

## PEER REVIEW HISTORY

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### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Fostering Student Motivation toward Community Healthcare: A Qualitative Study
<b>AUTHORS</b>	Yahata, Shinsuke; Takeshima, Taro; Kenzaka, Tsuneaki; Okayama, Masanobu

### VERSION 1 – REVIEW

<b>REVIEWER</b>	Charo Rodriguez McGill University Canada
<b>REVIEW RETURNED</b>	30-Apr-2020

<b>GENERAL COMMENTS</b>	<p>Journal: BMJ Open          Manuscript: bmjopen-2020-03934          Fostering Student Motivation toward Community Healthcare: A Qualitative Study          Date: April 30, 2020          *****</p> <p>The authors of this manuscript aimed to examine ‘factors’ and ‘processes’ that enhance medical students’ motivations to practice in the community. Whereas the paper could be of high interest for students, clinical teachers, and healthcare managers and policy decision-makers alike, the version submitted for consideration for publication in BMJ Open presents major shortcomings that prevents its acceptance for publication in this journal. Please find below my comments and suggestions, by section of the manuscript.</p> <p><b>INTRODUCTION</b>          First and foremost, I would strongly suggest the authors to better nuance the opening paragraph of the manuscript, which appears somehow outdated in the current COVID-19 pandemic situation: on the one hand, when a patient needs a ventilator, there is no doubt that the place to be is the hospital; on the other hand, primary healthcare has also a paramount role to play in fighting acute infectious diseases.          Second, I would also suggest the authors to clarify their assertion “... the uneven distribution of doctors is a serious global problem” (p. 4). Do they mean uneven physician manpower distribution among regions in a same country? Do they refer to an uneven distribution of different medical specialists in a given territory? Moreover, are they referring to just physicians,</p>
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or to any health worker, as suggested in the third line of the second paragraph of this section?

Third, there is another concept that should be further clarified in this section, i.e. chiikiwaku.

My understanding is that chiikiwaku is a system of regional quota by which Japanese medical students can have access to academic privileges as long as they accept, on a voluntary basis, to “work for a specified medical institution (especially in rural areas) for a certain period after graduation, during which they are required to practice CH” (p. 6) (emphasis is mine). To properly do so, students who, once again, voluntarily enroll in chiikiwaku “need to deepen their learning of CH during undergraduate studies” (p. 5). Fine with me so far. What I do not understand is the meaning of the last sentence, first paragraph, p. 6: “Motivating chiikiwaku students to study CH is necessary to promote proactive learning.” If adherence to chiikiwaku is done on a voluntary basis, it seems to me that some kind of motivation for learning and practicing CH must already be there, CH training during undergraduate studies being in this case required. The issue would therefore be not to encourage chiikiwaku students to study CH but to encourage medical students to enroll in chiikiwaku! This is further confirmed when the authors pinpoint the knowledge gap that they wanted to fulfil with their empirical investigation, i.e. “the knowledge of mechanisms that motivate students to participate in CH” (p. 5), which is judged “insufficient” in this area of research. However, as stated at the end of the section, the objective of this investigation was “to explore the factors and processes that influence the chiikiwaku [and not all medical] students’ motivations toward CH” (p. 5). Anyhow, this issue should be adequately explained and justified.

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Finally, and importantly, it would be absolutely necessary that these authors clearly state the research question that guided their research endeavor.

**THEORETICAL FRAMEWORK**

The reasons why the self-determination theory was adopted in this study should be better justified. In the field of education, ‘motivation’ to learn has been defined as “the willingness to attend and learn material in a development program” (Cole et al. 2004, p. 67). But more than ‘motivation’ per se, these authors were interested in exploring what the ‘factors’ and ‘processes’ that can foster medical students’ motivation to engage in undergraduate medical curricula in CH. Without making a clear distinction between what the authors consider ‘factors’ and ‘processes’, the adoption of Self-Determination Theory as theoretical perspective in this study appears congruent because this theory helps sustain those educational interventions aimed to stimulate

learners' "intrinsic motivation and inculcate a true love for learning and practice" (Kusurkar et al., 2012, p. 740) by meeting their needs of autonomy, competence, and relatedness. Once again, all these concepts in the context of this study could be much better explained in this manuscript. Likewise, regarding the ways (how) SDT was here used. For instance, how was SDT used in the development of the interview guideline? How was it used in the analysis on the empirical material gathered? How did SDT help the authors to further interpret and explain their findings?

About the relevance of SDT in medical and health professions education, I would strongly suggest the authors the reading of important works such as, for instance, Williams et al. (1999), Ten Cate et al. (2011), Kusurkar et al. (2012), or more recently Orsini et al. (2016), and Ntoumanis et al. (2020).

**METHODS**

**Research design** – In this text, there is no mention whatsoever of the methodology, or at least research design, that the authors adopted in their qualitative study.

**Participants** – As mentioned above, and assuming that the enrollment in the chiikivaku system is made on a voluntary basis, the authors should clearly explain and justify the reasons why they decided to focus their investigation only on these medical students (10% of the total population of medical students in the Kojo University) and not on all medical students. The rationale for including only fifth- and sixth-year medical students should also be clearly described. Some idea of the number of students considered should be provided as well. Then, in congruency with the problem at stake and the research question to be addressed (to be stated), the appropriate qualitative sampling strategy should be adopted; in other words, what is the pertinence of adopting a 'consecutive sampling' strategy in this study? Once again intimately related to the research question to be answered, how did the authors respect the general qualitative purposeful sampling approach?

**Data Collection** – Individual face-to-face, one-to-one interviews were chosen as data sources. Again, I see a disconnect between the theoretical framework adopted, and the type of questions that were asked to participants, which were based "on the students' past practical CH-related experiences" (p. 7). As an uncountable noun, the Collins Dictionary defines 'experience' as those "past events, knowledge, and feelings that make up someone's life or character." Should we understand that the focus of this investigation was on the experiences lived by chiikivaku medical students during their required undergraduate training in CH with the aim to retrospectively

	<p>examine how these experiences met their needs of autonomy, competence, and relatedness? In any case, these issues should be adequately addressed in this manuscript.</p> <p>Data Analysis – For data analysis, these authors adopted a grounded theory-inspired thematic analytical approach. Nothing to question regarding the technical aspects of the strategy except, once again, its incoherence in regard to the theoretical approach adopted.</p> <p><b>RESULTS</b></p> <p>The authors state that three major themes result from their analytical endeavor, all of them involving different subthemes. Forgetting the no-use of SDT as theoretical lenses for interpreting and explaining the findings of this investigation, and accepting that the analysis of the material gathered followed a grounded theory approach, I would consider that this section is well structured, but mostly by subtheme. The narrative corresponding to the meaning of the major 'pattern', i.e. overarching theme, resulting from the analysis is missing. This absence correlates with the lack of adequate information provided in the 'name' of the theme. Braun and Clarke (2006) stress that "[n]ames need to be concise, punchy, and immediately give the reader a sense of what the theme is about" (p. 93). This is something that I do not appreciate in the labels here used, namely: (1) preparing for the future, (2) community relationships, (3) psychological effects. What is more, since the authors have not formulated a research question, the congruency among themes for the sake of the overall story (Braun and Clarke, 2006) is missing as well.</p> <p><b>DISCUSSION</b></p> <p>This section is poorly developed, and should be fully revamped once the conceptual and methodological shortcomings mentioned above be fixed. To conclude, whereas the topic under investigation is important, the (on paper) adoption of SDT appears pertinent, and the material gathered might be promising, the manuscript submitted should be deeply reworked to be considered for publication in BMJ Open. I hope that my comments and suggestions help the authors in the case they decide to rewrite their research report.</p> <p>Good luck!</p> <p>References</p> <p>Braun V, and Clarke V. (2006). Using Thematic Analysis in Psychology. <i>Qualitative Research in Psychology</i> 3 (2): 77-101.</p> <p>Cole MS, Field HS, and Harris SG. (2004). Student Learning Motivation and Psychological Hardiness: Interactive Effects on Students' Reactions to a Management Class. <i>Academy of Management Learning and Education</i> 3 (1): 64-85.</p> <p>Kusurkar RA, Croiste G, Mann KV, Custers E, and ten Cate O. (2012). Have Motivation</p>
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	<p>Theories Guided the Development and Reform of Medical Education Curricula? A Review of the Literature. <i>Academic Medicine</i> 87: 735-743.</p> <p>4</p> <p>Ntoumanis N, Ng JYY, Prestwich A, Quested E, Hancox JE, Thøgersen-Ntoumani C, et al. (2020). A Meta-analysis of Self-Determination Theory-Informed Intervention Studies in the Health Domain: Effects on Motivation, Health Behavior, Physical, and Psychological Health. <i>Health Psychology Review</i>, DOI: 10.1080/17437199.2020.1718529</p> <p>Orsini C, Binnie VI, and Wilson SL. (2016). Determinants and Outcomes of Motivation in Health Professions Education: A Systematic Review Based on Self-Determination Theory. <i>Journal of Educational Evaluation for Health Professions</i> 13: 19  <a href="http://dx.doi.org/10.3352/jeehp.2016.13.19">http://dx.doi.org/10.3352/jeehp.2016.13.19</a></p> <p>Ten Cate ThJ, Jusurikar Ram and Williams GC. (2011). How Self-Determination Theory Can Assist Our Understanding of the Teaching and Learning Processes in Medical Education. <i>AMEE Guide No. 59. Medical Teacher</i> 33: 961-973.</p> <p>Williams GC, Saizow RB, and Ryan RM. (1999). The Importance of Self-Determination Theory for Medical Education. <i>Academic Medicine</i> 74(9): 992–995.</p>
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<b>REVIEWER</b>	Lene Lunde and Anja Brænd Department of Nursing Science/Department of General Practice, Medical Faculty, University of Oslo, Norway
<b>REVIEW RETURNED</b>	19-Jun-2020

<b>GENERAL COMMENTS</b>	<p>Dear authors,</p> <p>Thank you for the opportunity to review your manuscript entitled “Fostering Student Motivation toward Community Healthcare: A qualitative study”. The study topic of exploring students’ motivation for community health care is highly relevant worldwide. However, the manuscript has some shortcomings, please see specific comments below.</p> <p>In general, you use a lot of words and concepts as a statement without explaining how they affect your study. These statements need further elaboration in relation to your study.</p> <p>Abstract Page 3, line 19-33: This is somewhat unclear.</p> <p>Strengths and limitations of this study Page 4, line 56: It is good to highlight the strengths of the study. However, it does not add any additional value to write that your findings describe “the motivation mechanism more precisely than previous findings” without mentioning how. We suggest omitting the last part of the sentence.</p> <p>Introduction Page 6, line 55: The description and significance of the problem is identified. However, we found that you have described the aim differently in the abstract than here in the introduction. It is</p>
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	<p>recommended to be consistent in wording of the aim throughout the manuscript.</p> <p><b>Methods</b>  Page 7, line 8: Generally, the methods section would be better if restructured after “The standards for reporting qualitative research (SRQR)”. First, define your qualitative approach (design) and theoretical perspective/ paradigm, and then continue with researcher characteristics, setting, participants, data collection, ethical, data collection. As it stands, the section is difficult to read and understand.</p> <p><b>Participants</b>  Page 7, line 15: As far as we understand, consecutive sampling means that you enroll every single participant who meets your inclusion criteria until you reach desired sample size. You describe that you contacted all of the students available (19) and that 14 said yes. This sounds more like convenience sample. You further describe that consecutive sampling was used until obtaining saturation. How so?</p> <p>Page 7, line 27: What were the reasons for non-participation?</p> <p><b>Data collection</b>  Page 8, line 46: The description of use of qualitative study methods should be at the start of the methods section followed by theoretical framework and researcher characteristics.</p> <p>Page 8, line 49: How, specifically did you plan to co-create meanings by reconstructing perceptions of experiences? This is unclear. Co-creation of meaning is something that can be achieved in for example focus group interviews.</p> <p>Page 8, line 55: We suggest to use interview guide instead of form.</p> <p>Page 8, line 58: A pilot study with 1 student is not much. How did you adapt the interview guide? How did you confirm that the adaption had no major matters of concern?</p> <p><b>Supplementary appendix</b>  Page 9, line 16: As mentioned before, use interview guide.</p> <p>Page 9, line 18: In question 2-8 you use the word feeling. Do you mean experience and/ or perception?</p> <p><b>Data analysis:</b>  Page 9, line 41: The analysis process is not clear. The four-step coding process must be explained in detail. As it stands, it is impossible to understand how you end up with themes and constructs in step 4. How do you “find words that can replace the words” and “determine words that explain words”. Do you mean operationalization of words to constructs?</p> <p>Page 9, line 51: What do you mean by writing a story-line? What theories are being created? Is this supposed to be a theory generating study?</p>
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	<p>Page 9, line 57 (and tip of page 10): Why is this approach good for its usability, proves explicitness and improved reflectability and falsifiability?</p> <p>Page 10, line 13: How did the processes assess the analysis dependability and confirmability. In general, be careful of using words and concepts as a statement without explaining how.</p> <p>Research paradigm and researcher characteristics Page 10, line 23: In which way will the constructivist paradigm acknowledge researcher subjectivities?</p> <p>Page 10, line 26: How did the researcher characteristics influence the research? You should add a paragraph were you reflect on the researchers role. You do describe something under limitations, but it would be good to address this earlier.</p> <p>Theoretical framework Page 10, line 43: Why was this theoretical framework used to explore influencing factors?</p> <p>Page 10, line 52: The word “propensity” is a strange word. We would suggest changing the word, eg, tendency. We would also suggest that you use variation when writing. The same word is used three times in succession.</p> <p>Page 11, line 12: From this sentence and throughout the section, the presentation of the theoretical framework is mixed with examples in relation to CH. Where does these examples come from? Are they found in your material or are the based on your experience?</p> <p>Patient or public involvement Page 11, line 50: How did the students participate? Did all of them comment? How did it ensure readability or accuracy?</p> <p>Results In general, the concepts from the theoretical framework is presented as an explanation in itself during the presentation of results. We suggest omitting the use of the theoretical concept in the presentation of results. The theoretical framework should be discussed in relation to your results in the discussion section.</p> <p>Page 12, line 10: In relation to the comment about aim. Here you present factors that influence the students’ motivation towards CP. Be consistent in how you report your aim.</p> <p>Page 12, line 13: How did these themes emerge? With reference to step 4 in the methods section, it is not clear how the themes and constructs are generated.</p> <p>Page 13, line 33: Here you mention autonomy from the theoretical framework. However, there is not clear how they are connected. Why/ how did it fulfill the students autonomy needs? This should be discussed in the discussion section.</p> <p>Page 13, line 46. Again, the constructs from the theoretical framework are just presented as an explanation in itself. Thus, leaving the connection between theory and result unclear. This should be discussed in the discussion section.</p>
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	<p>Page 13, line 52: How did the experiences promote introjected regulation, identified regulation and integrated regulation. This should be discussed in the discussion section.</p> <p>Page 14-21: Same comment applies here about constructs from theoretical framework in the presentation of your results. The theoretical framework should be discussed in the discussion section.</p> <p>Discussion Page 17, line 39: SDT is mentioned as a theoretical framework, but it is unclear exactly how the framework relates to the results. You should discuss the themes and sub-themes in relation to the theory in this section. This would greatly improve the discussion section.</p> <p>Comparison with previous findings Page 22, line 11: The discussion section would be improved if this section was combined and You could discuss your findings in relation to CH worldwide by using other studies, and thus lift your findings to a more general level. discussed with your findings. As it stands there is no real discussion of findings related to prior work.</p> <p>Lessons for CBME programming Page 22, from line 43: The discussion section lacks a discussion of how the findings from this study should be used. In what way will for example opportunities to interact with the community/ resident/ patients provide empathy for the community?  It is good to summarize lessons for future programs, but it should be more precise, concrete and easy to apply, not just a litany of words. In addition, why are all the concepts in quotation marks?</p> <p>Limitations Page 24, line 10: We agree that you should acknowledge limitations. However, there are likely more than two limitations in any study. We miss a broader discussion of the study limitations.  Page 24, line 40: The fact that this study was conducted with students by their teacher should be addressed much earlier, in researcher characteristics, as well as in the discussion section</p> <p>Conclusions Page 25, line 20: The conclusion should be more to the point with examples of how the students developed a motivation and how these mechanisms should be incorporated.</p>
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## VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Reviewer Name: Charo Rodriguez

Institution and Country: McGill University, Canada



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The authors of this manuscript aimed to examine 'factors' and 'processes' that enhance medical students' motivations to practice in the community. Whereas the paper could be of high interest for students, clinical teachers, and healthcare managers and policy decision-makers alike, the version submitted for consideration for publication in BMJ Open presents major shortcomings that prevents its acceptance for publication in this journal. Please find below my comments and suggestions, by section of the manuscript.

Thank you so much for your review. We appreciate your very valuable suggestions, and in response we were able to improve the paper. We have revised it in accordance with your comments, and look forward to your further review.

## INTRODUCTION

First and foremost, I would strongly suggest the authors to better nuance the opening paragraph of the manuscript, which appears somehow outdated in the current COVID-19 pandemic situation: on the one hand, when a patient needs a ventilator, there is no doubt that the place to be is the hospital; on the other hand, primary healthcare has also a paramount role to play in fighting acute infectious diseases.

Thank you for your suggestion. You make a very important point. We added sentences at the end of para. 1 in the Introduction: "In addition, the impact of the COVID-19 pandemic has highlighted the division between hospital and primary care. There is no doubt that in the case where a patient needs a ventilator, the hospital is the appropriate location. Nevertheless, it has also been shown that primary healthcare also has an essential role to play in fighting acute infectious diseases."

Second, I would also suggest the authors to clarify their assertion "... the uneven distribution of doctors is a serious global problem" (p. 4). Do they mean uneven physician manpower distribution among regions in a same country? Do they refer to an uneven distribution of different medical specialists in a given territory? Moreover, are they referring to just physicians, or to any health worker, as suggested in the third line of the second paragraph of this section?

Thank you for highlighting this ambiguity, we have revised the text accordingly.

Before: "the uneven distribution of doctors is a serious global problem"

After: "Furthermore, the uneven distribution of physician manpower among regions in a single country is a serious global problem."

Third, there is another concept that should be further clarified in this section, i.e. *chiikiwaku*. My understanding is that *chiikiwaku* is a system of regional quota by which Japanese medical students can have access to academic privileges as long as they accept, on a voluntary basis, to "work for a specified medical institution (especially in rural areas) for a certain period after graduation, during which they are required to practice CH" (p. 6) (emphasis is mine). To properly do so, students who, once again, voluntarily enroll in *chiikiwaku* "need to deepen their learning of CH during undergraduate studies" (p. 5). Fine with me so far. What I do not understand is the meaning of the last sentence, first paragraph, p. 6: "Motivating *chiikiwaku* students to study CH is necessary to promote proactive learning." If adherence to *chiikiwaku* is done on a voluntary basis, it seems to me that some kind of motivation for learning and practicing CH must already be there, CH training during undergraduate studies being in this case required. The issue would therefore be not to encourage *chiikiwaku* students to study CH but to encourage medical students to enroll in *chiikiwaku*! This is further confirmed when the authors pinpoint the knowledge gap that they wanted to fulfil with their empirical investigation, i.e. "the knowledge of mechanisms that motivate students to participate in CH" (p. 5), which is judged "insufficient" in this area of research. However, as stated at the end of the section, the objective of this investigation was "to explore the factors and processes that influence the *chiikiwaku* [and not all medical] students' motivations toward CH" (p. 5). Anyhow, this issue should be adequately explained and justified.

Thank you for this comment, which makes another important point. However, enrollment to the chiikiwaku program can only be done at the time of admission, and this study targeted only current chiikiwaku students. As such, we have cited a previous report stating that the motivation of chiikiwaku students decreased throughout their studies in order to justify the purpose of the paper. Furthermore, we mentioned in the limitation section the importance of encouraging other students to enroll in CH.

Before: "Therefore, chiikiwaku students need to deepen their learning of CH during undergraduate studies. Motivating chiikiwaku students to study CH is necessary to promote proactive learning."

After: "However, it has been reported that the willingness of chiikiwaku students to remain in medically underserved areas declines from 52.3% to 19.2% during their studies.<sup>7</sup> Withdrawal from the chiikiwaku system, which was reported to be about 10%, is also a problem.<sup>8</sup> Moreover, the preference for a primary care career, which is necessary for practicing CH, may decrease during medical school.<sup>9 10</sup> Therefore, it is necessary to continuously encourage chiikiwaku students, while they are undergraduates, to maintain and improve their motivation for practicing CH."

Finally, and importantly, it would be absolutely necessary that these authors clearly state the research question that guided their research endeavor.

We have modified the paragraph at the end of the Introduction so that the study's purpose can be understood more clearly.

Before: "As such, our research objective is to explore the factors and processes that influence the chiikiwaku students' motivation toward CH."

After: "As such, our research objective is to retrospectively investigate what kind of experiences influenced their motivation for practicing CH, and the mechanism of this influence, by focusing on the lived experiences of chiikiwaku students in CBME programs."

## THEORETICAL FRAMEWORK

The reasons why the self-determination theory was adopted in this study should be better justified.

In the field of education, 'motivation' to learn has been defined as "the willingness to attend and learn material in a development program" (Cole et al. 2004, p. 67). But more than 'motivation' per se, these authors were interested in exploring what the 'factors' and 'processes' that can foster medical students' motivation to engage in undergraduate medical curricula in CH. Without making a clear distinction between what the authors consider 'factors' and 'processes', the adoption of Self-Determination Theory as theoretical perspective in this study appears congruent because this theory helps sustain those educational interventions aimed to stimulate learners' "intrinsic motivation and inculcate a true love for learning and practice" (Kusurkar et al., 2012, p. 740) by meeting their needs of autonomy, competence, and relatedness. Once again, all these concepts in the context of this study could be much better explained in this manuscript.

In deepening the description in the discussion section, the application of SDT alone was insufficient to fully explain the interpretation. For that reason, we have extended the theoretical framework to encompass not only SDT but also three internal motives. We have subsequently discussed why these were adopted for the theoretical framework.

Added text: "To interpret how students' experiences influenced their motivation for practicing CH, we used Reeve's concept of three internal motives,<sup>26</sup> and some additional motivation theories, were the foundation for our theoretical framework. There are numerous motivation theories; however, some confusion has arisen from their diversity because of their conceptual overlaps and disagreements.<sup>27</sup> In other words, there is no one theory that can absolutely explain human motivation. We addressed this issue by using the concepts of three internal motives based on their clarity. Reeve defines "motivation" as "a condition inside us that desires a change" and proposes three internal motives for action: needs, cognitions, and emotions. We considered "student motivation toward CH" as "a condition inside students that they desire to practice CH" and adopted these three internal motives as a framework. In addition, in order to explain the three internal motives in detail, we used self-

determination theory (SDT),<sup>28</sup> expectancy-value theories (EVT),<sup>29</sup> and positive and negative emotions<sup>30</sup> as subordinate guiding theories. We chose SDT and EVT because they are current, widely recognized theories.<sup>27 31-33</sup> Emotions have been characterized as feeling-arousal-purposive-expressive phenomena, whose components cooperate in a complicated manner and allow us to react adaptively to the important events in our lives.<sup>26</sup> For the purposes of our study, in order to express them more simply, we adopted six positive and six negative emotions.<sup>30</sup>

Likewise, regarding the ways (how) SDT was here used. For instance, how was SDT used in the development of the interview guideline? How was it used in the analysis on the empirical material gathered? How did SDT help the authors to further interpreted and explain their findings? About the relevance of SDT in medical and health professions education, I would strongly suggest the authors the reading of important works such as, for instance, Williams et al. (1999), Ten Cate et al. (2011), Kusrkar et al. (2012), or more recently Orsini et al. (2016), and Ntoumanis et al. (2020). We did not use the SDT framework whilst we constructed the interview guide. These frameworks were used to interpret and explain the findings, so I have included a description of this sequence. Furthermore, we thank the reviewer for the suggestions of relevant articles, which we have used to strengthen our framework. We have added the articles you suggested, namely Ten Cate et al. (2011), Kusrkar et al. (2012), and Orsini et al. (2016) to the references in order to explain the framework.

Add: "These frameworks were adopted to analyze the students' experiences and facilitate the interpretation of what their effects were on motivation and the mechanisms by which they operated. Using multiple theories encourages a deeper understanding of motivational principles.<sup>27</sup>"

## METHODS

Research design – In this text, there is no mention whatsoever of the methodology, or at least research design, that the authors adopted in their qualitative study.

We have expanded the Methods section a great deal, and added a clear specification of the research design.

Add: "We conducted a qualitative thematic analysis using interview data."

Participants – As mentioned above, and assuming that the enrollment in the chiikivaku system is made on a voluntary basis, the authors should clearly explain and justify the reasons why they decided to focus their investigation only on these medical students (10% of the total population of medical students in the Kojo University) and not on all medical students. The rationale for including only fifth- and sixth-year medical students should also be clearly described. Some idea of the number of students considered should be provided as well. Then, in congruency with the problem at stake and the research question to be addressed (to be stated), the appropriate qualitative sampling strategy should be adopted; in other words, what is the pertinence of adopting a 'consecutive sampling' strategy in this study? Once again intimately related to the research question to be answered, how did the authors respect the general qualitative purposeful sampling approach?

We described why we focused on only fifth- or sixth-year chiikiwaku students (they are in the clinical stage of their studies), and stated the number of students we considered for participation. In addition, we have made some corrections regarding the sampling strategy.

Before: "We used consecutive sampling to recruit participants until obtaining saturation..."

After: "We used purposive sampling<sup>36</sup> in order to focus on the mechanisms through which chiikiwaku students maintained and improved their motivation for practicing CH. We recruited fifth- or sixth-year chiikiwaku students at Kobe University as research participants. We selected fifth- or sixth-year students (i.e., students in their clinical years) to effectively collect rich experiences related to CH. There were 19 chiikiwaku students who satisfied the selection criteria. We could not predetermine the required sample size. However, using rough rules of thumb, it was judged that 12 to 26 participants could be considered appropriate,<sup>37</sup> and so we estimated that it would be possible to carry out the research using the selected criteria."

Data Collection – Individual face-to-face, one-to-one interviews were chosen as data sources. Again, I see a disconnect between the theoretical framework adopted, and the type of questions that were asked to participants, which were based “on the students’ past practical CH-related experiences” (p. 7). As an uncountable noun, the Collins Dictionary defines ‘experience’ as those “past events, knowledge, and feelings that make up someone’s life or character.” Should we understand that the focus of this investigation was on the experiences lived by chiikivaku medical students during their required undergraduate training in CH with the aim to retrospectively examine how these experiences met their needs of autonomy, competence, and relatedness?

In any case, these issues should be adequately addressed in this manuscript.

Thank you for your valuable comment, which expresses our intention clearly. Our research objective was to retrospectively investigate the details what kind of experiences influence their motivation for practicing CH the mechanism of this influence, focusing on the lived experiences of chiikiwaku students during their undergraduate training in CH. We have rewritten the purpose of the study to reflect this, in various locations. In addition, as mentioned above, we have also rewritten the theoretical framework section, highlighting more clearly the students’ autonomy, competence and relatedness needs, and how they link to their experiences.

Data Analysis – For data analysis, these authors adopted a grounded theory-inspired thematic analytical approach. Nothing to question regarding the technical aspects of the strategy except, once again, its incoherence in regard to the theoretical approach adopted.

We have extensively revised the theoretical framework section and made the manuscript coherent throughout.

## RESULTS

The authors state that three major themes result from their analytical endeavor, all of them involving different subthemes. Forgetting the no-use of SDT as theoretical lenses for interpreting and explaining the findings of this investigation, and accepting that the analysis of the material gathered followed a grounded theory approach, I would consider that this section is well structured, but mostly by subtheme. The narrative corresponding to the meaning of the major ‘pattern’, i.e. overarching theme, resulting from the analysis is missing. This absence correlates with the lack of adequate information provided in the ‘name’ of the theme. Braun and Clarke (2006) stress that “[n]ames need to be concise, punchy, and immediately give the reader a sense of what the theme is about” (p. 93). This is something that I do not appreciate in the labels here used, namely: (1) preparing for the future, (2) community relationships, (3) psychological effects. What is more, since the authors have not formulated a research question, the congruency among themes for the sake of the overall story (Braun and Clarke, 2006) is missing as well.

Thank you for this important comment. We have added the theoretical framework to the discussion section, as suggested by Reviewer 2. We have also increased the descriptions of the main themes at the start of the results section, as described below. In addition, the names of the themes were revised to be more precise and informative (Envisioning and preparing for practicing CH, Belonging to a supportive community, and Heuristics and biases).

Before: “While exploring the factors that influence the chiikiwaku students’ motivation toward CH, three themes emerged: preparing for the future, community relationships, and psychological effects.”

After: “While exploring the details of what kind of experiences influence chiikiwaku students’ motivation for practicing CH and the mechanisms of this influence, three mechanisms and corresponding experiences emerged as the final themes. First, envisioning and preparing for practicing CH (comprising corresponding experiences of empathy for the community, grasping the demands for CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career); second, belonging to a supportive community (comprising robust construction of students’ community for CH and harmonization with community residents); and third, heuristics and biases (affect heuristic and framing effects). The

corresponding experiences brought about the changes and influences described in the presented mechanism and had both a positive and negative impact on students' motivation toward CH, depending on the level of fulfillment obtained through the experiences and whether students were able to accept them.”

## DISCUSSION

This section is poorly developed, and should be fully revamped once the conceptual and methodological shortcomings mentioned above be fixed.

The Discussion section has been radically revised to incorporate all the additional material about the theoretical framework.

To conclude, whereas the topic under investigation is important, the (on paper) adoption of SDT appears pertinent, and the material gathered might be promising, the manuscript submitted should be deeply reworked to be considered for publication in BMJ Open. I hope that my comments and suggestions help the authors in the case they decide to rewrite their research report.

Good luck!

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Reviewer: 2

Reviewer Name: Lene Lunde and Anja Brænd

Institution and Country: Department of Nursing Science/Department of General Practice, Medical Faculty, University of Oslo, Norway

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Dear authors,

Thank you for the opportunity to review your manuscript entitled “Fostering Student Motivation toward Community Healthcare: A qualitative study”. The study topic of exploring students’ motivation for community health care is highly relevant worldwide. However, the manuscript has some shortcomings, please see specific comments below.

In general, you use a lot of words and concepts as a statement without explaining how they affect your study. These statements need further elaboration in relation to your study.

Thank you so much for your detailed review. Following your very valuable suggestions, we were able to improve the paper. We have revised it thoroughly, and look forward to your further review. Please see our specific responses below.

#### Abstract

Page 3, line 19-33: This is somewhat unclear.

We have revised the abstract to reflect the modifications we have made to the body of the manuscript.

#### Strengths and limitations of this study

Page 4, line 56: It is good to highlight the strengths of the study. However, it does not add any additional value to write that your findings describe “the motivation mechanism more precisely than previous findings” without mentioning how. We suggest omitting the last part of the sentence.

Thank you for your comment. We have omitted the last part of the sentence: (i.e., “This study precisely describes the motivation mechanisms of medical students toward practicing community healthcare.”)

#### Introduction

Page 6, line 55: The description and significance of the problem is identified. However, we found that you have described the aim differently in the abstract than here in the introduction. It is recommended to be consistent in wording of the aim throughout the manuscript.

Thank you for your comment. We have ensured consistency in stating the purpose of the manuscript.

#### Methods

Page 7, line 8: Generally, the methods section would be better if restructured after “The standards for reporting qualitative research (SRQR)”. First, define your qualitative approach (design) and theoretical perspective/ paradigm, and then continue with researcher characteristics, setting, participants, data collection, ethical, data collection. As it stands, the section is difficult to read and understand.

Thank you for this suggestion, with which we agree. We have revised the structure of the Methods accordingly, and hope it is now clearer.

#### Participants

Page 7, line 15: As far as we understand, consecutive sampling means that you enroll every single participant who meets your inclusion criteria until you reach desired sample size. You describe that you contacted all of the students available (19) and that 14 said yes. This sounds more like convenience sample.

You further describe that consecutive sampling was used until obtaining saturation. How so?

We are sorry that the description of the method was difficult to understand. We have modified the text to convey the intent clearly. In addition, reviewer 1 recommended the adoption of a general qualitative sampling method, so instead of using the term “consecutive sampling,” we adopted the term “purposive sampling” and have described the sampling method in detail.

Before: “We used consecutive sampling to recruit participants until obtaining saturation, i.e. no further themes or constructs could be identified in the analysis.<sup>20</sup> There were 19 chiikiwaku students (female = 10, male = 9) in their fifth and sixth years at Kobe University. First, the first author (YS) contacted them by e-mail; then, the students who expressed interest in participating were informed of the details in person.”

After: "We used purposive sampling<sup>36</sup> in order to focus on the mechanisms through which chiikiwaku students maintained and improved their motivation for practicing CH. We recruited fifth- or sixth-year chiikiwaku students at Kobe University as research participants. We selected fifth- or sixth-year students (i.e., students in their clinical years) to effectively collect rich experiences related to CH. There were 19 chiikiwaku students who satisfied the selection criteria. We could not predetermine the required sample size. However, using rough rules of thumb, it was judged that 12 to 26 participants could be considered appropriate,<sup>37</sup> and so we estimated that it would be possible to carry out the research using the selected criteria. We continued sampling until obtaining saturation, i.e., no further themes or constructs could be identified in the analysis.<sup>38</sup> As a practical procedure, the first author (YS) emailed the first participant who was randomly selected from the target groups that satisfied the selection criteria; then, if this student expressed an interest in participating, they were informed of the details in person and gave their written informed consent. After collecting and analyzing their data, YS contacted the next participant in a similar manner."

Page 7, line 27: What were the reasons for non-participation?

We apologize for the lack of clarity here. The reason for non-participation was that theoretical saturation had been reached.

Before: "A total of 14 students (73.7%; female = 9, male = 5) agreed to participate."

After: "Everyone who received the request kindly agreed to participate. Finally, a total of 14 students (73.7%; female = 9, male = 5) participated (i.e., theoretical saturation was reached after 14 students had been interviewed, at which point the interviews were concluded)."

Data collection

Page 8, line 46: The description of use of qualitative study methods should be at the start of the methods section followed by theoretical framework and researcher characteristics.

As mentioned above, we have revised the structure of the methods to reflect your comments.

Page 8, line 49: How, specifically did you plan to co-create meanings by reconstructing perceptions of experiences? This is unclear. Co-creation of meaning is something that can be achieved in for example focus group interviews.

We based our understanding of co-creating meaning on Diccico-Bloom et al., wherein individual in-depth interviews are used "to co-create meaning with interviewees by reconstructing perceptions of events and experiences related to health and health care delivery." (Diccico-Bloom B, Crabtree BF. The qualitative research interview. *Med Educ* 2006;40(4):314-21. doi: 10.1111/j.1365-2929.2006.02418.x) Subsequently, we had thought of "co-creation of meaning" as the interviewer asking and listening properly in order to allow the interviewee to verbalize (i.e., reconstruct) the meaning of an experience, which had been buried deeply without being conscious or expressed.

However, we have changed our text after you kindly brought my attention to the fact that "Co-creation of meaning is something that can be achieved in for example focus group interviews".

Before: We chose individual, in-depth, semi-structured interviews to delve deeply into interviewees' experiences and co-create meanings by reconstructing perceptions of experiences."

After: "We chose individual, in-depth, semi-structured interviews that allowed us to delve deeply into interviewees' experiences in order to acquire concrete descriptions.<sup>25</sup>"

Page 8, line 55: We suggest to use interview guide instead of form.

We have changed the wording from "form" to "guide."

Page 8, line 58: A pilot study with 1 student is not much. How did you adapt the interview guide? How did you confirm that the adaption had no major matters of concern?

Based on your comment, we have changed our description.

Before: "After a pilot study with one student, it was adapted and confirmed that it had no major matters of concern."

After: "This guide was used as a pilot guide and was intended to be revised as the study progressed; in the end it was not revised because a sufficient quantity of descriptions by interviewees was attained."

Supplementary appendix

Page 9, line 16: As mentioned before, use interview guide.

We have changed the wording from "form" to "guide."

Page 9, line 18: In question 2-8 you use the word feeling. Do you mean experience and/ or perception?

Thank you. We have changed the wording from "feeling" to "perception."

Data analysis:

Page 9, line 41: The analysis process is not clear. The four-step coding process must be explained in detail. As it stands, it is impossible to understand how you end up with themes and constructs in step 4. How do you "find words that can replace the words" and "determine words that explain words". Do you mean operationalization of words to constructs?

We have specified the analytical process in more detail, as below.

Before: "The transcripts were analyzed following the 'Steps for Coding and Theorization' (SCAT) method. SCAT consists of a four-step coding process: (1) determining focused words from the segmented text; (2) determining words that can replace the words in (1) with words from outside of the text; (3) determining words that explain the words in (1) and (2); and (4) creating themes and constructs, then writing a story-line and generating theories."

After: The transcripts were analyzed following the "Steps for Coding and Theorization" (SCAT) method, which is a grounded theory-inspired thematic analytical approach.<sup>22</sup> SCAT consists of a four-step coding process. As a preliminary preparation, the text of the transcript is segmented properly on a per-speech basis. Then, (1) determining focused words from the segmented text: identifying the important words (codes) from the segmented text. (2) Determining words that can replace the words in step (1) with words external to the text: writing other codes that represent the meanings of the codes in step (1). (3) Determining words that explain the words in steps (1) and (2): writing other codes that can explain the codes in step (1) and (2) while considering the context of the entire data. (4) Creating themes and constructs: reading step (1) to (3) carefully and drawing out new themes and constructs.

The next step is writing a story line, which was defined by Otani as a "description of the latent meanings of the events described in the data by piecing the themes mainly described in step (4)." Through the process of decontextualizing and recontextualizing the data, the "deep context" of the data can be obtained from their "surface context." Finally, theories are generated by fragmenting the story line to discover new theories. According to Otani, the theories identified in this process are "not something that is universal and generally accepted, but what can be said from this data."

To facilitate an understanding of the analysis process of SCAT, Otani described practical examples<sup>39</sup> using the text from Akatsu<sup>40</sup>: "Auscultation of Heart Sounds Taught by Body." We summarized and introduced one part of the analysis process. The fragmented data were "The professor began to undress on the platform. Everyone was taken aback. Then, on his chest, an image of heart and blood vessels appeared. Everyone cheered and applauded." Step (1): he focused on "professor," "image of heart and blood vessels appeared," and "cheered and applauded." Step (2): he replaced each word to "authoritative teacher," "overlying reality with teaching materials," "surprise teaching material presentation," and "students' surprise and pleasure." Step (3): he determined the words "superimposition of real body and picture" and "element of surprise" Step (4): he created the themes and constructs of "modeling reality," "layer presentation of reality and teaching materials," and "extracting motivation and expectations based on surprise." Writing a story line: he wrote that "this



professor turned his body into a type of teaching material in a surprising way and realized a learning process that included surprises.” Generating theory: he generated the theories “the use of one’s body in medical education can leave a strong impression on learners.”

As such, we have described the final themes by organizing the theories that emerged through analysis. The process of going back and forth between steps (1) and (4) and reading them repeatedly improves the quality and depth of the analyst’s reflection. Furthermore, the explicit description of the analytic process allowed the readers to falsify the result.

Page 9, line 51: What do you mean by writing a story-line? What theories are being created? Is this supposed to be a theory generating study?

We have detailed this process as above.

Page 9, line 57 (and tip of page 10): Why is this approach good for its usability, proves explicitness and improved reflectability and falsifiability?

We have detailed the reasons why this approach is good in the section above.

Page 10, line 13: How did the processes assess the analysis dependability and confirmability. In general, be careful of using words and concepts as a statement without explaining how.

The inquiry audit is originally conducted by an external reviewer,[ Polit DF, Beck CT. Nursing Research: Principles and Methods. 7th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2004.] and since it is difficult to assess dependability and confirmability in our research, the description of the relevant part was deleted./span>

Before: “YS analyzed the data in each step, and a co-researcher (OM) reviewed the transcripts and analysis results as an inquiry audit. These processes assessed the analysis’ dependability and confirmability.”

After: “YS analyzed the data in each step, and a co-researcher (OM) reviewed the transcripts and analysis results.”

Research paradigm and researcher characteristics

Page 10, line 23: In which way will the constructivist paradigm acknowledge researcher subjectivities?

We thought that the description “acknowledge researchers’ subjectivities” was inappropriate, so we have changed the sentence. In addition, it has been moved to the start of the Qualitative approach and research paradigm section.

Before: “We chose the constructivist paradigm to acknowledge researchers’ subjectivities.”

After: “We chose the constructivism paradigm to interpret the meanings of students’ experiences.”

Page 10, line 26: How did the researcher characteristics influence the research? You should add a paragraph where you reflect on the researchers role. You do describe something under limitations, but it would be good to address this earlier.

We have moved this description from the limitation section to the researcher characteristics section and made minor modifications to it.

Theoretical framework

Page 10, line 43: Why was this theoretical framework used to explore influencing factors?

As we replied to reviewer 1, we mentioned why we adopted these frameworks. In addition, in order to deepen the interpretation of the results, we have extended the theoretical framework not only to SDT but also to three internal motives, and expanded the description of it greatly.

Add: “To interpret how students’ experiences influenced on their motivation for practicing CH, we used Reeve’s concept of three internal motives,<sup>26</sup> and some additional motivation theories, were the foundation for our theoretical framework. There are numerous motivation theories; however, some confusion has arisen from their diversity because of their conceptual overlaps and disagreements.<sup>27</sup> In other words, there is no one theory that can absolutely explain human motivation. We addressed this

issue by using the concepts of three internal motives based on their clarity. Reeve defines "motivation" as "a condition inside us that desires a change" and proposes three internal motives for action: needs, cognitions, and emotions. We considered "student motivation toward CH" as "a condition inside students that they desire to practice CH" and adopted these three internal motives as a framework. In addition, in order to explain the three internal motives in detail, we used self-determination theory (SDT),<sup>28</sup> expectancy-value theories (EVT),<sup>29</sup> and positive and negative emotions<sup>30</sup> as subordinate guiding theories. We chose SDT and EVT because they are current, widely recognized theories.<sup>27 31-33</sup> Emotions have been characterized as feeling-arousal-purposive-expressive phenomena, whose components cooperate in a complicated manner and allow us to react adaptively to the important events in our lives.<sup>26</sup> For the purposes of our study, in order to express them more simply, we adopted six positive and six negative emotions.<sup>30"</sup>

Page 10, line 52: The word "propensity" is a strange word. We would suggest changing the word, eg, tendency. We would also suggest that you use variation when writing. The same word is used three times in succession.

Thank your detailed suggestions. We have changed the word from "propensity" to "tendency", and varied the vocabulary more.

Page 11, line 12: From this sentence and throughout the section, the presentation of the theoretical framework is mixed with examples in relation to CH. Where does these examples come from? Are they found in your material or are the based on your experience?

The examples given were our interpretations. We have deleted the examples and discussed them more clearly in the discussion section.

Patient or public involvement

Page 11, line 50: How did the students participate? Did all of them comment? How did it ensure readability or accuracy?

We have given more detail about this process.

Before: "however were invited to comment on the results and editing of this document for readability or accuracy."

After: "However, they were emailed their own transcripts and analysis results, and invited to comment on them. Four commented via email or face-to-face, and confirmed that there were no issues in the readability and accuracy of the transcripts and the results obtained from them. This process strengthened the overall credibility of the study."

Results

In general, the concepts from the theoretical framework is presented as an explanation in itself during the presentation of results. We suggest omitting the use of the theoretical concept in the presentation of results. The theoretical framework should be discussed in relation to your results in the discussion section.

Thank you for the suggestion. We have removed the theoretical framework description from the results section to the discussion section.

Page 12, line 10: In relation to the comment about aim. Here you present factors that influence the students' motivation towards CH. Be consistent in how you report your aim.

We have ensured consistency when stating the purpose of the manuscript.

Before: "While exploring the factors that influence the chiikiwaku students' motivation toward CH, three themes emerged: preparing for the future, community relationships, and psychological effects."

After: "While exploring the details of what kind of experiences influence chiikiwaku students' motivation for practicing CH and the mechanisms of this influence, three mechanisms and corresponding experiences emerged as the final themes ."

Page 12, line 13: How did these themes emerge? With reference to step 4 in the methods section, it is not clear how the themes and constructs are generated.

We have added more detail about how final themes emerged in the methods, as described above.

Page 13, line 33: Here you mention autonomy from the theoretical framework. However, there is not clear how they are connected. Why/ how did it fulfill the students autonomy needs? This should be discussed in the discussion section.

We have significantly revised the discussion section and detailed how we interpreted the results using our theoretical framework.

Page 13, line 46. Again, the constructs from the theoretical framework are just presented as an explanation in itself. Thus, leaving the connection between theory and result unclear. This should be discussed in the discussion section.

Please see the new discussion section.

Page 13, line 52: How did the experiences promote introjected regulation, identified regulation and integrated regulation. This should be discussed in the discussion section.

Please see the new discussion section.

Page 14-21: Same comment applies here about constructs from theoretical framework in the presentation of your results. The theoretical framework should be discussed in the discussion section.

Please see the new discussion section.

#### Discussion

Page 17, line 39: SDT is mentioned as a theoretical framework, but it is unclear exactly how the framework relates to the results. You should discuss the themes and sub-themes in relation to the theory in this section. This would greatly improve the discussion section.

We have significantly revised the discussion section and detailed how we interpreted the results using our theoretical framework.

#### Comparison with previous findings

Page 22, line 11: The discussion section would be improved if this section was combined and You could discuss your findings in relation to CH worldwide by using other studies, and thus lift your findings to a more general level.

discussed with your findings. As it stands there is no real discussion of findings related to prior work. Please see the new discussion section.

#### Lessons for CBME programming

Page 22, from line 43: The discussion section lacks a discussion of how the findings from this study should be used. In what way will for example opportunities to interact with the community/ resident/ patients provide empathy for the community?

It is good to summarize lessons for future programs, but it should be more precise, concrete and easy to apply, not just a litany of words. In addition, why are all the concepts in quotation marks?

We revised sentence to make it more precise, concrete and easy to apply.

After: "First, there should be many opportunities to interact with community residents as well as patients. By interacting with them, students can learn more about the community and the region, understand appreciation for and expectations of healthcare professionals and students, construct relationships with the community of residents, and have enjoyable experiences that they cannot otherwise gain by working in hospitals.

Second, patients and community residents should be asked to share their appreciation for healthcare professionals and health-related concerns with students. Communicating gratitude and expectations

to others is sometimes embarrassing. However, this is important for helping students easily grasp the demands of CH.

Third, healthcare professionals should provide positive messages to students about why they continue their work, how they feel rewarded, what they enjoy in work and life, and how to deal with conflicts between their private lives and careers. These make it easier for students to perceive healthcare professionals as role models, and facilitate the student's vision of their future CH practice. Furthermore, the framing effect improves the student's conceptual image of CH.

Fourth, there should be time for students to interact with each other and have an enjoyable leisure time. This would construct robust student relationships and generate pleasant memories, which would improve the students' conceptual image of CH through affect heuristics.

Fifth, there should be time to become familiar with the community environments and cultures. If these become enjoyable experiences for students, students would become attached to the community and region, have increased empathy for them, and their conceptual image of CH would again be improved through affect heuristics.

Incorporation of these items into CBME programs may encourage students to maintain and improve their motivation for practicing CH.”

#### Limitations

Page 24, line 10: We agree that you should acknowledge limitations. However, there are likely more than two limitations in any study. We miss a broader discussion of the study limitations.

Thank you for this comment. We have added a further limitation.

Add: “First, this study focused on what kind of experiences influence chiikiwaku students' motivation for practicing CH, and the mechanism of this influence, and was not intended to provides reasons to motivate other students to participate in the chiikiwaku system or engage in CH. In order to increase the number of physicians engaged in CH, it is necessary to motivate not only chiikiwaku students but all other students as well. Further research targeting general students who have no CH obligations are needed.”

Page 24, line 40: The fact that this study was conducted with students by their teacher should be addressed much earlier, in researcher characteristics, as well as in the discussion section

This part has been moved to the researcher characteristics section.

#### Conclusions

Page 25, line 20: The conclusion should be more to the point with examples of how the students developed a motivation and how these mechanisms should be incorporated.

We have stated the conclusions more specifically.

Before: “The chiikiwaku students developed a motivation to be involved in CH through preparing for the future, community relationships, and psychological effects that were obtained from various experiences. These mechanisms should be incorporated into CBME programs to further encourage students' positive attitudes toward CH.”

After: “The chiikiwaku students developed a motivation to be involved in CH through self-images of their future CH practice and life (i.e., envisioning and preparing for practicing CH); constructing a robust student CH community and harmonizing with community residents (i.e., belonging to a supportive community); and experiences generating positive emotions that improve their conceptual image of CH (heuristics and biases). Many of these mechanisms are generated by positive interaction with community residents, healthcare professionals, and other students, and in exposure to attractive community environments and cultures. Thus, these experiences should be incorporated into CBME programs to further encourage students' positive attitudes toward CH.”

### VERSION 2 – REVIEW

REVIEWER	Lene Lunde and Anja Brænd
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	Department of Nursing Science/Department of General Practice, Medical Faculty, University of Oslo, Norway
<b>REVIEW RETURNED</b>	08-Sep-2020

<b>GENERAL COMMENTS</b>	<p>Dear authors, It has been a pleasure to read through your changes in the manuscript entitled "Fostering Student Motivation toward Community Healthcare: A qualitative study". We acknowledge that you have made an extensive effort to modify the manuscript according to the reviewers' suggestions. The manuscript is improved, but still there are several shortcomings. In the following we give point-by-point comments and suggestions for further revision of the manuscript:</p> <p><b>Abstract:</b> <b>Methods:</b> P 48, line 58: Remove the word "were". The word seems to belong to a sentence now removed.</p> <p><b>Results:</b> P 49, line 9-21: The result section is difficult to read due to a lot of text in parenthesis. We suggest removing the text and just present the three main themes. We have suggested the same change in the result section of the article</p> <p>P 49, line 21: Heuristics and biases is not self-explanatory. Is it possible to use other words that describe what you mean? See also comment in result section</p> <p><b>Conclusion:</b> P 49, line 33-36: We suggest re-structuring the sentence to: "The authors revealed that motivation mechanisms of medical students towards CH derived from". This will make the sentence more clearly for the reader.</p> <p><b>Strengths and limitations</b> P 49, line 56: We suggest removing the word "precisely".</p> <p><b>Introduction:</b> P 50, line 47: We suggest removing the paragraph about the Covid-19 pandemic. The argument seems superficial and does not add strength to the need for primary care. If you wish to write about Covid-19 in this context, we would suggest emphasizing the importance of a well-functioning primary healthcare to ensure that all patients receive adequate help during a pandemic with a sufficient capacity to handle milder cases and assess which patients who are in need hospital treatment.</p> <p>P 51, line 9-12: The sentence is unclear. We suggest using the wording from the first manuscript. "Furthermore, the uneven distribution of physician manpower is a serious global problem".</p> <p>P 51, line 37: We like the addition of this section as it adds to the importance of the study</p> <p>P52, line 28: We approve of the changed objective from factors and processes to experiences. However, it would improve further if you restructure the wording. As it stands, the reader might wonder whom you are referring to by "their motivation".</p>
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	<p>We suggest, "what kind of experiences influenced chiikiwaku students motivation for practicing CH in CBME programs and the mechanisms of this influence". Do not over complicate the objective by adding "retrospectively" or "lived experience".</p> <p>Methods  Qualitative approach and research paradigm:  P 52, line 54: You write that you chose the constructivism paradigm to interpret and understand the meaning of students' experiences. How so?  We suggest adding an explanation such as "The constructivism paradigm asserts that people construct their understanding and knowledge of the world through experience and reflection on those experiences" to set the scene for the importance of that paradigm.</p> <p>P53, line 10-25: What kind of additional motivation theories? We suggest changing the start of the section to clarify:  "To interpret how students' experiences influenced their motivation for practicing CH, we used motivation theories as theoretical framework. There are numerous motivation theories; however some confusion has arisen because of their conceptual overlaps and disagreements. In other words, there is no one theory that can absolutely explain human motivations. We chose to use Reeve's concept of three internal motives. Reeve defines .."</p> <p>Researcher characteristics and reflexivity:  P 55, line 50: Unnecessary wording. We suggest omitting "some research processes, such as"</p> <p>Participants:  P 57, line 52: It does not add anything to the sampling of participants to talk about sample size. The important thing in qualitative research is to continue sampling until saturation. We suggest omitting the section about sample size; "We could not predetermine.." Keep the sentence "we continued sampling until obtaining saturation.."</p> <p>P 58, line 12-16: Unnecessary wording at the start of the sentence. We suggest removing the start.  Also, randomly is not a concept in qualitative research. Just write "The first author (YS) emailed the first participant selected from the target groups.."</p> <p>Data Collection:  P 58, line 35: You write concrete description. Rich might be a better word.</p> <p>P 58, line 44: You write that the guide was used as a pilot guide intended to be revised. How so?  We suggest writing that the guide was intended to be revised but it was not necessary because of sufficient data. Alternatively omit the whole section.</p> <p>P 59, line 10: Theoretical? Just write that "saturation was reached after 14 students".</p> <p>Data analysis:  P 59, line 41: What is per-speech basis?</p>
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	<p>P 59, line 41 (whole section): We still think this description of the four-step coding is unclear. We acknowledge that a description is provided further down in the text. However, we think that you should rewrite the whole section and incorporate the description and example in one text.</p> <p>For example: In the following, we describe the analytical approach by using examples provided by Otani39. As a preliminary preparation, the text transcripts are segmented into fragmented data: “The professor began to undress on the platform. Everyone was taken aback. Then, on his chest, an image of heart and blood vessels appeared. Everyone cheered and applauded.” (p xx). In step 1, important words from the segmented text are extracted; “professor,” “image of heart and blood vessels appeared,” and “cheered and applauded.” (pxx). Step 2 consists of replacing the extracted word with operationalized words that represent the meaning extracts from step 1; “authoritative teacher,” “overlying reality with teaching materials,” “surprise teaching material presentation,” and “students’ surprise and pleasure.” (pxx). In step 3, words from step 1&amp;2 are operationalized into codes representative for the context of the entire data; “superimposition of real body and picture” and “element of surprise” (pxx). Step 4 consists of creating themes and constructs: “modeling reality,” “layer presentation of reality and teaching materials,” and “extracting motivation and expectations based on surprise.” (pxx). Lastly, a storyline defined as latent meaning based on the themes from step 4, are written: “this professor turned his body into a type of teaching material in a surprising way and realized a learning process that included surprises.”</p> <p>Finally, theories are generated based on the storyline: “the use of one’s body in medical education can leave a strong impression on learners.” (pxx). Otani emphasize that the theories generated are “not something that is universal and generally accepted, but what can be said from this data.” (pxx)</p> <p>P 60, line 12 and line 28: Include page number at direct quote, e.g. Otani p. xx.</p> <p>P 60, line 34 (whole paragraph): Incorporate this in the description of the analytic steps. See example above</p> <p>P 61, line 27: Unnecessary sentence (As such, we have described..). We suggest removing.</p> <p>P 61, line 36: The analytic process allows .. Falsify means to fake the results. You probably mean replicate/ follow/ understand/.</p> <p>P 62, line 42: We still think this sentence is unclear. “We chose this approach for its usability, process explicitness, and improved reflectability and falsifiability.” What do you mean? How?</p> <p>Results</p> <p>P 63: Overall, we like the changes in the result chapter. It is easier to read and understand when you have removed the concepts as explanation in itself.</p>
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	<p>P 63, line 27: Unnecessary wording, "the details of". We suggest removing.</p> <p>P 63, line 34: We suggest changing the wording "final themes" to "main themes".</p> <p>P 63, line 35: We suggest removing the text in the parenthesis. The summary of results will be easier to read without it. You have written it under each main theme.</p> <p>P 63, line 49: The third theme needs a little more explaining to be understood. Just a few words to explain the concept "heuristics and biases"</p> <p>P 63, line 55: add "s" to mechanism -&gt; mechanisms</p> <p>3. Heuristics and biases</p> <p>P 70, line 50: We think the heading from the first manuscript made much more sense: Psychological effects. As it stands, it is just concepts without a description, making it hard for the reader to understand what you mean.</p> <p>P 70, line 53: Same as above, use psychological instead</p> <p>P 71, line 7: Is it possible to use another word that explain what affect heuristic means? It would make it easier to understand for the reaser.</p> <p>P 71, line 10: "This is an heuristics..". We are unsure of what you mean and suggest using the description from the first manuscript. "This is a psychological effect in which.."</p> <p>P 71, line 22: We suggest removing "elicited the affect heuristics".</p> <p>P 71, line 25: What about the negative emotions affecting their conceptual image of CH?</p> <p>P 71, line 51: This affected students' conceptual image of CH. What about negative?</p> <p>Discussion</p> <p>P 72: The discussion section is greatly improved from the first manuscript with discussion of findings in relation to theory. However, there is only one sentence with citations in the discussion section. Are all of the arguments based on your research group's opinion or do you find the same in the theories you have used?</p> <p>P72, line 16: We suggest removing the parenthesis here as well because it just makes it harder to read. Alternatively, you could list each mechanism and the corresponding sub themes in separate sentences. For example: "The first theme was envisioning and preparing for practicing CH. Sub-themes were XX, XX and xx. The second theme comprised of xx"</p> <p>P 72, line 40 (whole paragraph): Long sentence. Suggestion: "We used theoretical frameworks to interpret the process of how these experiences motivated students". We suggest omitting the rest in this section.</p>
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	<p>P 73, line 6: Why is cognitive motive in parenthesis? Is it an explanation, a concept for discussion, a label? This applies to all the motives in parenthesis. Please discuss the meaning instead of just stating it.</p> <p>P 73, line 33: Remove “see methods” in parenthesis</p> <p>P 75, line 43: The section starting with “For example, broad practice scope” is one long sentence. It should be split up in several sentences. That way you can discuss each statement in relation to other findings</p> <p>Limitations  P 78, line 10: We like that you added to the limitation section. However, we think that you should change the start of the sentence to "there were several limitations to our study". You address three limitations specifically, but it might be more that you have not thought of.</p> <p>Conclusions  P 79, line 36: Please see comments above regarding the use of heuristics and biases</p>
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**VERSION 2 – AUTHOR RESPONSE**

Reviewer: 2

Reviewer Name: Lene Lunde and Anja Brænd

Institution and Country: Department of Nursing Science/Department of General Practice, Medical Faculty, University of Oslo, Norway

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Dear authors,

It has been a pleasure to read through your changes in the manuscript entitled “Fostering Student Motivation toward Community Healthcare: A qualitative study”.

We acknowledge that you have made an extensive effort to modify the manuscript according to the reviewers’ suggestions. The manuscript is improved, but still there are several shortcomings. In the following we give point-by-point comments and suggestions for further revision of the manuscript:

Thank you so much for your very thorough review. We have revised the text according to your new suggestion. We look forward to the results of your re-review.

Abstract:

Methods:

Comment 1;

P 48, line 58: Remove the word “were”. The word seems to belong to a sentence now removed.

Response 1;

Thank you for your suggestion. We removed the word “were.”

Before: “and positive and negative emotions, respectively, were.”

After: “and positive and negative emotions, respectively.”

Results:

Comment 2;

P 49, line 9-21: The result section is difficult to read due to a lot of text in parenthesis. We suggest removing the text and just present the three main themes. We have suggested the same change in the result section of the article

Response 2;

Thank you for your suggestion. We revised the sentence as follows.

Before: “Three mechanisms and corresponding experiences emerged: (1) envisioning and preparing for practicing CH (empathy for the community, grasping the demands of CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career), (2) belonging to a supportive community (robust construction of students' community for CH and harmonization with community residents), and (3) heuristics and biases (the affect heuristic and framing effect).”

After: “Three mechanisms and corresponding experiences emerged. The first mechanism, envisioning and preparing for practicing CH, included corresponding experiences—empathy for the community, grasping the demands of CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career. The second mechanism, belonging to a supportive community, included the robust construction of students' CH community and harmonization with community residents. The third mechanism, psychological effects, included the affect heuristic and framing effect.”

Comment 3;

P 49, line 21: Heuristics and biases is not self-explanatory. Is it possible to use other words that describe what you mean? See also comment in result section

Response 3;

Thank you for your comment. We changed the theme “heuristics and biases” to “psychological effects” as you suggested in Comment 31.

Before: “heuristics and biases”

After: “psychological effects”

Conclusion:

Comment 4;

P 49, line 33-36: We suggest re-structuring the sentence to: “The authors revealed that motivation

mechanisms of medical students towards CH derived from”. This will make the sentence more clearly for the reader.

Response 4;

Thank you for your suggestion. We changed the sentence per your suggestion.

Before: “The authors revealed the motivation mechanisms of medical students toward CH, many of which derived from positive interaction with community residents, healthcare professionals, and other students, and from exposure to attractive community environments and cultures.”

After: “The authors revealed that motivation mechanisms of medical students towards CH derived from positive interaction with community residents, healthcare professionals, and other students, and from exposure to attractive community environments and cultures.”

Strengths and limitations

Comment 5;

P 49, line 56: We suggest removing the word “precisely”.

Response 5;

Thank you for your suggestion. We removed the word “precisely.”

Before: “This study precisely describes the motivation mechanisms of medical students toward practicing community healthcare.”

After: “This study describes the motivation mechanisms of medical students toward practicing community healthcare.”

Introduction:

Comment 6;

P 50, line 47: We suggest removing the paragraph about the Covid-19 pandemic. The argument seems superficial and does not add strength to the need for primary care. If you wish to write about Covid-19 in this context, we would suggest emphasizing the importance of a well-functioning primary healthcare to ensure that all patients receive adequate help during a pandemic with a sufficient capacity to handle milder cases and assess which patients who are in need hospital treatment.

Response 6;

Thank you for your suggestion. We removed the paragraph about the COVID-19 pandemic.

Removed sentence: “In addition, the impact of the COVID-19 pandemic has highlighted the division between hospital and primary care. There is no doubt that in the case where a patient needs a ventilator, the hospital is the appropriate location. Nevertheless, it has also been shown that primary healthcare also has an essential role to play in fighting acute infectious diseases.”

Comment 7;

P 51, line 9-12: The sentence is unclear. We suggest using the wording from the first manuscript. "Furthermore, the uneven distribution of physician manpower is a serious global problem".

Response 7;

Thank you for your suggestion. We changed the wording as you suggested.

Before: "Furthermore, the uneven distribution of physician manpower among regions in a single country is a serious global problem."

After: "Furthermore, the uneven distribution of physician manpower is a serious global problem."

Comment 8;

P 51, line 37: We like the addition of this section as it adds to the importance of the study

Response 8;

Thank you for acknowledging this change and for your previous comment suggesting that this section be added.

Comment 9;

P52, line 28: We approve of the changed objective from factors and processes to experiences. However, it would improve further if you restructure the wording. As it stands, the reader might wonder whom you are referring to by "their motivation". We suggest, "what kind of experiences influenced chiikiwaku students motivation for practicing CH in CBME programs and the mechanisms of this influence". Do not over complicate the objective by adding "retrospectively" or "lived experience".

Response 9;

Thank you for your suggestion. We changed the wording per your suggestion.

Before: "As such, our research objective is to retrospectively investigate what kind of experiences influenced their motivation for practicing CH, and the mechanism of this influence, by focusing on the lived experiences of chiikiwaku students in CBME programs."

After: "As such, our research objective is to investigate what kind of experiences influenced chiikiwaku students motivation for practicing CH in CBME programs and the mechanisms of this influence."

Methods

Qualitative approach and research paradigm:

Comment 10;

P 52, line 54: You write that you chose the constructivism paradigm to interpret and understand the meaning of students' experiences. How so?

We suggest adding an explanation such as "The constructivism paradigm asserts that people construct their understanding and knowledge of the world through experience and reflection on those experiences" to set the scene for the importance of that paradigm.

Response 10;

Thank you for your suggestion; we added an explanation regarding this point.

Add: "The constructivism paradigm asserts that people construct their understanding and knowledge of the world through experience and reflection on those experiences."

Comment 11;

P53, line 10-25: What kind of additional motivation theories? We suggest changing the start of the section to clarify:

"To interpret how students' experiences influenced their motivation for practicing CH, we used motivation theories as theoretical framework. There are numerous motivation theories; however some confusion has arisen because of their conceptual overlaps and disagreements. In other words, there is no one theory that can absolutely explain human motivations. We chose to use Reeve's concept of three internal motives. Reeve defines .."

Response 11;

Thank you for your suggestion. We changed the wording to clarify the motivation theories.

Before: "To interpret how students' experiences influenced their motivation for practicing CH, we used Reeve's concept of three internal motives,<sup>26</sup> and some additional motivation theories, were the foundation for our theoretical framework. There are numerous motivation theories; however, some confusion has arisen from their diversity because of their conceptual overlaps and disagreements.<sup>27</sup> In other words, there is no one theory that can absolutely explain human motivation. We addressed this issue by using the concepts of three internal motives based on their clarity."

After: "To interpret how students' experiences influenced their motivation for practicing CH, we used motivation theories as theoretical framework. There are numerous motivation theories; however some confusion has arisen because of their conceptual overlaps and disagreements.<sup>26</sup> In other words, there is no one theory that can absolutely explain human motivations. We chose to use Reeve's concept of three internal motives.<sup>27</sup>"

Researcher characteristics and reflexivity:

Comment 12;

P 55, line 50: Unnecessary wording. We suggest omitting "some research processes, such as"

Response 12;

Thank you for your suggestion. We omitted "some research processes, such as."

Before: "To address this problem, some research processes, such as requesting student participation, collecting data, and writing the transcripts, were done only by YS."

After: "To address this problem, requesting student participation, collecting data, and writing the transcripts were done only by YS."

Participants:

Comment 13;

P 57, line 52: It does not add anything to the sampling of participants to talk about sample size. The important thing in qualitative research is to continue sampling until saturation. We suggest omitting the section about sample size; "We could not predetermine.." Keep the sentence "we continued sampling until obtaining saturation.."

Response 13;

Thank you for your suggestion. We omitted the section about sample size.

Omitted sentence: "We could not predetermine the required sample size. However, using rough rules of thumb, it was judged that 12 to 26 participants could be considered appropriate,<sup>37</sup> and so we estimated that it would be possible to carry out the research using the selected criteria."

Comment 14;

P 58, line 12-16: Unnecessary wording at the start of the sentence. We suggest removing the start. Also, randomly is not a concept in qualitative research. Just write "The first author (YS) emailed the first participant selected from the target groups.."

Response 14;

Thank you for your suggestion. We revised the sentence for clarity.

Before: "As a practical procedure, the first author (YS) emailed the first participant who was randomly selected from the target groups that satisfied the selection criteria"

After: "The first author (YS) emailed the first participant selected from the target groups that satisfied the selection criteria"

Data Collection:

Comment 15;

P 58, line 35: You write concrete description. Rich might be a better word.

Response 15;

Thank you for your suggestion. We changed the wording as you suggested.

Before: "We chose individual, in-depth, semi-structured interviews that allowed us to delve deeply into interviewees' experiences in order to acquire concrete descriptions."

After: "We chose individual, in-depth, semi-structured interviews that allowed us to delve deeply into interviewees' experiences in order to acquire rich descriptions."

Comment 16;

P 58, line 44: You write that the guide was used as a pilot guide intended to be revised. How so? We suggest writing that the guide was intended to be revised but it was not necessary because of sufficient data. Alternatively omit the whole section.

Response 16;

Thank you for your suggestion. We revised the sentence as you suggested.

Before: "This guide was used as a pilot guide and was intended to be revised as the study progressed; in the end it was not revised because a sufficient quantity of descriptions by interviewees was attained."

After: "The guide was intended to be revised but it was not necessary because of sufficient data."

Comment 17;

P 59, line 10: Theoretical? Just write that "saturation was reached after 14 students".

Response 17;

Thank you for your suggestion. We omitted the word "theoretical."

Before: "i.e., theoretical saturation was reached after 14 students had been interviewed"

After: "i.e., saturation was reached after 14 students had been interviewed"

Data analysis:

Comment 18;

P 59, line 41: What is per-speech basis?

Response 18;

Thank you for your comment. We updated the text per your suggestion with omitting the wording "per-speech basis".

Before: "the text of the transcript is segmented properly on a per-speech basis."

After: "the text transcripts are segmented into fragmented data"

Comment 19;

P 59, line 41 (whole section): We still think this description of the four-step coding is unclear. We acknowledge that a description is provided further down in the text. However, we think that you should rewrite the whole section and incorporate the description and example in one text.

For example: In the following, we describe the analytical approach by using examples provided by Otani<sup>39</sup>. As a preliminary preparation, the text transcripts are segmented into fragmented data: "The professor began to undress on the platform. Everyone was taken aback. Then, on his chest, an image of heart and blood vessels appeared. Everyone cheered and applauded." (p xx). In step 1, important words from the segmented text are extracted; "professor," "image of heart and blood vessels appeared," and "cheered and applauded." (p xx). Step 2 consists of replacing the extracted word with operationalized words that represent the meaning extracts from step 1; "authoritative teacher," "overlying reality with teaching materials," "surprise teaching material presentation," and "students' surprise and pleasure." (p xx). In step 3, words from step 1&2 are operationalized into codes representative for the context of the entire data; "superimposition of real body and picture" and "element of surprise" (p xx). Step 4 consists of creating themes and constructs: "modeling reality," "layer presentation of reality and teaching materials," and "extracting motivation and expectations based on surprise." (p xx). Lastly, a storyline defined as latent meaning based on the themes from step 4, are written: "this professor turned his body into a type of teaching material in a surprising way and realized a learning process that included surprises." Finally, theories are generated based on the storyline: "the use of one's body in medical education can leave a strong impression on learners." (p xx). Otani emphasize that the theories generated are "not something that is universal and generally accepted, but what can be said from this data." (p xx)

Response 19;

Thank you for your great text editing. We revised in accordance with your suggestions.

Before: "As a preliminary preparation, the text of the transcript is segmented properly on a per-speech basis. Then, (1) determining focused words from the segmented text: identifying the important words (codes) from the segmented text. (2) Determining words that can replace the words in step (1) with words external to the text: writing other codes that represent the meanings of the codes in step (1). (3) Determining words that explain the words in steps (1) and (2): writing other codes that can explain the codes in step (1) and (2) while considering the context of the entire data. (4) Creating themes and constructs: reading the product of steps (1) to (3) carefully and drawing out new themes and constructs.

The next step is writing a story line, which was defined by Otani as a "description of the latent meanings of the events described in the data by piecing the themes mainly described in step (4)." Through the process of decontextualizing and recontextualizing the data, the "deep context" of the data can be obtained from their "surface context." Finally, theories are generated by fragmenting the story line to discover new theories. According to Otani, the theories identified in this process are "not something that is universal and generally accepted, but what can be said from this data."

To facilitate an understanding of the analysis process of SCAT, Otani described practical examples<sup>38</sup> using the text from Akatsu<sup>39</sup>: "Auscultation of Heart Sounds Taught by Body." We summarized and introduced one part of the analysis process. The fragmented data were "The professor began to undress on the platform. Everyone was taken aback. Then, on his chest, an image of heart and blood vessels appeared. Everyone cheered and applauded." Step (1): he focused on "professor," "image of heart and blood vessels appeared," and "cheered and applauded." Step (2): he replaced each word to "authoritative teacher," "overlying reality with teaching materials," "surprise teaching material presentation," and "students' surprise and pleasure." Step (3): he determined the words "superimposition of real body and picture" and "element of surprise" Step (4): he created the themes and constructs of "modeling reality," "layer presentation of reality and teaching materials," and



“extracting motivation and expectations based on surprise.” Writing a story line: he wrote that “this professor turned his body into a type of teaching material in a surprising way and realized a learning process that included surprises.” Generating theory: he generated the theories “the use of one’s body in medical education can leave a strong impression on learners.””

After: “In the following, we describe the analytical approach by using examples provided by Otani p. 36.<sup>38</sup> As a preliminary preparation, the text transcripts are segmented into fragmented data: “The professor began to undress on the platform. Everyone was taken aback. Then, on his chest, an image of heart and blood vessels appeared. Everyone cheered and applauded.” In step 1, important words from the segmented text are extracted: “professor,” “image of heart and blood vessels appeared,” and “cheered and applauded.” Step 2 consists of replacing the extracted word with operationalized words that represent the meaning extracts from step 1: “authoritative teacher,” “overlaying reality with teaching materials,” “surprise teaching material presentation,” and “students’ surprise and pleasure.” In step 3, words from step 1&2 are operationalized into codes representative for the context of the entire data: “superimposition of real body and picture” and “element of surprise.” Step 4 consists of creating themes and constructs; “modeling reality,” “layer presentation of reality and teaching materials,” and “extracting motivation and expectations based on surprise.” Lastly, a storyline defined as latent meaning based on the themes from step 4, are written: “this professor turned his body into a type of teaching material in a surprising way and realized a learning process that included surprises.” Finally, theories are generated based on the storyline: “the use of one’s body in medical education can leave a strong impression on learners.” Otani p. 159<sup>39</sup> emphasize that the theories generated are “not something that is universal and generally accepted, but what can be said from this data.””

Comment 20;

P 60, line 12 and line 28: Include page number at direct quote, e.g. Otani p. xx.

Response 20;

Thank you for your suggestion. We included page numbers.

After:

“In the following, we describe the analytical approach by using examples provided by Otani p. 36.<sup>38</sup>”

“Otani p. 159<sup>39</sup> emphasize that the theories generated are “not something that is universal and generally accepted, but what can be said from this data.””

Comment 21;

P 60, line 34 (whole paragraph): Incorporate this in the description of the analytic steps. See example above

Response 21;

Thank you for your suggestion. We changed the sentence as explained in Response 19.

Comment 22;

P 61, line 27: Unnecessary sentence (As such, we have described..). We suggest removing.

Response 22;

Thank you for your suggestion. We removed the phrasing “As such, we have described.”

Before: “As such, we have described the final themes by organizing the theories that emerged through analysis.”

After: “The final themes were described by organizing the theories that emerged through analysis.”

Comment 23;

P 61, line 36: The analytic process allows ..

Falsify means to fake the results. You probably mean replicate/ follow/ understand/.

Response 23;

Thank you for your suggestion. We changed “falsify” to “replicate” as you suggested.

Before: “the explicit description of the analytic process allowed the readers to falsify the result.”

After: “the explicit description of the analytic process allowed the readers to replicate the result”

Comment 24;

P 62, line 42: We still think this sentence is unclear. “We chose this approach for its usability, process explicitness, and improved reflectability and falsifiability.”

What do you mean? How?

Response 24;

Thank you for your suggestion. “This approach” in the text meant SCAT. SCAT’s usability, process explicitness, and improved reflectability and falsifiability are characterized by Otani. (Otani T. Bulletin of the Graduate School of Education and Human Development (Educational Sciences), Nagoya University 2007;54:27-44.) We revised the sentence so that its intent become understandable as follows.

Before: “The process of going back and forth between steps (1) and (4) and reading them repeatedly improves the quality and depth of the analyst’s reflection. Furthermore, the explicit description of the analytic process allowed the readers to replicate the result. These analysis processes were all done in Excel 2013 (Microsoft Corporation, Redmond, WA, USA). We chose this approach for its usability, process explicitness, and improved reflectability and falsifiability.”

After: “Otani stated that the characteristics of SCAT were as follows. The process of going back and forth between steps (1) and (4) and reading them repeatedly improves the quality and depth of the

analyst's reflection, i.e. improves reflexivity. Furthermore, the explicit description of the analytic process allowed the readers to replicate the result and disprove any errors, i.e. improves falsifiability.<sup>38</sup> We chose this approach for its usability, process explicitness, and improved reflexivity and falsifiability. These analysis processes were all done in Excel 2013 (Microsoft Corporation, Redmond, WA, USA)."

## Results

Comment 25;

P 63: Overall, we like the changes in the result chapter. It is easier to read and understand when you have removed the concepts as explanation in itself.

Response 25;

Thank you for acknowledging this change and for your previous comment suggesting the addition of this section.

Comment 26;

P 63, line 27: Unnecessary wording, "the details of". We suggest removing.

Response 26;

Thank you for your suggestion. We removed the wording "the details of."

Before: "While exploring the details of what kind of experiences influence chiikiwaku students' motivation for practicing CH and the mechanisms of this influence"

After: "While exploring what kind of experiences influence chiikiwaku students' motivation for practicing CH and the mechanisms of this influence"

Comment 27;

P 63, line 34: We suggest changing the wording "final themes" to "main themes".

Response 27;

Thank you for your suggestion. We revised the wording "final themes" to "main themes."

Before: "three mechanisms and corresponding experiences emerged as the final themes."

After: "three mechanisms emerged as the main themes."

Comment 28;

P 63, line 35: We suggest removing the text in the parenthesis. The summary of results will be easier to read without it. You have written it under each main theme.

Response 28;

Thank you for your suggestion. We removed the text in the parentheses.

Before: “three mechanisms and corresponding experiences emerged as the final themes. First, envisioning and preparing for practicing CH (comprising corresponding experiences of empathy for the community, grasping the demands for CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career); second, belonging to a supportive community (comprising robust construction of students' community for CH and harmonization with community residents); and third, heuristics and biases (affect heuristic and framing effects). The corresponding experiences brought about the changes and influences described in the presented mechanism”

After: “three mechanisms emerged as the main themes: envisioning and preparing for practicing CH, belonging to a supportive community, and psychological effects. The corresponding experiences, which emerged as sub-themes, brought about the changes and influences described in the presented mechanisms”

Comment 29;

P 63, line 49: The third theme needs a little more explaining to be understood. Just a few words to explain the concept “heuristics and biases”

Response 29;

Thank you for your comment. We changed the theme “heuristics and biases” to “psychological effects,” as you suggested in Comment 31.

Before: “heuristics and biases”

After: “psychological effects”

Comment 30;

P 63, line 55: add “s” to mechanism -> mechanisms

Response 30;

Thank you for your suggestion. We made “mechanism” plural.

Before: “The corresponding experiences brought about the changes and influences described in the presented mechanism and had both a positive and negative impact on students' motivation toward CH”

After: “The corresponding experiences brought about the changes and influences described in the presented mechanisms and had both a positive and negative impact on students' motivation toward CH”

Comment 31;

### 3. Heuristics and biases

P 70, line 50: We think the heading from the first manuscript made much more sense: Psychological effects. As it stands, it is just concepts without a description, making it hard for the reader to understand what you mean.

Response 31;

Thank you for your suggestion. We changed the theme "heuristics and biases" to "psychological effects."

Before: "Heuristics and biases"

After: "Psychological effects"

Comment 32;

P 70, line 53: Same as above, use psychological instead

Response 32;

Thank you for your suggestion. We revised the theme "heuristics and biases" to "psychological effects." Before: "Heuristics and biases"

After: "Psychological effects"

Comment 33;

P 71, line 7: Is it possible to use another word that explain what affect heuristic means? It would make it easier to understand for the reaser.

Response 33;

Thank you for your suggestion. Although the word "affect heuristic" is unfamiliar to some people as you said, this word has been defined as a technical term for a specific psychological effect. It is difficult for us to change the word. Would you please allow us to use this term?

Comment 34;

P 71, line 10: "This is an heuristics..". We are unsure of what you mean and suggest using the description from the first manuscript. "This is a psychological effect in which.."

Response 34;

Thank you for your suggestion. We revised the wording as you suggested.

Before: "This is an heuristic in which positive or negative emotions affect the judgment of things quickly and automatically."

After: "This is a psychological effect in which positive or negative emotions affect the judgment of things quickly and automatically."

Comment 35;

P 71, line 22: We suggest removing "elicited the affect heuristics".

Response 35;

Thank you for your suggestion. We removed "elicited the affect heuristic," as follows:

Before: "These positive feelings elicited the affect heuristic, impacting their conceptual image of CH."

After: "These positive feelings impacted their conceptual image of CH."

Comment 36;

P 71, line 25: What about the negative emotions affecting their conceptual image of CH?

Response 36;

Thank you for your comment. As you said, using the phrase "positive or negative" here would confuse the readers. We have removed the "positive or negative" and changed it to a simple description.

Before: "This is an heuristic in which positive or negative emotions affect the judgment of things quickly and automatically."

After: "This is a psychological effect in which emotions affect the judgment of things quickly and automatically."

Comment 37;

P 71, line 51: This affected students' conceptual image of CH. What about negative?

Response 37;

Thank you for your comment. As noted in Response 36, using the phrase "positive or negative" here would confuse the readers. We have removed the "positive or negative" and changed it to a simple description.

Before: "This is a cognitive bias in which a positive or negative presentation of something creates a decision-making bias."

After: "This is a cognitive bias in which a presentation of something creates a decision-making bias."

Discussion

Comment 38;

P 72: The discussion section is greatly improved from the first manuscript with discussion of findings in relation to theory. However, there is only one sentence with citations in the discussion section. Are all of the arguments based on your research group's opinion or do you find the same in the theories you have used?

Response 38;

Thank you for your comment. All of the arguments based on reference articles. We added reference numbers to the relevant discussions and added some text to make it easier to understand the relevance of these references.

After (added texts are highlighted in blue): "The first mechanism, envisioning and preparing for practicing CH, strengthens the expectation of success and subjective task value<sup>29</sup> through self-images of future CH practice. In addition, each experience that led to envisioning and preparing for practicing CH also included other motivating factors for students. Empathy for the community brings positive emotions such as optimism, calmness, and relaxation from familiarity and security, which influence intrinsic motivation.<sup>30</sup> Furthermore, deeper knowledge of the region can building a self-image of living in the region through reducing psychological barriers, and increase expectation of success<sup>29</sup> in living and practicing CH in the region. With regard to grasping the demands for CH, students can recognize the importance of CH from the gratitude shown to healthcare professionals and the expectations of the students expressed by community residents and patients. This experience makes students recognize the task value<sup>29</sup> of CH. Furthermore, the regulation types proposed by SDT<sup>28</sup> can also be used to interpret these experiences. This is an example of introjected regulation if their practice of CH is praised by others, and identified regulation which refers to the recognition that CH is important. Through these regulations, students' need for competence can be stimulated. On the other hand, excessive expectations cause negative emotions for students (i.e., anxiety), who fear that they may not have the required abilities or may not meet the expectations of residents and patients, and reduce their expectation of success.<sup>29</sup> With regard to finding a role model, if a student's expectation that they can become like their role model increases, their need for competence is stimulated; by contrast, if the expectation of success decreases, the need for competence is stifled.<sup>28</sup> Additionally, finding a role model evokes a positive emotion arising from the desire to be like the role model: enthusiasm. This positive emotion could bring more internalized regulation,<sup>30</sup> specifically integrated regulation, which integrates the identification of the value of CH and students' self-beliefs, or intrinsic regulation related to students' strong interests.<sup>28</sup> With regard to diminishing the conflicts between personal life and career, knowing how physicians practicing CH deal with these conflicts and improving students' ability to cope can increase the expectation of success.<sup>29</sup> Assurance of students' autonomy in career choice secure their need for autonomy.<sup>28</sup> Moreover, confirmation of autonomy bring about a shift from negative (worry) to positive emotions (calmness).<sup>30</sup>

With reference to the second mechanism, belonging to a supportive community satisfies students' relatedness needs.<sup>28</sup> In addition, regarding the robust construction of students' CH community, the fact that doctors working in the local government actively support students and reduce the sense of an employee-employer relationship brings positive emotions (calmness)<sup>30</sup> for students, and secures their autonomy needs<sup>28</sup> regarding their career choice. With regard to harmonization with community residents, the active involvement of residents in student education arouses the students' needs for competence,<sup>28</sup> stimulating their desire to contribute to the community. This could also stimulate integrated regulation, which goes beyond simple praise or recognition of importance.<sup>28</sup>

Regarding the third main theme, the affect heuristic and framing effects induce improvements in the students' image of CH. Positive emotions (enthusiasm, cheerfulness, optimism, contentedness, calmness, and relaxation) are greatly involved in this.<sup>40 41</sup> These positive emotions also promote intrinsic regulation, related to students' strong interests.<sup>30"</sup>

Comment 39;

P72, line 16: We suggest removing the parenthesis here as well because it just makes it harder to read. Alternatively, you could list each mechanism and the corresponding sub themes in separate sentences. For example: "The first theme was envisioning and preparing for practicing CH. Sub-themes were XX, XX and xx. The second theme comprised of xx"

Response 39;

Thank you for your suggestion. We changed the text per your suggestion.

Before: "Three mechanisms and corresponding experiences emerged: (1) envisioning and preparing for practicing CH (namely empathy for the community, grasping the demands for CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career), (2) belonging to a supportive community (namely robust construction of students' CH community and harmonization with community residents), and (3) psychological effects (namely the affect heuristic and framing effect)."

After: "Three mechanisms (main themes) and corresponding experiences (sub-themes) emerged. The first theme was envisioning and preparing for practicing CH. Its sub-themes were empathy for the community, grasping the demands for CH, understanding the practices of CH, finding a role model, and diminishing the conflicts between personal life and career. The second theme was belonging to a supportive community. Its sub-themes included robust construction of students' CH community and harmonization with community residents. The third theme included psychological effects. Its sub-themes were the affect heuristic and framing effect."

Comment 40;

P 72, line 40 (whole paragraph): Long sentence. Suggestion: "We used theoretical frameworks to interpret the process of how these experiences motivated students".  
We suggest omitting the rest in this section.

Response 40;

Thank you for your suggestion. We revised the manuscript according to your suggestion.

Before: "To more deeply interpret the process of how these experiences motivate students, a theoretical framework was used, looking at internal motives such as student needs, cognitions, and emotions, and subordinate guiding theories that explain them in detail. We will now go through the various experiences and mechanisms and discuss their connections to the theoretical framework.

The first mechanism, ..."

After: "We used theoretical frameworks<sup>27-30</sup> to interpret the process of how these experiences motivated students. The first mechanism, ..."

Comment 41;



P 73, line 6: Why is cognitive motive in parenthesis? Is it an explanation, a concept for discussion, a label? This applies to all the motives in parenthesis. Please discuss the meaning instead of just stating it.

Response 41;

Thank you for your comment. We removed the text in parenthesis and clarified our meaning.

After: Please see Response 38.

Comment 42;

P 73, line 33: Remove "see methods" in parenthesis

Response 42;

Thank you for your suggestion. We removed "see Methods."

Before: "the regulation types proposed by SDT (see Methods) can also be used to interpret"

After: "the regulation types proposed by SDT<sup>28</sup> can also be used to interpret"

Comment 43;

P 75, line 43: The section starting with "For example, broad practice scope" is one long sentence. It should be split up in several sentences. That way you can discuss each statement in relation to other findings

Response 43;

Thank you for your suggestion. We split up the sentence as follows:

Before: "For example, broad practice scope, general practice, specialty, clinical skill and work satisfaction would be included in understanding the practices of CH; lifestyle would be included in diminishing the conflicts between personal life and career; exposure to different places, rural rotation, and patient interaction would be included in empathy for the community, grasping the demands for CH, and harmonization with community residents; and finally social network would be included in robust construction of students' CH community and harmonization with community residents."

After: "For example, broad practice scope, general practice, specialty, clinical skill and work satisfaction would be included in understanding the practices of CH. Lifestyle would be included in diminishing the conflicts between personal life and career. Exposure to different places, rural rotation, and patient interaction would be included in empathy for the community, grasping the demands for CH, and harmonization with community residents. Finally, social network would be included in robust construction of students' CH community and harmonization with community residents."

Limitations

Comment 44;

P 78, line 10: We like that you added to the limitation section. However, we think that you should

change the start of the sentence to "there were several limitations to our study". You address three limitations specifically, but it might be more that you have not thought of.

Response 44;

Thank you for your suggestion. We revised the sentence per your suggestion.

Before: "There were three limitations in our study."

After: "There were several limitations to our study."

Conclusions

Comment 45;

P 79, line 36: Please see comments above regarding the use of heuristics and biases

Response 45;

Thank you for your suggestion. We changed the theme "heuristics and biases" to "psychological effects," as you suggested.

Before: "heuristics and biases"

After: "psychological effects"

### VERSION 3 – REVIEW

<b>REVIEWER</b>	Lene Lunde and Anja Brænd University of Oslo, Norway
<b>REVIEW RETURNED</b>	23-Nov-2020
<b>GENERAL COMMENTS</b>	Dear authors, It has been a pleasure to follow the progress of the manuscript entitled "Fostering Student Motivation toward Community Healthcare: A qualitative study". You have addressed all our comments in an appropriate way. The manuscript is greatly improved and we have no further suggestions or comments.