Author's response to reviews

Title: Association of Health Literacy with Complementary and Alternative medicine use: A Cross-sectional study in Adult Primary Care Patients

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Author's response to reviews: see over
Dear Miss Peubla,

We would like to thank the reviewers for their important and insightful comments and we believe we have addressed all of the criticisms posed. We believe that these comments have strengthened the quality of this paper concur with all your recommended changes as indicated in below:

Referee 1:

Background:

(1) After the definition of the National Center of CAM, put in bracket NCCAM and subsequently refer to it as such. Done.

Methods:

(1) REALM-R and WRAT-R are the literacy assessment tools used in previous studies. Authors need to explain why the choice of REALM-R over WRAT-R. Is 0.64 a correlation coefficient indicating a strong relationship between REALM-R and WRAT-R the literacy assessment tools? If yes, it should be stated as such and provide the p-value of the test statistic that indicated that there was no significant difference when the test tools were compared statistically.

(2) Authors need to list the medical words either in the text or a table

We have edited the methods to explain the reasoning for using the REALM-R over the WRAT-R, however the original REALM-R paper does not provide the p-value of the test statistic to compare these two tests. Therefore, we have included the actual comparison findings between the two tests and the REALM-R and kept the result of the Cronbach’s $\alpha$ of 0.91. We have also included the medical words used in the REALM-R during testing.

Final sentence is as follows:

We assessed health literacy by using the Revised Rapid Estimate of Adult Literacy in Medicine (REALM-R), an eight-item instrument designed to rapidly screen patients for potential health literacy problems. The REALM-R has been previously correlated with the Wide Range Achievement Test Revised (WRAT-R) (0.64) and a subsequent score of 6 on the REALM-R has “identified 26 of 30 persons scoring more than 1 standard deviation below the mean on the WRAT-R, corresponding to a sixth grade reading level” [38]. The REALM-R also has a shorter response burden than the WRAT-R and demonstrated a Cronbach’s $\alpha$ of 0.91 [38]. The REALM-R is scored on a scale of 0 to 8 and asks patients to read a series of eight medical words, and a correct response is given for each correct pronunciation. These words include: osteoporosis, allergic, jaundice, anemia, fatigue, directed, colitis and constipated. Scores of 6 or less correspond to a grade 6 reading level and identify patients at risk for poor health literacy [38]. For this analysis, health literacy was categorized as adequate literacy (REALM-R>6) and inadequate literacy (REALM-R≤6).
(3) Under CAM use, I believe the authors are referring to NCCAM instead of NAFKAM. This part should be written in the past tense, i.e. “have” to change to “had”, and “are” to “were”.

For CAM use, we are referring to the I-CAM-Q developed by NAFKAM and have changed the paragraph to the past tense and clarified our definition of CAM use for the reader.

Sentence reads as follows:

We assessed CAM use using the International Questionnaire to Measure Use of Complementary and Alternative Medicine (I-CAM-Q) developed and tested by the National Research Center in Complementary and Alternative Medicine (NAFKAM) [39]. The I-CAM-Q asked patients if they had used herbs/herbal medicine, vitamins/minerals, and homeopathic remedies in the last 12 months. It also asked patients if they had used any of the following self-help practices in the last 12 months: meditation; yoga; qigong; tai chi; relaxation techniques; visualization, attending a traditional healing ceremony; or prayer for own health. For each type of CAM use, respondents were asked to indicate if they currently use it, main reason for last use, and to evaluate how helpful they found it [39]. For this analysis, CAM use was defined as using any of the above modalities or self-help practices.

(4) In the statistical analysis, change $X^2$ to chi-squared. Done

Results:

(5) What is the meaning of eigenvalue? In the overall sample characteristics, we need to know how many people were recruited for the study and how many responded (thus give the response rate). Correct “participants with adequate literacy were more likely to be older (50+; 55.3%)…”to...were more likely to be over 55 years old....college or higher school graduate (51.2%). Delete the n(%) and the % symbol under characteristics in Table 1.

We have defined eigenvalue and sentence is as follows:

The principal component analysis yielded an 8-item Realm-R with one factor having a measured eigenvalue of 5.02 that accounted for 63% of the variance. The eigenvalues provide the variance explained by each factor. Factor loadings ranged from 0.77 to 0.82. All individual items correlated at greater than 0.75 with this factor [40].

We have also included both the number of patients recruited and the number that have responded and given a response rate in parenthesis in the sample characteristics section and made the deletions to Table 1 as recommended above:

Sentence as follows:

A total of 351 men and women were recruited and 347 (98.8%) completed the surveys. 142 respondents (41%) were African American. Table 1 shows the demographics of the study by health literacy status. In the study, 75% of the patients had adequate health literacy and 25% had inadequate health literacy. Participants with adequate health literacy were more likely to be over...
50 years old (50+; 55.3%), white (68.8%), female (69%), married (55%), college graduate or higher (51.2%), employed (61.6%), have a household income >$75,000 (31.2%), have private insurance (67.1%), and reported their health status as better or same as last year (84.2%).

(6) Authors will need to rephrase the results in paragraph one under health literacy and different types of CAM use. For example, it can be reported as “In the overall sample, 80% of the participants used CAM, of which 77% were adequately literate and 23% inadequately literate. There was a significant difference in the proportion of adequately and inadequately literate participants (p=0.003).”

Also corrected the sentence as recommended including Referee 3 recommending that no statistical significance was found between both literacy groups. Sentence as follows:

Health literacy status (adequate vs. inadequate) varied by category of CAM use. Table 2 displays health literacy status and the different types of CAM use. In our overall sample, 80% of the participants used CAM, of which 77% were adequately health literate and 23% inadequately health literate. There was no statistically significant difference in the proportion of adequately and inadequately health literate patients.

Discussion

(7) Authors need to make reference to previous studies that have looked at the effect of literacy levels on health seeking behaviors. Rephrase the sentence in the 3rd paragraph as “… African-Americans [], previous national surveys lacked measures…” delete “these” before skills in the penultimate sentence.

Paragraph is changed as follows including 2 new references:

However, consistent with our hypothesis, white patients with adequate health literacy were more likely to use CAM compared to African American patients. Given this race and literacy interaction, it may explain the marginal association between adequate health literacy and CAM use in our overall sample. Also, health literacy levels were higher among whites as compared to African Americans suggesting that adequate health literacy does predict overall CAM use. This is consistent with studies that suggest that health literacy skills are associated with health seeking behavior [41,42].

Fourth paragraph opening sentence in the Discussion section is also edited to:

Although national estimates indicate that whites are more likely use CAM than African Americans [2], previous national surveys lacked measures of health literacy. Delete “these” before skills in the penultimate sentence. Done.
Conclusion:

(8) **Rephrase the beginning sentence as “…however, CAM is fully accounted for by educational attainment”**.

We have edited this paragraph according to both this reviewer and Referee 3 recommendations as follows:

In summary, adequate health literacy is not statistically associated with increased CAM use and CAM is fully accounted for by educational attainment.

Referee 2:

(1) **Since health literacy is so much related to education, why is it worthy/important to study its effect on CAM use given that education has been incorporated as a explanatory variable in your study? This question needs to be addressed in the background section.**

In order to justify the need to study health literacy independent of educational attainment, we have added this sentence with cited reference in paragraph 3 of the background section:

In addition, evidence exists that educational attainment may not inevitably predict health literacy skills [25]. This is of importance since many population surveys that measure educational attainment do not include separate measures for health literacy.

(2) **How many of the respondents were African Americans out of your sample?**

Under sample characteristics we have included this:

142 respondents (41%) were African American.

(3) **Limitations of the study should be mentioned. For example, the lack of effect of health literacy among African American respondents might be a result of the small sample size.**

We have included study limitations and the limitation mentioned above in the following paragraph:

This study has some limitations. The current study measured the constructs cross-sectionally, and thus can most appropriately speak to these associations between constructs observed at a single point in time, not causality. Second, this study was conducted at a single academic center and it is possible that the subjects in this study were better educated and more likely to have adequate health literacy skills than those at community clinics or rural areas. It is also possible that patients in an academic center were more likely to use CAM secondary to having a higher number of chronic conditions. Third, although adapted and tested, the I-CAM-Q
may require further validation and may not have included all CAM therapies utilized in our population. Furthermore, our analysis did not include reasons for CAM use. Additional analysis including reasons for CAM use may have assisted in understanding the distribution of CAM use in our population. Fourth, although the REALM-R is a valid measure of health literacy, it uses medical terms which may not reflect the ability of participants to read CAM related words. Fifth, the lack of effect of health literacy among African American respondents might have been the result of inadequate sample size.

Referee 3:

The first relates to the concept of health literacy (itself problematically and variably referred at different times in the paper as ‘adequate literacy’, ‘health literacy’ and ‘adequate health literacy’ – literacy and health literacy are not equivalent concepts). While the authors’ appropriately quote one definition of health literacy (from the Institute of Medicine, 2001), I would question whether this is the most appropriate in the context of an exploration of CAM modalities, in particular as it does not explicitly embrace the ‘acting and using’ of health information. This aspect is particularly germane in a CAM context because of the active nature of CAM use – individuals opt in by a purposeful decision or choice to use / try a CAM modality. In this regard the definition of Rootman (2008) would be more germane or Nutbeam (2000, 2008). [e.g. health literacy as ‘the ability to access, understand, evaluate and communicate information as a way to promote, maintain and improve health in a variety of settings across the life course.’ From Rootman I, Gordon-el-Bihbety D (2008) A Vision for a Health Literate Canada. Ottawa, ON: CPHA]

We have changed all text to state health literacy and not literacy alone and defined adequate health literacy in the main text as Realm-R> 6. We also have removed the previous definition of health literacy in light of the newer recommended definition having more relevance to CAM use with subsequent reference added.

Associated with this is a second issue, relating to the measurement of the key variables, health literacy (the dependent variable) and CAM use (the primary independent variable). (1) For health literacy, use is made of REALM-R which as its full name indicates was designed as a brief screening instrument to assess an adult patient’s ability to read common medical words; that is, it is a test of reading ability in a health context. Exactly how it is purported to measure, even in IoM terms, ‘the degree to which individuals have the capacity to obtain, process and understand basic health information...’ (see p3 of the paper) is at best moot. Furthermore, REALM-R uses ‘medical’ terms; their relevance to ‘a patient’s ability to read common CAM-related words’ (my adaptation) is similar unclear.

We have added this point as a limitation in our study as follows:
Fourth, although the REALM-R is a valid measure of health literacy, it uses medical terms which may not reflect the ability to read CAM related words.

(2) For CAM use (in the last 12 months) the authors appropriately utilise the newly developed, but as far as I am aware there are no published papers on the validity or reliability of I-CAM-Q. Despite this, use of this measurement instrument is highly appropriate (with indications about its need for validation). But I note that the authors do not report on other data which is contained in the I-CAM-Q, in particular, reasons for CAM use. I would suggest that this latter information is of considerable importance in making sense of the data.

We have edited our third limitation to address these concerns as follows:

Third, although adapted and tested, the I-CAM-Q requires further validation and may not have included all CAM therapies utilized in our population. Furthermore, our analysis did not include reasons for CAM use. Additional analysis including reasons for CAM use may have assisted in understanding the distribution of CAM use in our population.

Background: the final sentence of the second para (p3 of text) could be inappropriately interpreted by the reader as suggesting (though definitely not said by the authors) ‘higher CAM use leads to poor QoL outcomes’. I would suggest that the evidence suggests that those with poorer QoL and/or possible ill-health outcomes opt to utilise CAM. The authors might like to make their point clearer.

We have edited this sentence to reflect this concern of lack of definitive evidence for cam use and poor quality of life as follows:

In addition, CAM use has also been associated with health outcomes such as quality of life measures [20-23].

Methods: Further details are needed on the setting of the study – that is, the clinic and the sort of patients attending. In addition, it is important to indicate why a 10-week recruitment period was chosen, intended sample size and rationale.

We have edited our methods to address the concerns as follows:

351 patients at the Medical University of South Carolina Internal Medicine (MUSC) clinic in Charleston, South Carolina were recruited for the study. The university clinic is an outpatient internal medicine clinic located in an academic center in the southeastern United States. The clinic assesses adults aged eighteen and older with the patient volume remaining the same across most months. Study patient were recruited over a 10-week period in the summer months. The time frame for recruitment was chosen in line with a research course for undergraduate students undertaking research projects. Our sample size estimation was based on determining a difference between health literacy status (adequate vs. inadequate) and CAM use (type 1 error rate of 0.05).
Results: In the ‘methods: statistical analysis’ section, the authors point to their use of the 5% significance level. It is thus inappropriate to comment about ‘marginally significant’, for example, for a \( p=0.08 \). This applies both to the chi-square and logistic regression analyses. In the latter, model 1 definitively demonstrates ‘no relationship’ (given the 95% confidence interval for the OR embraces the null/unity value). I would also recommend that %s are rounded to the nearest integer, for the non-LRA findings, at least in the text (to aid ease of reading).

We have edited paragraph 1 and paragraph 3 under Health Literacy and different types of CAM use of the Results with the following sentence to address the concerns:

There was no statistically significant difference in the proportion of adequately and inadequately health literate patients.

We also edited paragraph 3 as:

Table 3 shows sequentially built logistic models of CAM use. In the unadjusted model for CAM use (Model 1), adequate health literacy was not significantly associated with increased CAM use (OR 1.65; 95% CI 0.94-2.97, \( p<0.08 \)). When education was controlled for (Model 2), adequate health literacy remained not significantly associated with CAM use (OR 1.37; 95% CI 0.72-2.64, \( p=0.34 \)).

We have also edited our first sentence our conclusion to reflect this change as well as follows:

In summary, adequate health literacy is not statistically associated with increased CAM use and CAM is fully accounted for by educational attainment.

We have our rounded our percentages in the text and our table as recommended. The text is as follows:

52% used prayer (49% adequate vs. 59% inadequate), 18% used relaxation (18% adequate vs 19% inadequate), 14% used herbal medications (13% adequate vs. 16% inadequate), 6% of the sample used yoga (7% adequate vs. 3% inadequate), 5% used visualization (7% adequate vs. 2% inadequate), 4% used homeopathy (4% adequate vs. 6% inadequate) <1% used tai chi (0.4% adequate vs 2% inadequate), <1 % attended traditional healing (0.4% adequate vs. 2% inadequate), and which were not statistically significant.

Tables: In tables 1 and 2, I would recommend that only significant relationships are highlighted taking on board the 5% significance level chosen. In table 2, it would be helpful to reorder the items according to the column (all [types of CAM use] – i.e. first line, overall CAM use, then in order – vitamins, prayer, etc – again for ease of reading. In addition, here it would be helpful if the number of cases who used a particular CAM was also included (as the question has Yes/No
responses against each); is then the reported % of all respondents or what? In addition, I wonder if it would also be helpful I to report the average number used.

To address these issues, in table 1 & 2 we have only kept the asterisk on factors that reached statistical significance.

We have also edited Table 2 in order of increasing CAM use and included the cases as well as a notation on the table reflecting that this reflects all respondents.

Discussion: To make most sense of the findings, it seems very important to at least to talk about participants’ reasons for use (note: a core question within the I-CAM-Q) of each of the CAM’s they have used. More broadly, I would suggest that it is most appropriate to consider (thus, both report findings on and discuss) CAM use and reasons for CAM use together for this sample group.

We analyzed health literacy status and possible associations with overall and individual CAM categories to determine whether an association exists. We did not analyze reasons for CAM use and hence listed it as a limitation of this study. We also address the above concern as a possible direction for further study in the discussion as follows:

Further research is needed to examine the possible mechanisms by which health literacy and CAM use are related. These studies should include analysis of reasons for CAM use in order to provide insight into what environmental factors contribute to CAM use. These efforts may help identify which internal and external factors in a diverse population increase the likelihood of CAM use.

Referee 4:

Major Compulsory Revisions

(1). What is missing in this paper is an elaboration on the significance of the issue being studied. I agree with the authors that the relationship between health literacy and CAM use is an important area overlooked. However, I am disappointed that the authors failed to: (a) explain why this issue is important in the Background section; and (b) evaluate this issue and its implications in the Discussion in light of the findings of the study.

We have expanded the background section to explain the importance of the issue as follows:

(a) In studies among patients with chronic illnesses, health literacy, along with CAM use, has been associated with health behavior. Examining the possible relationship between health literacy and CAM use may expand our understanding of behavioral determinants. Given research that CAM use may differ by race [3], analysis by racial categories may further delineate the overall impact of health literacy on CAM use. The knowledge of how these factors relate may benefit future interventional studies aimed at therapeutic targets that modify patient behavior.
Paragraph 4 in the Discussion section has the following addition to address the reviewers concerns:

(b) In our study, among whites, reading ability related to utilizing CAM even after adjusting for educational attainment and other sociodemographic factors. One possible explanation is that CAM may attract white patients with increased reading skills regardless of years of schooling or socioeconomic status. An implication of this finding is that patients with improved reading skills may utilize CAM for health promotion or health education purposes. Studies including health literacy, CAM use and preventative care or disease self-management outcomes may provide insight into whether health literacy skills influence the relationship between CAM use and patient health behavior in this racial group. Of note, among African Americans, we did not find an association between health literacy and CAM use. This suggests that other factors influence CAM use among African Americans. Given our mixed results, additional studies are needed to corroborate our findings and investigate the mechanism by which health literacy relates to CAM use by race.

In the Background section, the authors stated that ‘To our knowledge, few studies have assessed the relationship between health literacy and CAM use by racial categories’ (p.4). While this observation may be correct, the lack of study/knowledge alone is not a proper reason for conducting a research in this issue. The authors need to explain why an understanding of this relationship between health literacy and CAM use is important.

We have edited paragraph 4 in the background section to include the need to look at racial categories in the analysis along with the overall importance in the paragraph below.

In studies among patients with chronic illnesses, health literacy, along with CAM use, has been associated with health behavior. Examining the possible relationship between health literacy and CAM use may expand our understanding of behavioral determinants. Given research that CAM use may differ by race [3], analysis by racial categories may further delineate the overall impact of health literacy on CAM use. The knowledge of how these factors relate may benefit future interventional studies aimed at therapeutic targets that modify patient behavior.

The Discussion in its present form is largely a summary of the Results section all over again. What is needed in this section is a critical examination of the issue in terms of the findings. In particular, I will like to know the implications of the study, say in terms of health promotion, health education, or our understanding of health seeking/decision-making of CAM users, etc.

We have further edited paragraph 4 in the discussion to include implications of our study along with further directions.

In our study, among whites, reading ability related to utilizing CAM even after adjusting for educational attainment and other sociodemographic factors. One possible explanation is that CAM may attract white patients with increased reading skills regardless of years of schooling or
socioeconomic status. An implication of this finding is that patients with improved reading skills may utilize CAM for health promotion or health education purposes. Studies including health literacy, CAM use and preventative care or disease self-management outcomes may provide insight into whether health literacy skills influence the relationship between CAM use and patient health behavior in this racial group. Of note, among African Americans, we did not find an association between health literacy and CAM use. This suggests that other factors influence CAM use among African Americans. Given our mixed results, additional studies are needed to corroborate our findings and investigate the mechanism by which health literacy relates to CAM use by race.

2. One of the findings of this study is that health literacy status differed by CAM use category, e.g. 14% meditation users had adequate health literacy compared to 61% of vitamin users. What is the possible explanation and implication of this interesting finding?

We have addressed this in paragraph 3 of our discussion.

Our results also indicate that health literacy status differed by CAM use category. Specifically, adequate health literacy was associated with vitamin use while inadequate health literacy was associated with meditation use. One possible explanation for this discrepancy is that only a small portion of our patients used meditation compared to vitamins. The small sample of patients that used meditation (n=57) may not reflect actual relationships in the population as a whole. Also, unmeasured patient level factors such as health knowledge may have influenced our results. It is possible that patients with increased health knowledge may be more apt to take pill based therapies compared to other CAM modalities based upon prior familiarity with medications. Larger population studies including patient level factors such as health knowledge and health literacy need to be conducted to accurately predict the independent relationship between health literacy and different CAM modalities.

Minor Essential Revisions

3. Background section, p.4, second paragraph: ‘Higher CAM has also been associated with health behavior and outcomes such as lower adherence ….’
COMMENT: Meaning unclear; lower adherence to what?
We have changed the sentence to clarify this point as follows:

Higher CAM use has also been associated with health behavior such as lower medication adherence in certain populations [17-19].

4. P.6, second line: ‘… was categorized as better/same and worse’ should be ‘… was categorized as better, same and worse’. Done.

5. Discussion section, p.11, first paragraph: ‘Although national estimates indicate that whites are more likely use CAM than African Americans, many national surveys lack measures of health literacy’.
COMMENT: I cannot see the point here.

We have edited the next sentence to clarify our point.

Although national estimates indicate that whites are more likely use CAM than African Americans [2], previous natural surveys lacked measures of health literacy. Factors such as health literacy may explain the propensity to use CAM in certain populations.

6. Discussion section, p.11, first paragraph: ‘… although higher educational attainment has been associated with increased CAM use, years of schooling may not necessarily predict reading ability’.  
COMMENT: I cannot see the point here.

We have edited the next sentence to clarify this point.

. In addition, although higher educational attainment has been associated with increased CAM use [6,13-16], years of schooling may not necessarily predict reading ability [25]. This suggests that both educational attainment and health literacy need to be included in studies assessing possible determinants of CAM use.

7. Discussion section, p.11, second paragraph: ‘It is also possible that patients in an academic center were more likely to use CAM secondary to medical complexity’.  
COMMENT: I cannot see the reason behind this explanation. Further elaboration is needed.

We have edited this sentence to clarity out point:

It is also possible that patients in an academic center were more likely to use CAM secondary to having a higher number of chronic conditions.

8. Discussion section, p.11, second paragraph: ‘… our measure of health literacy, the REALM-R, does not measure reading comprehension or numeracy. However, despite these unmeasured these skills, our analysis did reveal the REALM-R to be a valid and reliable measure.’  
COMMENT: What is the possible limitation for not measuring comprehension or numeracy in relation to a study on CAM use? This needs further elaboration. The sentence ‘… despite these unmeasured these skills’ also needs to be revised.

We agree that the impact on CAM use is difficult to interpret and already have mentioned in the results that the REALM-R was a valid measure in our study and therefore have removed this sentence.
Referee 5

Abstract:
I. The objectives need to be stated identically in the abstract and introduction part of the main text (Major compulsory).
II. The abstract needs to be rewritten after the authors have modified the main text according to my recommendations (Major compulsory).

We have edited the abstract to align with the objectives in the main text. Main text objectives are edited as follows:

The first objective of this study was to assess the association between health literacy and CAM use independent of educational attainment utilizing a valid CAM measure. Second, to evaluate the differential effect of health literacy on CAM use by race.

1. The authors should have as first objective to determine if the relationship is different according to sex. Only if the answer to this research question is NO will an overall assessment of the independent association of health literacy and CAM use make sense. They also need to state the objectives identically in the abstract and the introduction of the main text (Major compulsory)

Both objectives are aligned in the abstract and introduction as recommended.

We thought about this concern carefully. Our primary intent was to examine the relationship between health literacy and CAM use and then see if race makes a difference. Our a priori hypothesis was set to ask whether health literacy and CAM use were related and if this relationship differed by race. We feel strongly as to the main purpose of our paper and feel this is a better way to present our results.

Material and methods:
The authors state that 352 patients completed all the measures. At the same time they indicate that all consecutive patients were invited to participate.

We have edited this sentence since this only reflected the number of patients recruited as follows:

351 patients at the Medical University of South Carolina Internal Medicine (MUSC) clinic in Charleston, South Carolina were recruited.

2. The authors need to indicate how many patients were invited so there can be a calculation of response rate (Major compulsory)

As per Referee 1 recommendations as well we have included recruitment and response rate under Overall Sample Characteristics in our Results section as follows:
A total of 351 men and women were recruited and 347 (98.8%) completed the surveys.

3. The authors need to give the level of health status at the time of the study, not only the change over the previous 12 months (Major compulsory)

We did not have a measure for current health status and therefore reported health status over the previous 12 months.

4. The authors seem to have switched the categories for adequate and inadequate literacy. This needs to be corrected (Major compulsory)

We have edited this sentence under Health Literacy as follows:

For this analysis, health literacy was categorized as adequate health literacy (REALM-R≥6) and inadequate literacy (REALM-R<6).

5. The authors need to clearly define an overall CAM user (Major compulsory)

Under CAM use we have defined a CAM user as follows as recommended:

For this analysis, CAM use was defined as using any of the above modalities or self-help practices.

6. In line with my comments on the objectives, the statistical analyses need to reflect the appropriate sequence of analyses (Major compulsory).

Please see our comment under response 1

7. The authors need to address the issue of multiple testing (Major compulsory).

We agree that multiple testing in some situations is an issue, however our primary analysis is looking at adjusted models stratified by race, in which multiple testing is not an issue. Secondly, because we have a priori defined our hypothesis we do not feel there is a need to adjust for multiple comparisons.

Results:
8. When describing the association between sample characteristics and health literacy the authors should modify the second sentence to read: Adequate literacy was higher among white and hispanic/other race compared to black race (93% white, 82% hispanic/other versus 49% black; p<0.001), and also higher among married (84% married versus 67% unmarried; p<0.001), employed (81% employed versus 67% unemployed; p=0.003), and the ones who had health
insurance (85% privately insured versus 46% noninsured; p<0.001) (Major compulsory).

We have edited this section of the Results to read as follows:

Adequate health literacy was higher among white and hispanic/other race compared to black race (93% white, 82% hispanic/other versus 49% black; p<0.001), and also higher among married (84% married versus 67% unmarried; p<0.001), employed (81% employed versus 67% unemployed; p=0.003), and the ones who had health insurance (85% privately insured versus 46% noninsured; p<0.001).

9. The following sentences in the same paragraph should also be changed accordingly (Major compulsory)

We have edited this sentence as recommended as follows:

Adequate health literacy was higher among those with higher educational attainment (95% > college graduate versus 51% < high school graduate; p<0.001), and higher household income (98% > $75,000 versus 52% < $10,000; p<0.001), Gender and perceived health status were not statistically different by health literacy level.

10. I cannot understand how the authors find an overall CAM use of 80% when neither subcategory exceeds that percentage. Please rectify. (Major compulsory).

The different types of CAM use were not mutually exclusive, so the total will not approximate 100%. That is why CAM use is not a sum of the different types of CAM

11. As stated when commenting objectives, there is no meaning in presenting overall associations when there is a clearly significant interaction with race. All results should then be presented race-specifically (Major compulsory).

Please see our comment under response 1

Discussion

12. The first part of the discussion should be a summing-up of a maximum of two sentences. Make sure you are consistently presenting CAM use among patients with different levels of literacy, and not the other way around (Major compulsory)

We have edited the discussion to include a brief synopsis of our findings in the opening sentence of the discussion as recommended:

Overall we found that CAM use was not related to health literacy status. Analysis by race revealed that CAM use was related to adequate health literacy among whites and CAM use was not related to health literacy among African Americans.
13. The authors need to address a major potential bias, selection. They need to indicate the response rate (as mentioned previously) and discuss to what extent that may have influenced their results (Major compulsory).

We have added a response rate as recommended and have added the following as a limitation in response to this concern as follow:

Sixth, our study was cross sectional and selection bias is always a possibility. The high response rate in our sample may have minimized the effect of this bias.

14. The authors also need to compare their study with other studies (if any) in the field (Major compulsory)

We have edited the first sentence of our conclusion to note the lack of studies in the field as follows:

Although previous studies have demonstrated that CAM use is associated with educational attainment [6,13-16], to our knowledge this is the first study to examine the association between health literacy and CAM use.

Tables
15. Table 3 needs to be revised according to my recommendations under objectives, methods and results. (Major compulsory)

Please see our comment under response 1