" in Methods to make it more clear. Patients with cancer had metastatic disease with bone lesions leading to necessity of surgical therapy. We revised "cancer" to "metastatic cancer with bone lesions". Not all of orthopedic and trauma surgical patients have the necessity for operative treatment, non-surgical treatment such as an intravenous analgesia for a few days is a common approach at Orthopedic and Trauma Surgery in Germany. The aim of our study was to evaluate all orthopedic and trauma surgical patients, not only the ones undergoing surgery. We added "all treatments (surgical and non-surgical)" to Methods.

#3. Methods and Results; Linear regression; Authors reported that linear regression analysis was performed to explore factors associated with 'general CAM usage'. However, I wonder the use of CAM was measured as dichotomous variable rather than continuous variable. It this is true, the analysis should be logistic regression analysis. In fact, there was no explanation on the type of variable for measuring CAM use. "General CAM use" was also not clearly defined (I assume that it refers to any past or current use of CAM listed in the questionnaire, although I am not sure about that). If authors have considered association between multiple co-variates and CAM use, multiple (logistic) regression analysis is a more appropriate method. In results, authors just provided descriptive illustration on the use of CAM and associated factors.

=> Thank you for being so attentive! I'm very sorry for this misleading wording! General CAM usage is not the right term, we changed it to current CAM usage. Current usage of CAM was a dichotomous variable ("yes" or "no") (added to "Methods"), which implies analysis by linear regression. All of the other subgroup analysis of "Influence of gender, age and health insurance status" were measured by Chi-squared test. We reworded "Methods" to make it more clear.

#.4 Discussion; I think authors can organise their findings and interpretations in more structured and succinct way. In the current manuscript, discussion on prevalence of CAM use, attitude of patients toward CAM use, and disclosure of CAM use to their physician seems mixed and not clearly described. Heterogeneity of study results were also addressed with regard to the study population and type of CAMs; nevertheless, please try to articulate the difference/similarity of current findings and existing literature in more succinct way and discuss impacts of heterogeneity on the study findings and interpretations.

=> We revised "Discussion" thoroughly.

#5. Limitations; Survey participants received the questionnaire from the nurse (not sure whether he/she was the dedicated research nurse or one of inpatient ward staffs who were also involved in the patient care) and returned the filled questionnaire to the same (I assume) person. Response bias can occur when patients respond to the questionnaire inaccurately or falsely due to the awareness or fear that the nurse who collect data may influence the inpatient care for them. Please address this possibility and describe how authors have considered this factor in the study design and analysis stage. Recall bias is also possible, since patients could not remember the past use (or no use) of CAM accurately at the time of survey.

=> We reworded section about the nurse ("Methods") as the person, who issued the questionnaire was not the same person, to whom the patients returned it. We also added the point, that we told the patients to fill in the questionnaire independently and on their own to avoid response bias. However, we totally agree with you that response bias is always a critical issue of survey and we integrated your suggestion to "Discussion". "Limitations" was deleted and the aspects were integrated to "Discussion" to discuss it on detail. We also added a few words about your suggestion about the recall bias.

VERSION 2 – REVIEW

REVIEWER	Kun Hyung Kim Pusan National University, South Korea
REVIEW RETURNED	10-Apr-2020

GENERAL COMMENTS	#1. Linear regression: Please check whether 'linear regression' is the right method for analysing association between dichotomous outcomes (i.e., current CAM usage) and other independent factors. For dichotomous outcomes, logistic regression analysis should be used. If authors have attempted crude subgroup analyses per each strata (sex, age, insurance, reason of admission, planned therapy), the mention on the 'linear regression' in the methods should be removed. Please note that subgroup analysis usually has low power to detect true difference (if exist) of outcomes, so the results from subgroup analysis need careful interpretation (at most useful for generating hypothesis). I am not sure whether results from subgroup analysis were addressed in the discussion.

VERSION 2 – AUTHOR RESPONSE

Reviewer 2:

#1. Linear regression: Please check whether 'linear regression' is the right method for analysing association between dichotomous outcomes (i.e., current CAM usage) and other independent factors. For dichotomous outcomes, logistic regression analysis should be used. If authors have attempted crude subgroup analyses per each strata (sex, age, insurance, reason of admission, planned therapy), the mention on the 'linear regression' in the methods should be removed. Please note that subgroup analysis usually has low power to detect true difference (if exist) of outcomes, so the results from subgroup analysis need careful interpretation (at most useful for generating hypothesis). I am not sure whether results from subgroup analysis were addressed in the discussion.

Thank you again for your response! You are absolutely right, linear regression is, of course, not the appropriate method for our aim. We performed logistic regression, the fault is a really misleading typo. I apologize for this mistake. The results of logistic regression and subgroup analysis are only performed to show tendencies for further research. We, therefore, considered your concern and added the exploratory character of analysis and the limitation to "Discussion".

VERSION 3 – REVIEW

REVIEWER	KUN HYUNG KIM PUSAN NATIONAL UNIVERSITY, SOUTH KOREA
REVIEW RETURNED	11-Jul-2020

GENERAL COMMENTS	The raised issues were well-addressed; I am happy to recommend 'accept' of this manuscript to the primary editor. Thank you.