PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Assessing palliative care education in undergraduate medical students: translation and validation of the Self-efficacy in Palliative Care and Thanatophobia scales to Brazilian Portuguese
AUTHORS	Gryschek, Guilherme; Cecilio-Fernandes, Dario; Mason, Stephen; de Carvalho-Filho, Marco Antonio

VERSION 1 – REVIEW

REVIEWER	Faye Gishen Hampstead , UCL Medical School
REVIEW RETURNED	08-Oct-2019

GENERAL COMMENTS	This is an important area and with the current literature and conversation on geographic biases in research, it is good to see this paper from Brazil (and other 'Global South' countries) in high impact journals. I like the international collaborative aspect of this paper. It is an important topic and the future applications of this work are potentially broad e.g. using this tool as a baseline to improve undergraduate PC teaching nationally in Brazil/ internationally in Latin America and beyond. However, I think the research questions needs a bit more refining as for me, this paper has slightly too unfocused a scope currently. If it is primarily to translate a tool to establish a baseline, that is fine. However, it hints at having a wider scope e.g. tackling pedagogies. I think there needs to be an acknowledgement of the increasing uncertainty and complexity in health care and how this translates into PC teaching as a good platform to showcase this. Suggest define thanatophobia for non-specialist readership. Why did you choose 3rd year students, and were they at the beginning or end of the year? If the former, they will have had no/ minimal clinical exposure, so I wonder if this was a suitable point to have surveyed them- this surely introduces some biases inherent in any brand new clinical student fresh to patient care- I would expect any student right at the beginning of their clinical exposure to have fears around discussing death. You say they were 'mid course', but not in terms of clinical teaching/ training. Why did you not choose more senior medical students? This is a limitation that needs further discussion in my opinion.

	It would be useful in future to validate the tool in more senior students/ students learning elsewhere in Portuguese/ an international equivalent school which has a well developed PC undergraduate syllabus. Suggest consider incorporating findings from this UK paper which looks at PC education across all UK medical schools; Progress and divergence in palliative care education for medical students: A comparative survey of UK course structure, content, delivery, contact with patients and assessment of learning Walker, Steven ; Gibbins, Jane ; Barclay, Stephen ; Adams, Astrid ; Paes, Paul ; Chandratilake, Madawa ; Gishen, Faye ; Lodge, Philip ; Wee, Bee Palliative Medicine, October 2016, Vol.30(9), pp.834-842

REVIEWER	Amparo Oliver Universitat de València
REVIEW RETURNED	17-Nov-2019

GENERAL COMMENTS	Although it is very interesting and useful research, to fulfill the objectives, in my opinion, some changes should be made: Please, check the paragraph in the introduction page 5 around line 120 when describing self-efficacy and outcome expectancy. In its actual format could be tautological. In methods, more detail is needed about participants (for instance, not just mean age, also SD). Is a convenience and small size sample, for this reason, is of paramount importance doing a better description (could participants come from alternative curricula as students?) The analysis are not updated/suitable as we have a prior structure to validate, the one from the English original version. The CFA analysis is a much comprehensive method to study the functioning of particular troublesome items as the one found by authors. The EFA used with varimax rotation involves independent factors and maybe this is no the case. Also very important, the psychometric study of reliability could be more updated not just using Chronbach alpha, but using complementary reliability indices as omega or those based on CFA. Simultaneously, some more evidence for the validity of the two scales under study should be provided. In summary, the paper is focused mainly on one aspect of the scales. I have no problem at all in reviewing the revised draft.

VERSION 1 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Faye Gishen

This is an important area and with the current literature and conversation on geographic biases in research, it is good to see this paper from Brazil (and other 'Global South' countries) in high impact journals. I like the international collaborative aspect of this paper. It is an important topic and the future applications of this work are potentially broad e.g. using this tool as a baseline to improve undergraduate PC teaching nationally in Brazil/ internationally in Latin America and beyond.

We appreciate the reviewer's considerations about the importance of the area and international collaboration in our research, which allowed us to exchange knowledge regarding palliative care education. This area is now experiencing a huge expansion in Brazil and Latin America and developing palliative care is key for our healthcare systems considering the next decades**.**

However, I think the research questions needs a bit more refining as for me, this paper has slightly too unfocused a scope currently. If it is primarily to translate a tool to establish a baseline, that is fine. However, it hints at having a wider scope e.g. tackling pedagogies.

Answer: we agree with the reviewer in the sense that this manuscript is focused in translating and stablishing a baseline for the tools we choose. The main author is planning to use the validated instruments in the follow up of students during their clinical rotations in different curricula to understand how they develop – this will be second step of his PhD project.
To make explicit the possibility of using the validated instruments in accompanying the development of the students regarding their training in palliative care, we added the following sentence to the last paragraph of the Introduction:

Adjustment: "These instruments can be used by Brazilian educators to follow the development of medical students regarding their attitudes towards palliative care. Also, these instruments will allow Brazilian educators to engage in international conversations about this topic."

I think there needs to be an acknowledgement of the increasing uncertainty and complexity in health care and how this translates into PC teaching as a good platform to showcase this.
Answer: PC certainly is an excellent example of how important it is for doctors to deal with complexity and uncertainty. Dealing with human suffering, breaking bad news and supporting patients with often excruciating pain does not come naturally for all medical students.

To address this need, we made changed the first paragraph of the Introduction:

Adjustment:

"Global changes in the demographic patterns of the population have resulted in recognition of palliative care (PC) as a worldwide need (1). Modern medicine brought new possibilities of sustaining life in circumstances that were unimaginable before (2). However, life under these new circumstances

demands for certain sacrifices that not all patients judge feasible or valuable (3). Thus, as people live longer and suffer from long-term and life-threating diseases, the PC approach has become a core competency for doctors (4,5). The decision-making in palliative care occurs as a process and not as "yes/no" decisions, and patients and health professionals need time to deal with the uncertainties that are present until the best course of action becomes clear. PC education needs to acknowledge this complexity and uncertainty and go beyond the technical possibilities of care to embrace its ethical, moral, and spiritual dimensions while striving for controlling symptoms and alleviating suffering (4). Accordingly, medical schools are introducing and improving their palliative medicine programmes for undergraduate medical students (6–9)."

Suggest define thanatophobia for non-specialist readership.

Answer: We included in Introduction a short definition about thanatophobia's concept adopted in this manuscript.

Adjustment (6th paragraph, line 134): "Thanatophobia, or 'fear of death', is related to the anxiety experienced by students or professionals who deal with dying patients."

Why did you choose 3rd year students, and were they at the beginning or end of the year? If the former, they will have had no/ minimal clinical exposure, so I wonder if this was a suitable point to have surveyed them- this surely introduces some biases inherent in any brand new clinical student fresh to patient care- I would expect any student right at the beginning of their clinical exposure to have fears around discussing death. You say they were 'mid course', but not in terms of clinical teaching/ training. Why did you not choose more senior medical students? This is a limitation that needs further discussion in my opinion.

Answer: We agree with the reviewer that we need to discuss further our sample. The context of medical education in Brazil is different from other parts of the world, and students have an early contact with dying patients. In our sample 47.7% of the students already had contact with patients who ended up dying. We explained this issue further in the Methods section, in the Settings topic, and at the first paragraph from the Results section, as described below. We also included this issue in the limitations section of the discussion.

Adjustment:

Methods Section/ Setting sub-section (line 162): "In the medical school where this study was performed, during the last semester of the second year and the entire third year, students have contact with patients inside the hospital, including the emergency department and the internal medicine ward. Since the Intensive Care Unit (ICU) in the university hospital does not have enough beds for all the patients in

critical conditions, there are 40 patients in average under mechanical ventilation outside of the ICU daily. So, students often have contact with critical patients who eventually die since early moments of the undergraduate course. This early contact with dying patients justifies why this sample was chosen to validate the questionnaires. In the future, we are interested in following up their development throughout the course."

Results Section (line 254): "Considering participants' previous experience, 47,7% said they had participated in the care of a dying patient during their medical studies."

We also acknowledged this limitation and included the following in the Strengths and Limitations section:

Strengths and Limitations (line 346): "One limitation that we should acknowledge is that we used a convenience sample, which could result in selection bias, especially considering that we selected third-year students, with few clinical experiences. However, we had a high response rate, and our sample is representative of the students in the mid of the medical course."

Strengths and Limitations (line 356): "Although this study has mainly focused on the translation and investigation of scales` internal structure and reliability, further studies are necessary to explore and confirm their validity. For example, it is also important to apply these scales in senior medical students and residents to check their validity for these more experienced populations. Additionally, future research in this area should investigate how the improvement measured by the SEPC and TS persists after PC training and how it influences actual doctors' performance when caring for dying patients."

It would be useful in future to validate the tool in more senior students/ students learning elsewhere in Portuguese/ an international equivalent school which has a well developed PC undergraduate syllabus.

Answer: Yes, we agree with the reviewer, and it is in our plan to apply this scale to Portuguese students and also in medical schools with structured and unstructured palliative care teaching.

We included the following sentence in the Strengths and Limitations section of the paper:

Adjustment:

Strengths and Limitations (line 353): "Regarding the follow-up of students, these scales could be used for understanding the development of palliative care competencies in different Portuguese speaking countries and to compare the development of palliative care competencies in curricula with and without structured palliative care training."

Suggest consider incorporating findings from this UK paper which looks at PC education across all UK medical schools;

Progress and divergence in palliative care education for medical students: A comparative survey of UK course structure, content, delivery, contact with patients and assessment of learning
Walker, Steven ; Gibbins, Jane ; Barclay, Stephen ; Adams, Astrid ; Paes, Paul ; Chandratilake, Madawa ; Gishen, Faye ; Lodge, Philip ; Wee, Bee
Palliative Medicine, October 2016, Vol.30(9), pp.834-842

Answer: Thank you for the suggestion and update on the main aspect of our manuscript – palliative care education for undergraduate medical students! We included it as a reference in Introduction and Discussion sections, and it will support our future manuscripts about this study follow up.

Reviewer: 2
Reviewer Name: Amparo Oliver

Although it is very interesting and useful research, to fulfill the objectives, in my opinion, some changes should be made:

Comment: Thank you for the opportunity to review and update our manuscript! We appreciate your considerations and made efforts to review and change the aspects you pointed out.

Please, check the paragraph in the introduction page 5 around line 120 when describing self-efficacy and outcome expectancy. In its actual format could be tautological.

Answer: Thank you for your enlightenment on the format. We made changes to be more direct without losing important explanation of the theoretical concepts of the scales we used, as follow:

Adjustment:

Introduction (line 116): “A comprehensive evaluation of a training programme involves more than just measuring the acquired knowledge. A successful training programme should provide enhancement of students’ competence in PC, which consists of developing new attitudes and behaviours aligned with patients’ needs (18,19). Bandura’s social cognitive theory explains that ‘self-efficacy’ and ‘outcome expectancy’ are central components in behavioural changes. Self-efficacy corresponds to one`s knowledge and skills, previous experience, and observation of other’s performance. Outcome expectancy is the self-perceived consequence of the performance and relates to the value this specific performance has to the person. The higher self-efficacy and outcome expectancy, the higher is the chance for behavioural change. Thus, appropriate training should strengthen one’s confidence in their ability to achieve the objectives (self-efficacy) and enlighten the importance of developing the desirable

behaviour (outcome expectancies). Medical educators could use the self-efficacy concept to deliver comprehensive feedback and tailor their teaching approaches to fit students' needs (18,20)."

In methods, more detail is needed about participants (for instance, not just mean age, also SD).

Answer: we included more demographic characteristics of the participants in the first paragraph of the Results section, where this information seems to fit better.

Adjustment:
Results section (line 250): "From a possible 119 potential participants, eight did not sign the informed consent. Thus, 111 (response rate = 93.2%) were considered for the SEPC validation analysis and, due to absence of data, 109 were considered for TS validation. Their mean age was 22.02 (SD = 2.11) and the majority were females (53.2%). The proportion of male and female follows the current gender distribution in Brazilian medical schools. Considering participants' previous experience, 47,7% said they had participated in the care of a dying patient during their medical studies."

Is a convenience and small size sample, for this reason, is of paramount importance doing a better description (could participants come from alternative curricula as students?)

Answer: all participants of this research were 3-year medical students from the same medical school, submitted to the same curricula structure. We add more information regarding the setting and background of the students selected for the validation in Methods, under Settings and Participants topics. We hope this context could bring better comprehension to our sample choice.

Adjustment-1:
Methods section, Settings sub-section (line 162): "In the medical school where this study was performed, during the last semester of the second year and the entire third year, students have contact with patients inside the hospital, including the emergency department and the internal medicine ward. Since the Intensive Care Unit (ICU) in the university hospital does not have enough beds for all the patients in critical conditions, there are 40 patients in average under mechanical ventilation outside of the ICU daily. So, students often have contact with critical patients who eventually die since early moments of the undergraduate course. This early contact with dying patients justifies why this sample was chosen to validate the questionnaires. In the future, we are interested in following up their development throughout the course.."

Adjustment-2:
Methods section; Participants sub-section (line 187): "For validation analysis, we invited all the third-year medical students of class 2017 to answer the translated and pre-tested scales in July 2017, during their final exams on clinical semiology. All the students had experienced the same curricular activities. We included all students who agreed to participate (n=111, response rate=93.2%)."

The analysis are not updated/suitable as we have a prior structure to validate, the one from the English original version. The CFA analysis is a much comprehensive method to study the functioning of particular troublesome items as the one found by authors. The EFA used with varimax rotation involves independent factors and maybe this is no the case.

Answer: Thank you for your comments. You were right. Now, we conducted a CFA for both scales. Interestingly enough, the results of CFA demonstrated that it was not necessary to delete item number 6 of the Thanatophobia scale and we kept the original structure of the English version. These adjustments were updated in Methods, Results and Discussion sections.

Adjustment-1

Methods section, Procedures sub-section (line 229): "For construct validity, firstly, we conducted a confirmatory factor analysis with Maximum Likelihood estimation to investigate the internal structure of both scales. To assess the confirmatory factor model, we used the following goodness of fit: Chi-square statistics, Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Aproximation (RMSEA). The Chi-square statistics was used to assess the overall fit and discrepancy between the sample and the model. Both CFI and TLI were considered optimal with values above 0.90 (25). Optimal RMSEA is lower than 0.80 (26). Finally, we calculated the reliability of the scales using Cronbach's alpha and Composite reliability, and, for concurrent validity, we calculated the correlation between the SEPC-Br and TS-Br."

Adjustment-2

Results section (line 258): "Confirmatory Factor Analysis (CFA) demonstrated that the base model for the SEPC-BR scale (model A) displayed poor fit index values, based on the χ2/df ratio, the Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA). When the correlation between the items' errors was added (model B), the model achieved a satisfactory level of model fit (Table 1).

Table 1. Fit index for the SEPC and Thanatophobia

		χ^2(df) Sig.	Ratio χ^2/df	TLI	CFI	RMSEA (HI90)
SEPC	Model A	$\chi^2(227) = 776.018$; $p<0.001$	3.418	0.782	0.804	0.143 (0.155)
	Model B	$\chi^2(211) = 356.934$; $p<0.001$	1.691	0.934	0.945	0.079 (0.093)

Thanatophobia	Model A	$\chi^2(14) = 42.058$; $p<0.001$	3.004	0.824	0.883	0.136 (0.184)
	Model B	$\chi^2(11) = 12.579$; $p>0.05$	1.143	0.987	0.993	0.036 (0.110)

Abbreviations: SEPC = Self-efficacy in Palliative Care; χ^2(df) Sig. = Chi-square (degree of freedom) Significance; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA (HI90) = Root Mean Square Error of Approximation (Upper limit of 90% of confidence)."

Adjustment-3

Results section (line 275): "Confirmatory Factor Analysis (CFA) revealed that the base model for the Thanatophobia_BR scale (model A) displayed poor fit index values, based on the χ2/df ratio, the Comparative Fit Index (CFI), Tucker Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA). When the correlation between the items' errors was added (model B), the model achieved a satisfactory level of model fit (Table 1)."

Adjustment-4:

Abstract: "Confirmatory factor analyses demonstrated that both the Brazilian versions of SEPC and Thanatophobia scales followed the same structure as the original versions."

Also very important, the psychometric study of reliability could be more updated not just using Chronbach alpha, but using complementary reliability indices as omega or those based on CFA.

Answer: We have added the Composite reliability based on CFA as a complementary reliability coefficient. The values were similar between Alpha and Composite reliability. We updated these aspects in Results and Discussion sections as follow:

Adjustment-1

Results section (line 268): **"**Each subsection of the SEPC was analysed independently for reliability on test scores. For the first factor, Multidisciplinary Teamwork (MT), Cronbach's alpha and Composite reliability were 0.97 and 0.96, respectively. For the second factor, Communication (CM), Cronbach's alpha and Composite reliability were 0.93 and 0.93, respectively. For the third factor, Patient Management (PM), Cronbach's alpha and Composite reliability were 0.92 and 0.91 respectively."

Adjustment-2

Results section (line 279): "Cronbach's alpha and Composite reliability were 0.82 and 0.82, respectively. In summary, Table 2 shows the factors and Cronbach's alphas of the Brazilian version compared to the original scale."

Table 2 – Comparison between the Original and Brazilian version of the scales

Scales	**Original Scale** (17)		**Brazilian version**	
Psychometrics properties	***Factors***	***Cronbach's alpha***	***Factors***	***Cronbach's alpha***
SEPC Communication	*0.70-0.89*	*0.93*	*0.75-0.85*	*0.93*
SEPC Patient Management	*0.55-0.84*	*0.92*	*0.51-0.81*	*0.92*
SEPC Multidisciplinary teamwork	*0.70-0.84*	*0.92*	*0.78-0.90*	*0.97*
Thanatophobia Scale	*0.61-0.79*	*0.84*	*0.66-0.83*	*0.82*

Adjustment-3

Discussion section (line 315): "Our study was the first to examine the psychological properties of a Brazilian version of these scales and the first study to use Confirmatory Factor Analysis for both scales. This is important since confirmatory factor analysis is theory-driven, meaning that it tests the theory behind the scales. In addition, confirmatory factor analysis makes an explicit relation between the latent variable and score. Therefore, our study also adds to the international literature by demonstrating another type of evidence of validity based on confirmatory factor analysis."

Adjustment -4

Abstract: "Cronbach's alpha and Composite reliability were adequate for both scales, ranging from 0.82 to 0.97."

Simultaneously, some more evidence for the validity of the two scales under study should be provided. In summary, the paper is focused mainly on one aspect of the scales.

Answer: Thank you for your comment. As this study was the first study demonstrating the translation process, pilot and empirical evidence of the psychometric properties, the only possible evidence of validity to add was concurrent validity, between the SEPC and TS. Apparently, there was no studies showing this kind of evidence.

Adjustment 1

Methods section (line 235): "Finally, we calculated the reliability of the scales using Cronbach's alpha and Composite reliability, and, for concurrent validity, we calculated the correlation between the SEPC-Br and TS-Br."

Adjustment 2

Results section (line 287): "We found a negative and significant correlation between the SEPC-Br and TS-Br and its dimensions. The magnitude ranged from weak to moderate (Table 3).

Table 3 – Correlation between SEPC and Thanatophobia scales

	Thanatophobia
SEPC Communication	-0.516*
SEPC Patient Management	-0.370*
SEPC Multidisciplinary teamwork	-0.262*
SEPC Total	-0.499*

*p<0.01; Abbreviations: SEPC = Self-efficacy in Palliative Care;

Adjustment- 3

Discussion section (line 295): “We also found a negative correlation between SEPC-Br and TS-Br, indicating that higher the fear of death, the lower the self-efficacy in PC. This result was expected, since students who are uncomfortable with the idea of death may feel more anxious and less confident to take care of dying patients.”

Since we agree with the reviewer’s comments and believe that more studies regarding validity are necessary, we have added the following in Strengths and Limitations section.

Adjustment- 4

Strengths and Limitations (line 357): “Although this study has mainly focused on the translation and investigation of scales` internal structure and reliability, further studies are necessary to explore and confirm their validity. For example, it is also important to apply these scales in senior medical students and residents to check their validity for these more experienced populations. Additionally, future research in this area should investigate how the improvement measured by the SEPC and TS persists after PC training and how it influences actual doctors’ performance when caring for dying patients.”

I have no problem at all in reviewing the revised draft.

Comment: thank you for the opportunity! We made efforts to review and change as much as possible based on your considerations and we are looking forward your feedback.

VERSION 2 – REVIEW

REVIEWER	Dr Faye Gishen

	UCL Medical School, London, UK
REVIEW RETURNED	18-Dec-2019

GENERAL COMMENTS	Thank you for asking me to again review this interesting paper. I commend the authors for constructively using the critical comments to improve the paper. These have been extensive and the paper reads better. This is an important area and the acknowledgement of complexity and uncertainty in medical education (and medicine) is key. With research inequalities being highlighted across research communities in the 'Global South' vs 'Global North', this paper from Brazil is timely. It is a valuable international collaboration through authorship. It now (briefly) compares and contracts palliative care curricula from Latin America and Europe. Thank you for now clearly defining thanatophobia for the reader. There remain some discrepancies in spelling 'thanatophobia/ thanatofobia'; please harmonise. You have now acknowledged the limitation of using third year students and have added consideration of a future study using these validated tools in a more mature medical student cohort. It may also be valuable to research in future in more than one Latin American medical school. The references are also improved. I think this paper needs a couple of further minor amendments (as above) and I would then recommend publication.

REVIEWER	Amparo Oliver Universitat de València
REVIEW RETURNED	01-Jan-2020

GENERAL COMMENTS	The manuscript accurately follows the STROBE guide for this type of research, but anyway there are (in my opinion) some methodological flaws, and problems with order and format in which the information is presented. My report focus in these issues. Methodology flaws When introducing following comment : “Despite this breadth of training, there is no formal palliative medicine programme in the curriculum, although some disciplines and clinical placements may include aspects related to fundamental approaches in PC; for example, engaging students in discussions on breaking bad news and end of life ethics.”…there is a lack of information about the course (in which year of curriculum, the context formal or practice, if there is a training in communication abilities, please detail or discuss in which extent this informal approach could introduce difference in participants answers to the questionnaires. Include any incentive or support to participate in the study, as the 93% is a huge success and is worth to share with researchers, always concern about how to stimulate participation. But first, check the numbers as the actual participants were not the one that signed the informed consent, but those who also fulfilled instruments, and attended the measurement session (109), anyway it was a high rate of participation.

	In my opinion, the translation and adaptation following EORTC guidelines and coordinated with original authors is a strength. In the piloting process, why the questionnaire was piloted in 6th year students previous to apply in 3rd year ones? Please detail if a focus group was performed, if they were asked to contribute to the content validity of any particular issue. For piloting would be more usual addressing to the same type of 3rd year students. Order there is a confusion in the order, in Results section is included the information about the test would be used to test for CFA best fit. Please reorder the manuscript. Also, is a problem there is no information about the program used for CFA (Mplus, EQS,…?release? missing data treatment?) nor the method of estimation and if it includes any type of correction for data. Statistics The chi-square ratio as fit index is not used later years, since evidence was found supporting its limitations. There is no need to introduce that index as literature recommends different ones based in chi square, in residuals, in base model comparison…all these criteria are fulfilled with the rest already included. Simultaneously, the reporting of only upper limit for RMSEA 90% confidence interval instead of both limits, is not so extended. This is an optional issue for the Editor. In table 3, when reporting this type of statistical tests for correlation the exact p value should be included in each case. Conclusions, discussion Regarding the interpretation of results, authors should review the tone of some expressions as results “demonstrated that…” instead of support evidence, or similar ones. (line 258, for instance) Picking up some state of the art from literature, could be interesting to present some results for men & women, and expand discussion a little bit. Similarly, although authors include the key variables and procedures for (evidences for validity based on the relations with other variables) there are some more variables analyzed in students curriculum for palliative care literature (as communication abilities, emotional intelligence,…) that are missed. FORMAT In instruments sections (page 7) the numbers indicating the reliability are expressed with 0.00 please check the format (as alfa or CRI,…numbers as those with a maximum in 1). Same format question in page number 9 when reporting fit indices. The table presenting fit indices is not in the usual format for results. Please check. “Since the Intensive Care Unit (ICU) in the university hospital does not have enough beds for all the patients in critical conditions, there are 40 patients in average under mechanical ventilation outside of the ICU daily. So, even when students had not cared directly for someone who died, they have contact with critical patients who eventually die since early moments of the undergraduate course. This early contact with dying patients justifies why this sample was chosen to validate the questionnaires. In the future, we are interested in following up their development throughout the course”. This information in page 6 and 7 around line 170, should be better explain and allocated as limitation in another section into the manuscript.

VERSION 2 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 1

Reviewer Name: Dr Faye Gishen

Thank you for asking me to again review this interesting paper.
I commend the authors for constructively using the critical comments to improve the paper. These have been extensive and the paper reads better. This is an important area and the acknowledgement of complexity and uncertainty in medical education (and medicine) is key. With research inequalities being highlighted across research communities in the 'Global South' vs 'Global North', this paper from Brazil is timely. It is a valuable international collaboration through authorship. It now (briefly) compares and contracts palliative care curricula from Latin America and Europe.

Comments: we are grateful for your comments and review. We hope our manuscript and the research we have been conducting bring advances for palliative care education in Brazil, Latin America and contribute to reflect on educational models around the world.

Thank you for now clearly defining thanatophobia for the reader. There remain some discrepancies in spelling 'thanatophobia/ thanatofobia'; please harmonise.

Answer: we reviewed and corrected the spelling to `thanatophobia` throughout the manuscript.

You have now acknowledged the limitation of using third year students and have added consideration of a future study using these validated tools in a more mature medical student cohort. It may also be valuable to research in future in more than one Latin American medical school. The references are also improved.

Comments: Thank you for your comments. Indeed, we are working on a subsequent manuscript in which we apply the scales in more senior students to check the efficacy of different strategies on the learning of palliative care.

I think this paper needs a couple of further minor amendments (as above) and I would then recommend publication.

Comments: we reviewed carefully to address all your recommendations. Thank you.

Reviewer: 2

Reviewer Name: Amparo Oliver

The manuscript accurately follows the STROBE guide for this type of research, but anyway there are (in my opinion) some methodological flaws, and problems with order and format in

which the information is presented. My report focus in these issues.
Comments: we thank you for your recommendations and reviewed all the aspects you have pointed out.

Methodology flaws
When introducing following comment : "Despite this breadth of training, there is no formal palliative medicine programme in the curriculum, although some disciplines and clinical placements may include aspects related to fundamental approaches in PC; for example, engaging students in discussions on breaking bad news and end of life ethics."…there is a lack of information about the course (in which year of curriculum, the context formal or practice, if there is a training in communication abilities, please detail or discuss in which extent this informal approach could introduce difference in participants answers to the questionnaires.
Answer: In the last review, we already described how students engage in the care of dying patients, as soon as they start to go into the hospital (end of the fourth semester). Now, we also described the theoretical support they have in this period that can have an effect on their understanding about palliative care. We hope we have informed enough so that the reader can better understand our context.

Adjustment – line 160-178:
"Nevertheless, in our context, during the last semester of the second year and the entire third year, students have contact with patients inside the hospital, including the emergency department and the internal medicine ward. Since the Intensive Care Unit (ICU) in our university hospital does not have enough beds for all the patients in critical conditions, we end up with around 40 patients under mechanical ventilation outside of the ICU. So, even when our students had not cared directly for someone who died, they have contact with critical patients who eventually die since early moments of the undergraduate course. This early contact with dying patients justifies why we choose this sample to validate our questionnaires. In the future, we are interested in following up their development throughout the course.

Despite this breadth of training, there is no formal palliative medicine programme in the curriculum, although some disciplines and clinical placements may include aspects related to fundamental approaches in PC. For example, students have an obligatory longitudinal course, along the six years of medical school, on bio- and clinical ethics, in which they discuss, among other topics, the concepts of euthanasia, dysthanasia, orthothanasia, and end-of-life care. In the first three years, the course is mainly theoretical, and, in the last three years, students engage in the ethical decision making of challenging patients. Also, students have contact with real patients since the first year, and several aspects of clinical communication are discussed, such as how to brake bad news, the importance of being empathetic, and offering rapport."

Include any incentive or support to participate in the study, as the 93% is a huge success and is worth to share with researchers, always concern about how to stimulate participation. But

first, check the numbers as the actual participants were not the one that signed the informed consent, but those who also fulfilled instruments, and attended the measurement session (109), anyway it was a high rate of participation.

Comments: Yes, we had a high rate of participation. The group of researchers responsible for these experiments has a close connection with students and experience in conducting studies in medical education aiming for the modernization of the curriculum. Also, we invited all the students simultaneously at the end of the semester, during a lecture.

About the participants, 111 agreed to participate and fulfilled all SEPC scales, and this data was considered for the validation of SEPC. However, two participants failed in filling the TS questionnaire and were excluded from the validation analysis of the TS but not of the SEPC.

We made it clear in the results session as follows:

Adjustment (line 258-265):

"From a possible 119 potential participants, eight did not sign the informed consent. Thus, 111 (response rate = 93.2%) were considered for the SEPC validation analysis and, due to absence of data, 109 (response rate = 91.6%) were considered for TS validation. Their mean age was 22.02 (SD = 2.11) and the majority were females (53.2%). The proportion of male and female follows the current ratio of gender in Brazilian medical school. Asking about students' previous experience, 47.7% said they had participated in the care of a dying patient during their medical studies. This finding is coherent with educational experience they have in their medical school."

In my opinion, the translation and adaptation following EORTC guidelines and coordinated with original authors is a strength.

Answer: we agree on this strength and made a slightly adjustment in 'Strengths and limitations' section.

Adjustment (line 353): We choose validated instruments that were based on solid theoretical basis, to access medical students` attitudes towards palliative care. The translation and validation process were based on a recommended guideline protocol and we worked close to the original authors. Those aspects gave to our study a strong methodological grounding.

In the piloting process, why the questionnaire was piloted in 6th year students previous to apply in 3rd year ones? Please detail if a focus group was performed, if they were asked to contribute to the content validity of any particular issue. For piloting would be more usual addressing to the same type of 3rd year students.

Comments: this manuscript describes one aspect of a larger research, which had included 6-year students as well. We choose to pilot the instruments with 6-year students as they are more advanced in the course and could point out any primary inconsistencies and misunderstandings in the scales. We explained further how we performed the focus group to pilot-test the scales.

Adjustment (line 222):

“Phase 2: Pretesting

Both final versions were pilot-tested in a focus group with ten 6th-year medical students. One of the researchers met the students and explained the study. The students completed the scales and, after, the researcher asked if they had difficulties in comprehending any item. Small grammars corrections were proposed but the students did not suggest any major changes and assured that they had a good comprehension of the items, aims and expectations of the scale. Students did not engage in a content analysis of the scales. Once we had a final version, the scales were distributed to the 3rd year medical students from the class of 2017, to generate data to enable the psychometric analysis of the scales.”

Order

there is a confusion in the order, in Results section is included the information about the test would be used to test for CFA best fit. Please reorder the manuscript.

Answer: we reordered the information in Table 1, and it seems clearer now.

Adjustment: Table 1 - Fit index for the SEPC and Thanatophobia scales

		χ^2(df) Sig.	**CFI**	**TLI**	**RMSEA (LO90; HI90)**
SEPC	Model A	$\chi^2(227) = 776.018$; $p<0.001$	.804	.782	.143 (.132; 0.155)
	Model B	$\chi^2(211) = 356.934$; $p<0.001$	.945	.934	.079 (.065; .093)
Thanatophobia	Model A	$\chi^2(14) = 42.058$; $p<0.001$	.883	.824	.136 (.090; .184)
	Model B	$\chi^2(11) = 12.579$; $p>0.05$	.993	.987	.036 (.000; .110)

Abbreviations: SEPC = Self-efficacy in Palliative Care; χ^2(df) Sig. = Chi-square (degree of freedom) Significance; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index; RMSEA (HI90) = Root Mean Square Error of Approximation (Lower and Upper limit of 90% of confidence).

Also, is a problem there is no information about the program used for CFA (Mplus, EQS,…?release? missing data treatment?) nor the method of estimation and if it includes any type of correction for data.

Answer: we added a statement about the missing data and included the program used for analysis, in Methods section, Procedures, Phase 3

Adjustment:

(line 239) "*The missing data were deleted for the analysis*. Finally, we calculated the reliability of the scales using Cronbach's alpha and Composite reliability, and, for concurrent validity, we calculated the correlation between the SEPC-Br and TS-Br."

(line 243) "Data were analyzed using IBM-SPSS 21.0 and R (lavaan and dplyr packcages). The latter was used for the confirmatory factor analysis and calculating the Composite reliability, respectively."

Statistics

The chi-square ratio as fit index is not used later years, since evidence was found supporting its limitations. There is no need to introduce that index as literature recommends different ones based in chi square, in residuals, in base model comparison…all these criteria are fulfilled with the rest already included. Simultaneously, the reporting of only upper limit for RMSEA 90% confidence interval instead of both limits, is not so extended. This is an optional issue for the Editor.

Comments: We made adjustments related to this in Table 1: we excluded the chi-square ratio and added the lower limit for RMSEA 90% confidence interval.

In table 3, when reporting this type of statistical tests for correlation the exact p value should be included in each case.

Answer: we included the p value for each subscale, as recommended.

Adjustment: Table 3 – Correlation between SEPC and Thanatophobia scales

	Thanatophobia
SEPC Communication	-.516*
SEPC Patient Management	-.370*
SEPC Multidisciplinary teamwork	-.262**

SEPC Total	-.499*

*p=0.000; **p=0.006 Abbreviations: SEPC = Self-efficacy in Palliative Care;

Conclusions, discussion

Regarding the interpretation of results, authors should review the tone of some expressions as results "demonstrated that…" instead of support evidence, or similar ones. (line 258, for instance)

Answer: We substitute the expressions as recommended.

Adjustments:

Discussion Section

(line 301) "Both scales had a high reliability coefficient measured by Cronbach's alfa and Composite reliability."

(line 349) "Therefore, our study also adds to the international literature by presenting another type of evidence of validity based on confirmatory factor analysis and concurrent validity between the SEPC and Thanatophobia."

Picking up some state of the art from literature, could be interesting to present some results for men & women, and expand discussion a little bit. Similarly, although authors include the key variables and procedures for (evidences for validity based on the relations with other variables) there are some more variables analyzed in students curriculum for palliative care literature (as communication abilities, emotional intelligence,…) that are missed.

Comments: we agree with the reviewer that it would be interesting to analyze more and different variables to explore the context of palliative care education and its relation to other educational activities and personality characteristics. However, the research we conduct did not focus on these aspects and we are not able to present data or discussion that include these variables in this manuscript at this time. Nevertheless, this input will be useful for us to plan future research in this area.

FORMAT

In instruments sections (page 7) the numbers indicating the reliability are expressed with 0.00 please check the format (as alfa or CRI,…numbers as those with a maximum in 1). Same format question in page number 9 when reporting fit indices. The table presenting fit indices is not in the usual format for results. Please check.

Answer: We checked all the numbers.

"Since the Intensive Care Unit (ICU) in the university hospital does not have enough beds for all the patients in critical conditions, there are 40 patients in average under mechanical ventilation outside of the ICU daily. So, even when students had not cared directly for someone who died, they have contact with critical patients who eventually die since early moments of the undergraduate course. This early contact with dying patients justifies why this sample was chosen to validate the questionnaires. In the future, we are interested in following up their development throughout the course". This information in page 6 and 7 around line 170, should be better explain and allocated as limitation in another section into the manuscript.

Answer: This information was added after a suggestion from reviewer 1, to explain why, in our context, third year medical students are a good sample to validate the scales. We gently ask the editor to help us to decide where this information would fit better.

VERSION 3 – REVIEW

REVIEWER	Amparo Oliver Universitat de València
REVIEW RETURNED	27-Feb-2020

GENERAL COMMENTS	This is the second review and I understand authors fulfill my concerns but still, there is a problem with the tables, they are not in APA style or a standard for the journal, some typos (p.11 line 237 packages, for instance...). And I would like to add a minor comment or suggestion for the authors regarding the wording of the scale. Future research should check for method effects, as specifically there are some factors with a strong initial common wording.

VERSION 3 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:

Reviewer: 2
Reviewer Name: Amparo Oliver
Institution and Country: Universitat de València

This is the second review and I understand authors fulfill my concerns but still, there is a problem with the tables, they are not in APA style or a standard for the journal, some typos (p.11 line 237 packages, for instance...).

Comments: We checked again for additional typos and corrected them. We changed the style of the tables for APA style as suggested and they seem better. Thank you for the suggestion.

And I would like to add a minor comment or suggestion for the authors regarding the wording of the scale. Future research should check for method effects, as specifically there are some factors with a strong initial common wording.

Comments: We added the following in the Limitations Section and added a reference to support this specific topic.

“Also, using strong words at the beginning of each sentence may produce variance beyond the measured construct, the so-called Method Effects. The Method Effects could be a venue for future research.”