PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	An assessment of nurses' competence to care for sexually assaulted trans persons: A survey of Ontario's Sexual Assault/Domestic Violence Treatment Centres
AUTHORS	Du Mont, Janice; Kosa, Daisy; Solomon, Shirley; Macdonald, Sheila

VERSION 1 – REVIEW

REVIEWER	Judith Cornelius UNC Charlotte, harlotte NC, USA
REVIEW RETURNED	04-Jun-2018

GENERAL COMMENTS	I find the topic of special interest and it adds to the literature as to what nurses know or do not know but I do have concerns. In reporting the findings in each section that author(s) indicate the following: the mean rating of perceived competence was 4 or greater for the 4 competencies, less than 4 and 3 or greater for two competencies and less than 3 for two competencies The likert scale was 1-5, so what actually does a 3. 25 mean on the scale a 3 was identified as neither agree nor disagree, It would have been appropriate to identify how many responded to each category. For example how many strongly agreed or agreed with statements or strongly disagreed or disagreed with a statement This type of data analysis was provided in each section of the paper. This type of reporting occurred with each section of the paper. Need to identify what the scale is and what these numbers mean. On page 7 it was noted that an Advisory Group reviewed the questions for the survey. Who were these group members, what expertise did they have? that was unclear to me. Also was the survey pilot tested before being administered online, then with how many? when, what were the pilot findings results, did the survey change after that? On the tables you are reporting Ns of 70-75 but the sample size was 95 so this does not represent all of the sample - so the rest did not need training?

REVIEWER	Linda Shields Charles Sturt University, Bathurst, NSW, Australia
REVIEW RETURNED	08-Aug-2018

GENERAL COMMENTS	Interesting and well written paper that needs a few tweaks. 1. there is no response rate. How many nurses could you have recruited? How many were sent the questionnaire? What was your response rate? You say 95 answered the survey, but what was your denominator? How many did not answer it? 2. A table of demographic characteristics would be helpful, not just described in the text. 3. Beware of repeating results in the text when it is already contained in the tables. The text is meant to direct the reader to the tables, not replicate the numbers and figures 4. In the Discussion, do not give new data. All that belongs in the Results. The Discussion is for interpretation and recommendations. 5. There are some typos, p18 line 12 – Shrearer I think should be Shearer; p7 l6 – nurses - needs an apostrophe 6. Some conventions are not kept (but that may not be a problem for this journal – please seek advice from the editor). For example, abbreviations should not be used – “e.g.” should be “for example"; numbers vs words – if the number is >10 use figures, if 10 and below, use words, unless you are giving data or ages. Well done on an excellent study. I particularly like your “advisory panel”

REVIEWER	Nancy A Perrin Johns Hopkins University, USA
REVIEW RETURNED	18-Sep-2018

GENERAL COMMENTS	This manuscript clearly summarizes the results of a survey exploring nurses’ perceived competency in caring for transgendered sexual assault victims. The manuscript could be strengthened by including additional details in the methods section and conducting additional statistical analyses as described below. 1. Abstract does not include differences by having previously cared for transgender clients and only focuses on previous training although the goal of the paper is to examine both variables. 2. More detail on the sampling strategy is needed. The number of people receiving the email asking them to participate is not provided. Further description of the representativeness of the programs included in the sample is needed. 3. The response rate to the survey needs to be provided. 4. Please describe how the validity of the grouping of competency items into the four components of care was established. The Cronbach's Alphas presented address reliability but not validity. 5. The four components of care are likely highly correlated yet there is no adjustment for analyzing correlated dependent variables. Also, the correlations among the four components of care should be provided. 6. No detail is provided on missing data. The amount and pattern of missing data needs to be addressed. It appears that missing data ranged from 12.6% to 18.9% and the analyses excluded those with missing data, rather than using an imputation approach. Therefore differences between those with and without missing data should be examined to understand the bias introduced by dropping people with missing data. 7. As the analyses are based on naturally occurring groups, confounding should be addressed. Do these relationships exist

	after controlling for demographic characteristics of the participants? 8. The components of care were compared on 1) having previously provided care to transgender clients and 2) having prior transgender training. What is the degree of overlap between these two independent variables? The authors conclude that additional training would be helpful since past training is associated with greater competencies. However, if past training and past experience with transgender clients are highly correlated, it may be the past experience is more important. Additional analyses that examine the two variables simultaneously are needed. 9. Please include the Ns for "Yes" and "No" in Table 5.

VERSION 1 – AUTHOR RESPONSE

Reviewer #1 Comment #1: I find the topic of special interest and it adds to the literature as to what nurses know or do not know but I do have concerns. In reporting the findings in each section that author(s) indicate the following: the mean rating of perceived competence was 4 or greater for the 4 competencies, less than 4 and 3 or greater for two competencies and less than 3 for two competencies. The likert scale was 1-5, so what actually does a 3. 25 mean on the scale a 3 was identified as neither agree nor disagree, It would have been appropriate to identify how many responded to each category. For example, how many strongly agreed or agreed with statements or strongly disagreed or disagreed with a statement. This type of data analysis was provided in each section of the paper. This type of reporting occurred with each section of the paper. Need to identify what the scale is and what these numbers mean.
Response: We agree with the reviewer that we could have presented the results differently for clarity and ease of read and we have improved the reporting of results, we believe, throughout the entire section, based on the reviewer's overall feedback (see below). These revisions include defining the Likert scale values in each section and focusing only on competencies with a mean rating higher than 4 which are then later discussed as areas of strength and less than 3 which are subsequently discussed as areas requiring further development. We understand why the reviewer suggests dichotomizing the Likert scale for ease of interpretation, however, as discussed in the health measurement literature (see Health Measure Scales: A Practical Guide to their Development and Use by Streiner, Norman, & Cairney, 2015), Likert scales offer more subtlety in understanding potential differences between respondents as compared to the use of dichotomous scales. However, need for training was collected and is reported as a dichotomous variable (yes, no).

Initial assessment
The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care initial assessment ranged from 2.81 to 4.39 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 50.7% to 96.0% (Table 2).
Four competencies had a mean rating of more than 4.00: "I know to always refer to a trans client by their chosen name and pronoun(s), even when speaking to others. If unsure of their chosen name or what pronoun they go by, I routinely ask" (mean=4.39); "I am confident that I do not, or would not, show surprise, shock, dismay, or concern when either told or inadvertently learning that a client is trans" (mean=4.33); "I understand that a trans client may fear assault or belittlement by a healthcare professionals' response to their gender identity or expression" (mean=4.19); and "I am aware a companion of a trans client may not know their gender identity" (mean=4.00). Across these

competencies, many respondents indicated that they would benefit from additional training (50.7%, 61.1%, 80.3%, 84.7%, respectively).
Two competencies had a mean rating of less than 3.00: “I understand the distinction between trans identities and intersex conditions” (mean=2.84) and “I know how to document information in the medical record when the name a trans client uses and the gender they present as differs from their legal name and gender” (mean=2.81). Many respondents indicated that they would benefit from additional training on these competencies (90.5%, 96.0%, respectively).
The overall mean score for perceived competence in initial assessment was higher for nurses with prior trans-specific training than those with no such training (3.92 vs. 3.56; p=0.004) (Table 6).

Medical care

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care medical care ranged from 2.52 to 3.74 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 89.2% to 96.0% (Table 3).
There were no competencies that had a mean rating of more than 4.00.
Two competencies had a mean rating of less than 3.00: “I know how to address the possibility of pregnancy if a trans man/transmasculine client has not had a hysterectomy, is still within childbearing years, and the nature of the sexual assault suggests it” (mean=2.91) and “I know that if a trans man/transmasculine client is taking hormones, certain types of hormonal contraceptives may be limited in their efficacy” (mean=2.52). Many respondents indicated that they would benefit from additional training on these competencies (96.0%, 96.0%, respectively)
The overall mean score for perceived competence in medical care was higher for nurses with prior trans-specific training than those with no such training (3.50 vs. 3.06; p=0.001) (Table 6).

Forensic examination

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care forensic examination ranged from 2.73 to 4.11 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 79.2% to 93.0% (Table 4).
Two competencies had a mean rating of more than 4.00: “I know to anticipate that a trans client typically may have been subject to others’ curiosity, prejudice, and violence and therefore may be reluctant to report the crime or consent to examination for fear of being exposed to inappropriate questions or abuse” (mean=4.11) and “I am able to carefully explain what is going to be done and why before each step of the examination and respect a trans client’s right to decline any part of the examination, particularly if a trans client is reluctant to proceed with an examination due to having been subject to others’ curiosity, prejudice, and violence” (mean=4.00). Many respondents indicated that they would benefit from additional training on these competencies (83.1%, 79.2%, respectively).
One competency had a mean rating of less than 3.00: “I am aware of what specific equipment (e.g., pediatric speculum) and tools (e.g., gender-neutral body map) might be needed to assist in the examination of a trans client” (mean=2.73). For this competency, 93.0% of respondents indicated that they would benefit from additional training.

Discharge and referral

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care discharge and referral ranged from 2.69 to 4.09 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 77.5% to 93.0% (Table 5).
Three competencies had a mean rating of more than 4.00: “I am aware that a trans client may lack or have decreased social supports (e.g., family, friends, trusted service providers)” (mean=4.09), “I am aware that the sexual assault of a trans client may have occurred in the context of a hate crime, which may be important to consider in safety planning” (mean=4.00) and “I am aware that a trans client may

face employment barriers due to their gender identity, resulting in heightened rates of sex work that can make them additionally vulnerable to revictimization" (mean=4.00). Across these competencies, many respondents indicated that they would benefit from additional training (77.5%, 87.3%, 85.7%, respectively).
Two competencies had a mean rating of less than 3.00: "I am aware of available trans-positive resources and service providers in the community for a trans client requiring external support" (mean=2.69) and "I can access/make referrals to available trans-positive resources and service providers in the community for a trans client requiring external support" (mean=2.83). Many respondents indicated that they would benefit from additional training on these competencies (97.2%, 93.0%, respectively).

Reviewer #1 Comment #2: On page 7 it was noted that an Advisory Group reviewed the questions for the survey. Who were these group members, what expertise did they have? that was unclear to me.
Response: The Patient and Public Involvement section was revised as follows:
To guide and support the conduct of this study, an Advisory Group was assembled of trans community members and their allies with expertise in violence and trans health. Representing national, provincial, and local organizations, Advisory Group members were engaged in the grant development process and consulted on background resources (see Acknowledgements for a list of Advisory Group members). Two in-person meetings were then held with the Advisory Group: the first on January 26, 2017 at which the members aided in the development and finalization of the survey used in this study (see Survey development below) and the second on September 20, 2017 at which they aided in the interpretation of the findings and development of a knowledge transfer and exchange strategy.

The acknowledgements section of the manuscript contains a list of members:
Acknowledgements: We would like to thank our Advisory Group including Devon MacFarlane, Director, Rainbow Health Ontario; Kathleen Pye, Director, Research and Policy, Egale Canada Human Rights Trust; Jack Woodman, Chief Strategy Officer, Women's College Hospital; Kinnon MacKinnon, PhD Student, Dalla Lana School of Public Health, University of Toronto; and Hannah Kia, PhD Student, Dalla Lana School of Public Health, University of Toronto for their contributions to the project. We also owe a debt of gratitude to participating SA/DVTC Program Leaders and nursing staff who made this study possible. Finally, we acknowledge the contributions of Maeve Paterson who helped with early stages of the project and Rebecca Abavi who provided feedback on an early version of the manuscript.

Reviewer #1 Comment #3:
Also was the survey pilot tested before being administered online, then with how many? when, what were the pilot findings results, did the survey change after that?
Response: The mechanics of the survey, instructions, formatting, etc. were all thoroughly reviewed by the Advisory Group in a research team meeting, as well as the wording of each individual item for clarity, appropriateness, and face validity. Also, as noted earlier the research team had extension forensic nursing expertise in clinical practice and research. This process of assessing the draft survey before roll out is better explained in the manuscript Method section as follows:
We then undertook an assessment of the draft survey prior to roll out. The mechanics of the survey, instructions, formatting, etc., were all thoroughly reviewed by the Advisory Group in a research team meeting. Individual survey items were displayed within four domains (components of care) using a PowerPoint presentation and the wording of each item was assessed for clarity, comprehensiveness, inclusivity, and face validity. Each domain was assessed for content validity. Suggested edits were made to items and, additionally, several new items were added to capture important information not contained in the draft survey. A note-taker transcribed all suggested changes to the survey during the meeting which, subsequent to revision, was emailed to the Advisory Group on two occasions for

additional review. Following final refinements to the survey, it was converted into an online platform using SurveyMonkey software.

Reviewer #1 Comment #4: On the tables you are reporting Ns of 70-75 but the sample size was 95 so this does not represent all of the sample - so the rest did not need training?
Response: As in all survey research, not all respondents replied to all questions. The following notes have been added to the tables to make this clearer:
Note: SD = Standard deviation; *5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree; **N = total number of respondents indicating their level of agreement with each statement; ***N = total number of respondents indicating whether they would benefit from additional training in each area (yes/no)

Reviewer #2 Comment #1: there is no response rate. How many nurses could you have recruited? How many were sent the questionnaire? What was your response rate? You say 95 answered the survey, but what was your denominator? How many did not answer it?
Response: As per the response to Editor Comment #3, we cannot provide the total number of nurses who were surveyed because the survey was anonymized. The program leaders of the SA/DVTCs emailed their nursing staff directly as the emails of staff working at each individual centre could not be provided to the researchers. Furthermore, the nurses within each program are generally on-call and the roster frequently fluctuates (due to conflicting job demands, burnout, etc.) so that the group of nurses contacted by program leaders initially and at each of the four reminder emails over the course of 9 weeks may have been different. However, at the time of the initial email invitation, we asked the 35 program leaders about trans-related issues at the program level and some basic information about their programs, including the approximate number of nursing staff working at their centres: 27 of 35 program leaders responded with information and together indicated that there are approximately 295 nurses working in these programs. Nonetheless, our study is consistent with other recently published studies in BMJ Open with no (e.g., Clyne et al., 2016; Kyte et al., 2016; Mason et al., 2002; Munblit et al., 2017) or lower (e.g., Bayram 2017) response rates reported. Additionally, our study sample is, importantly, representative of the geographical diversity of Ontario with nurses completing the survey working in SA/DVTCs within all 14 provincial Local Health Integration Networks.
The procedures subsection of the manuscript has been revised as per below:
The link to the online questionnaire was distributed through individual emails to the program leaders of Ontario's 35 SA/DVTC on April 25, 2017. They, in turn, distributed the link to the nurses working within their programs, as the emails of these nurses could not be provided directly to the researchers given that the survey was anonymized. Four subsequent emails were sent to the program leaders over the course of nine weeks, to remind them to distribute the survey link to their nursing staff.
The limitations subsection has been revised as per below:
This study has several limitations which are important to acknowledge. First, we could not calculate a response rate for our survey as nursing staff were emailed directly by program leaders. Furthermore, the nurses within each program typically work on-call and the roster frequently fluctuates due to conflicting job demands, burnout, etc. Therefore, the group of nurses contacted by program leaders initially and at each of the four reminder emails over the course of nine weeks may have been different. As a result, we cannot estimate the potential impact on our findings of non-response bias. It is possible that nurses who did complete the survey differed from those who did not in their experiences and opinions. For example, those who completed the survey may have had a greater interest in trans issues and have been more likely to endorse the need for additional training. Nonetheless, the study sample was representative of the geographical diversity of Ontario with nurses completing the survey working at SA/DVTCs within all 14 provincial Local Health Integration Networks. Second, the survey could only measure nurses' perceived competence not assess their actual performance in the clinical setting....

Reviewer #2 Comment #2: A table of demographic characteristics would be helpful, not just described in the text.
Response: To limit redundancy between tables and text, we have shortened the reporting of sociodemographics in the text of manuscript and added a Table 1. This is all that currently remains in the text with new reference to table 1:

Sociodemographic characteristics and work related experiences
A total of 95 nurses providing frontline care completed the survey. Respondents represented a wide age range with 20 (21.1%) aged 20-30 years, 29 (30.5%) aged 31-45 years, 40 (42.1%) aged 46-60 years, and 6 (6.3%) aged 61+ years. The length of time working for Ontario's SA/DVTCs varied with 13 (13.7%) respondents having worked <1 year, 39 (41.1%) 1-5 years, 15 (15.8%) 6-10 years, and 28 (29.5%) 11+ years. Forty-three (45.3%) respondents had yet to provide direct clinical care to a client identifying as trans (Table 1).

Reviewer #2 Comment #3: Beware of repeating results in the text when it is already contained in the tables. The text is meant to direct the reader to the tables, not replicate the numbers and figures
Response: See response to comment #2 above. Also note that we improved the reporting of the results more generally per Reviewer 1, Comment 1.

Reviewer #2 Comment #4: In the Discussion, do not give new data. All that belongs in the Results. The Discussion is for interpretation and recommendations.
Response: We reviewed the discussion carefully and do not believe there are any new data presented therein. However, we have revised the Results section of the manuscript, as noted above, to more clearly present the data and if the data are resummarized in the Discussion, this done in a consistent manner with the Results. For example, see the reporting of initial assessment, etc in the Results:
Initial assessment
The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care initial assessment ranged from 2.81 to 4.39 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 50.7% to 96.0% (Table 2).
Four competencies had a mean rating of more than 4.00: "I know to always refer to a trans client by their chosen name and pronoun(s), even when speaking to others. If unsure of their chosen name or what pronoun they go by, I routinely ask" (mean=4.39); "I am confident that I do not, or would not, show surprise, shock, dismay, or concern when either told or inadvertently learning that a client is trans" (mean=4.33); "I understand that a trans client may fear assault or belittlement by a healthcare professionals' response to their gender identity or expression" (mean=4.19); and "I am aware a companion of a trans client may not know their gender identity" (mean=4.00). Across these competencies, many respondents indicated that they would benefit from additional training (50.7%, 61.1%, 80.3%, 84.7%, respectively).
Two competencies had a mean rating of less than 3.00: "I understand the distinction between trans identities and intersex conditions" (mean=2.84) and "I know how to document information in the medical record when the name a trans client uses and the gender they present as differs from their legal name and gender" (mean=2.81). Many respondents indicated that they would benefit from additional training on these competencies (90.5%, 96.0%, respectively).

The overall mean score for perceived competence in initial assessment was higher for nurses with prior trans-specific training than those with no such training (3.92 vs. 3.56; p=0.004) (Table 6).

Medical care

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care medical care ranged from 2.52 to 3.74 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 89.2% to 96.0% (Table 3).

There were no competencies that had a mean rating of more than 4.00.

Two competencies had a mean rating of less than 3.00: “I know how to address the possibility of pregnancy if a trans man/transmasculine client has not had a hysterectomy, is still within childbearing years, and the nature of the sexual assault suggests it” (mean=2.91) and “I know that if a trans man/transmasculine client is taking hormones, certain types of hormonal contraceptives may be limited in their efficacy” (mean=2.52). Many respondents indicated that they would benefit from additional training on these competencies (96.0%, 96.0%, respectively)

The overall mean score for perceived competence in medical care was higher for nurses with prior trans-specific training than those with no such training (3.50 vs. 3.06; p=0.001) (Table 6).

Forensic examination

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care forensic examination ranged from 2.73 to 4.11 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 79.2% to 93.0% (Table 4).

Two competencies had a mean rating of more than 4.00: “I know to anticipate that a trans client typically may have been subject to others’ curiosity, prejudice, and violence and therefore may be reluctant to report the crime or consent to examination for fear of being exposed to inappropriate questions or abuse” (mean=4.11) and “I am able to carefully explain what is going to be done and why before each step of the examination and respect a trans client’s right to decline any part of the examination, particularly if a trans client is reluctant to proceed with an examination due to having been subject to others’ curiosity, prejudice, and violence” (mean=4.00). Many respondents indicated that they would benefit from additional training on these competencies (83.1%, 79.2%, respectively).

One competency had a mean rating of less than 3.00: “I am aware of what specific equipment (e.g., pediatric speculum) and tools (e.g., gender-neutral body map) might be needed to assist in the examination of a trans client” (mean=2.73). For this competency, 93.0% of respondents indicated that they would benefit from additional training.

Discharge and referral

The mean Likert scale ratings indicating the level of agreement with eight competencies within the component of care discharge and referral ranged from 2.69 to 4.09 (5=strongly agree, 4=agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree). The proportion of respondents that indicated that they would benefit from (additional) training for each of these competencies ranged from 77.5% to 93.0% (Table 5).

Three competencies had a mean rating of more than 4.00: “I am aware that a trans client may lack or have decreased social supports (e.g., family, friends, trusted service providers)” (mean=4.09), “I am aware that the sexual assault of a trans client may have occurred in the context of a hate crime, which may be important to consider in safety planning” (mean=4.00) and “I am aware that a trans client may face employment barriers due to their gender identity, resulting in heightened rates of sex work that can make them additionally vulnerable to revictimization” (mean=4.00). Across these competencies, many respondents indicated that they would benefit from additional training (77.5%, 87.3%, 85.7%, respectively).

Two competencies had a mean rating of less than 3.00: “I am aware of available trans-positive resources and service providers in the community for a trans client requiring external support” (mean=2.69) and “I can access/make referrals to available trans-positive resources and service

providers in the community for a trans client requiring external support" (mean=2.83). Many respondents indicated that they would benefit from additional training on these competencies (97.2%, 93.0%, respectively).

The discussion of these findings in the Discussion is consistent:
A lack of competence in the care of trans clients has been identified as a barrier to health equity by both those who identify as trans and health care providers.29 Our results indicate several areas of competence that should be strengthened with respect to caring for transgender clients among nurses at Ontario's SA/DVTCs. Overall, the mean level of competence was just 4.00 or greater (strongly agreed/agreed with the statement) for half of the competencies related to initial assessment (4/8), just under half the competencies related to discharge and referral (3/7), and one-quarter of the competencies related to forensic examination (2/8). There were no competencies related to the provision of medical care, one of the most important and fundamental responsibilities of SA/DVTC nursing staff, with a mean level of competence 4.00 or greater.16 18

Reviewer #2 Comment #5: There are some typos, p18 line 12 – Shrearer I think should be Shearer; p7 l6 – nurses - needs an apostrophe
Response: The typos have been corrected:
Johnston and Shearer30 found that less than 10% of internal medicine residents felt that they could make appropriate referrals for gender-affirming surgery or felt confident prescribing hormone replacement therapy.
We also explored the impact of prior trans-specific training on nurses' perceived level of competence.

Reviewer #2 Comment #6: Some conventions are not kept (but that may not be a problem for this journal – please seek advice from the editor). For example, abbreviations should not be used – "e.g." should be "for example"; numbers vs words – if the number is >10 use figures, if 10 and below, use words, unless you are giving data or ages.
Response: We thank the reviewer for their comments and believe that we are using the BMJ Open style consistently throughout the manuscript. We double checked that numbers are reported appropriately. If any formatting issues remain, we are happy to work with the Editor to address them.

Reviewer #2 Comment #7: Well done on an excellent study. I particularly like your "advisory panel"
Response: Thank you very much to the reviewer for their kind comments.

Reviewer #3 Comment #1: This manuscript clearly summarizes the results of a survey exploring nurses' perceived competency in caring for trans sexual assault victims. The manuscript could be strengthened by including additional details in the methods section and conducting additional statistical analyses as described below. Abstract does not include differences by having previously cared for trans clients and only focuses on previous training although the goal of the paper is to examine both variables.
Response: The manuscript has been revised as per Reviewer #3 Comment #8 below to include only one exploratory analysis: the impact of prior training. Additionally, we have strengthened the Method section of the manuscript with multiple revisions/additions having been made to this section specifically as reflected below:
Methods
Ethics
This study was reviewed by the research ethics board at Women's College Hospital (REB # 2017-0005-E). Informed consent was obtained from participants.
Patient and Public Involvement

To guide and support the conduct of this study, an Advisory Group was assembled of trans community members and their allies with expertise in violence and trans health. Representing national, provincial, and local organizations, Advisory Group members were engaged in the grant development process and consulted on background resources (see Acknowledgements for a list of Advisory Group members). Two in-person meetings were then held with the Advisory Group. At the first on January 26, 2017, members aided in the development and finalization of the survey used in this study (see Survey development below) and at the second on September 20, 2017, they aided in the interpretation of the findings and development of a knowledge transfer and exchange strategy.

Survey development

An online survey was developed to examine, among nurses providing direct clinical care, their perceived level of competence and need for additional training in caring for sexually assaulted trans clients, as well as to document any prior trans-specific training they may have undertaken. The survey drew upon the U.S. Department of Justice Office on Violence Against Women, Second Edition of the National Protocol for Sexual Assault Medical Forensic Examinations, Adult/Adolescent (2013), which contained 25 statements and recommendations focused specifically on responding to trans persons who have been sexually assaulted, statements/recommendations which have been endorsed by FORGE, a pan-American trans-led research and advocacy group.22 The research team, which has extensive forensic nursing and curricular development expertise, e.g., 17, 24-26 adapted these statements/recommendations into competencies using Bloom's Taxonomy of Learning,27 and organized them into four domains, components of care, based on the flow of care provided to persons who have been sexually assaulted. Finally, items related to sociodemographic characteristics and work experiences were included based on previous surveys conducted across the Ontario Network of SA/DVTCs. e.g.,, 28

We then undertook an assessment of the draft survey prior to roll out. The mechanics of the survey, instructions, formatting, etc., were all thoroughly reviewed by the Advisory Group in a research team meeting. Individual survey items were displayed within four domains (components of care) using a PowerPoint presentation and the wording of each item was assessed for clarity, comprehensiveness, inclusivity, and face validity. Each domain was assessed for content validity. Suggested edits were made to items and, additionally, several new items were added to capture important information not contained in the draft survey. A note-taker transcribed all suggested changes to the survey during the meeting which, subsequent to revision, was emailed to the Advisory Group on two occasions for additional review. Following final refinements to the survey, it was converted into an online platform using SurveyMonkey software.

Survey content

The final survey began with a definition of "trans": "[Trans refers to] persons who feel the binary gender … that was assigned to them at birth is misleading or an incomplete description of themselves" (adapted from Survivors Organizing for Liberation, A. Edgar, personal communication, April 2017). Four items captured sociodemographic characteristics: age (20-30 years, 31-45 years, 46-60 years, >60 years), sex (female, male, other [please specify]), gender identity (woman, man, bigender, trans man, trans woman, crossdresser, genderqueer, agender, gender fluid, two-spirited, You don't have an option that applies to me. I identify as ... [please specify]), and highest level of education achieved (hospital-based nursing program, community college, bachelor degree, master's degree, PhD, professional program, other [please specify]). Three items were related to work experiences: How long have you been working for one of Ontario's SA/DVTCs? (< 1 year, 1-5 years, 6-10 years, >10 years), Are you Sexual Assault Nurse Examiner trained? (yes, no), and Have you ever provided direct clinical care to a client who has indicated that they are trans? (yes, no). Four items focused on prior trans-specific training: In the context of providing nursing care, what kind(s) of trans-specific training have you previously had, if any? (no training, undergraduate nursing course, Sexual Assault Nurse Examiner training curriculum, self-directed learning, community organization/group workshop, conferences, community of practice, other [please specify]); Approximately how many hours of training have you undergone related to providing care for trans clients? (1-4 hours, 5-9 hours, 10-15 hours, >15 hours, not applicable); What modality were these

trainings? (in-person, online, both, not applicable); and Briefly describe what was covered in your trans-specific training (list). Two items focused on overall competency and training needs, both of which employed a 5-point Likert scale: I would rate my current level of overall expertise in caring for trans clients who have been sexually assaulted as very high, high, moderate, low, or very low and I feel that I would benefit from (additional) training on how to provide appropriate care to trans clients who have been sexually assaulted (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree).

The survey also contained 31 items related to specific competencies for providing care to sexually assaulted persons. For each item, respondents were asked to indicate the extent to which they agreed with the statements (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree), and whether they would benefit from additional training in this area (yes/no). Competency items were organized into components of care: initial assessment (8 competencies; e.g., “I know to always refer to clients by their chosen name and pronoun, even when speaking to others. If unsure of chosen name or what pronoun to use, I routinely ask” (see Table 1 for full list), medical care (8 competencies; e.g., “I am aware that trans clients may have discomfort, dysphoria, and/or dissociation from their body due to being trans” (see Table 2), forensic examination (8 competencies; e.g., “If a client is reluctant to proceed with an examination due to having been subjected to others’ curiosity, prejudice, and violence, I have the skills to carefully explain what is going to be done and why before each step, and respect the client’s right to decline any part of the examination” (see Table 3), and discharge and referral (7 competencies; e.g., “I am aware that the sexual assault of a trans client may have occurred in the context of a hate crime, which may be important to consider in safety planning” (see Table 4).

Finally, the survey concluded with one open-ended question: In addition to the items above, based on your experience, what are some of the issues you have faced or may face when providing care to a trans client of sexual assault for which you would like additional training?

Procedure

The link to the online questionnaire was distributed through individual emails to the program leaders of Ontario's 35 SA/DVTC on April 25, 2017. They, in turn, distributed the link to the nurses working within their programs, as the emails of these nurses could not be provided directly to the researchers given that the survey was anonymized. Four subsequent emails were sent to the program leaders over the course of nine weeks, to remind them to distribute the survey link to their nursing staff.

Statistical analyses

The data from SurveyMonkey were imported into SPSS 24 (Statistical Package for the Social Sciences). First, respondent sociodemographic characteristics, work related experiences, prior training, and overall competence and training needs, as well as the 31 competencies, were examined using descriptive statistics. Written-in comments from the open-ended question were extracted verbatim and organized thematically.

Next, perceived competence across the four components of care was compared between respondents who indicated having had prior trans-specific training and those who did not. A composite score for competence for each respondent was created by averaging scores within each of the components of care (Cronbach’s Alpha was 0.76, 0.83, 0.80, and 0.80 for the initial assessment, medical care, forensic examination, and discharge and referral components, respectively). Mean scores between the two groups for each domain were compared using independent sample t-tests. Respondents with missing data >20% for items in each component were removed. To assess risk of non-response bias in each analysis, the baseline characteristics were compared between those excluded from the analysis and those included, and there were no significant differences. A Bonferonni correction was applied for multiple comparisons (4 tests with critical p value set at 0.0127).

Reviewer #3 Comment #3: Please describe how the validity of the grouping of competency items into the four components of care was established. The Cronbach's Alphas presented address reliability but not validity.
Response: The Methods section has been revised as follows to address content validity of the domains:
An online survey was developed to examine, among nurses providing direct clinical care, their perceived level of competence and need for additional training in providing care to sexually assaulted trans clients, as well as document any prior trans-specific training. The survey drew upon the U.S. Department of Justice Office on Violence Against Women, Second Edition of the National Protocol for Sexual Assault Medical Forensic Examinations, Adult/Adolescent (2013), which contained 25 statements and recommendations focused specifically on responding to trans persons who have been sexually assaulted, statements/recommendations which have been endorsed by FORGE, a pan-American trans-led research and advocacy group.22 The research team, which has extensive forensic nursing and curricular development expertise, e.g., 17, 24-26 adapted these statements/recommendations into competencies using Bloom's Taxonomy of Learning,27 and organized them into four domains, components of care, based on the flow of care provided to persons who have been sexually assaulted. Finally, items related to sociodemographic characteristics and work experiences were included based on previous surveys conducted across the Ontario Network of SA/DVTCs.e.g., 28

Reviewer #3 Comment #4: The four components of care are likely highly correlated yet there is no adjustment for analyzing correlated dependent variables. Also, the correlations among the four components of care should be provided.
Response: In order to correct for multiple comparisons given that the components of care may be correlated, we applied a Bonferroni correction to these analyses, revising the methods, results, and tables accordingly. For the methods, the revision was as follows:
The data from SurveyMonkey were imported into SPSS 24 (Statistical Package for the Social Sciences). First, respondent sociodemographic characteristics, work related experiences, prior training, and overall competence and training needs, as well as the 31 competencies, were examined using descriptive statistics. Written-in comments from the open-ended question were extracted verbatim and organized thematically.
Next, perceived competence across the four components of care was compared between respondents who indicated having had prior trans-specific training and those who did not. A composite score for competence for each respondent was created by averaging scores within each of the components of care (Cronbach's Alpha was 0.76, 0.83, 0.80, and 0.80 for the initial assessment, medical care, forensic examination, and discharge and referral components, respectively). Mean scores between the two groups for each domain were compared using independent samples t-tests. Respondents with missing data >20% for items in each component were removed. To assess risk of non-response bias in each analysis, the baseline characteristics were compared between those excluded from the analysis and those included, and there were no significant differences. A Bonferonni correction was applied for multiple comparisons (4 tests with critical p value set at 0.0127).

The note on the table was revised as follows:
** p value < 0.0127 indicates statistical significance

Reviewer #3 Comment #5: No detail is provided on missing data. The amount and pattern of missing data needs to be addressed. It appears that missing data ranged from 12.6% to 18.9% and the analyses excluded those with missing data, rather than using an imputation approach. Therefore,

differences between those with and without missing data should be examined to understand the bias introduced by dropping people with missing data.
Response: We examined the baseline characteristics of those with and without missing data. Additionally, we revised the Methods section as follows:
The data from SurveyMonkey were imported into SPSS 24 (Statistical Package for the Social Sciences). First, respondent sociodemographic characteristics, work related experiences, prior training, and overall competence and training needs, as well as the 31 competencies, were examined using descriptive statistics. Written-in comments from the open-ended question were extracted verbatim and organized thematically.
Next, perceived competence across the four components of care was compared between respondents who indicated having had prior trans-specific training and those who did not. A composite score for competence for each respondent was created by averaging scores within each of the components of care (Cronbach's Alpha was 0.76, 0.83, 0.80, and 0.80 for the initial assessment, medical care, forensic examination, and discharge and referral components, respectively). Mean scores between the two groups for each domain were compared using independent samples t-tests. Respondents with missing data >20% for items in each component were removed. To assess risk of non-response bias in each analysis, the baseline characteristics were compared between those excluded from the analysis and those included, and there were no significant differences. A Bonferonni correction was applied for multiple comparisons (4 tests with critical p value set at 0.0127).

Reviewer #3 Comment #6: As the analyses are based on naturally occurring groups, confounding should be addressed. Do these relationships exist after controlling for demographic characteristics of the participants?
Response: The primary purpose of this paper is to examine the nurses perceived level of competence and need for additional training in the care of sexually assaulted trans clients. The examination of the impact of prior trans-specific training on nurses' perceived level of competence is a secondary objective of the study and an exploratory analysis. We have revised the manuscript throughout to ensure that it is clear that these analyses are exploratory and that we took an unadjusted bivariate approach to explore these associations. We have added the following to the limitations as well:
Third, our exploratory analyses assessing the potential impact of prior trans training on mean domain competence across components of care were not adjusted and may be subject to confounding. To fully understand the influence of potential confounding, the impact of prior training on competence in this area may require further examination with multivariate statistics in larger samples. Finally, the results may be limited in their generalizability to hospital-based violence treatment centre staff. However, given that the forensic nursing model of sexual assault care has been evaluated with high levels of client satisfaction and improved uptake of acute services and sexual assault evidence kit completion,19,34,35 it has been widely adopted, with over 950 programs globally.36

Reviewer #3 Comment #7: The components of care were compared on 1) having previously provided care to trans clients and 2) having prior trans training. What is the degree of overlap between these two independent variables? The authors conclude that additional training would be helpful since past training is associated with greater competencies. However, if past training and past experience with trans clients are highly correlated, it may be the past experience is more important. Additional analyses that examine the two variables simultaneously are needed.
Response: We have included only the exploratory analysis on prior trans training throughout the manuscript to address this reviewer's concern.

Reviewer #3 Comment #8: Please include the Ns for "Yes" and "No" in Table 5.
Response: The Ns for the Yes and No categories have been added to Table 5 per this suggestion.

VERSION 2 – REVIEW

REVIEWER	Nancy Perrin Johns Hopkins University, USA
REVIEW RETURNED	18-Dec-2018

GENERAL COMMENTS	This is a strong revision, addressing the previous reviewers' comments. A few concerns/changes remain 1. Please state how content validity was assessed. 2. It would be helpful to state what baseline characteristics were used to compare those with and without missing data. 3. It is not clear why the authors do not adjust for confounding, when examining differences between those with and without prior training. Even in exploratory analyses, adjusted analyses are usually conducted.

VERSION 2 – AUTHOR RESPONSE

Reviewer Comment #1: This is a strong revision, addressing the previous reviewers' comments. A few concerns/changes remain 1. Please state how content validity was assessed.

Response: The process of assessing the content validity draft survey is better explained in the manuscript Method section as follows:

The mechanics of the survey, instructions, formatting, etc., were all thoroughly reviewed by the Advisory Group in a research team meeting. Individual survey items were displayed within four domains (components of care) using a PowerPoint presentation and the wording of each item was assessed for clarity, comprehensiveness, inclusivity, and face validity. Content validity was also assessed by asking Advisory Group members whether the items in the survey captured the concepts within each domain. Suggested edits were made to items and, additionally, several new items were added to capture important information not contained in the draft survey.

As well, we have more fulsomely described the subject matter expertise of the Advisory Group:

To guide and support the conduct of this study, an Advisory Group was assembled of trans community members and their allies with expertise in violence, trans health, and forensic nursing.

Reviewer Comment #2: It would be helpful to state what baseline characteristics were used to compare those with and without missing data.

Response: We have revised the Methods section as follows to include which characteristics were compared:

Respondents with missing data >20% for items in each component were removed. To assess risk of non-response bias in each analysis, several baseline characteristics including age, length of employment, having ever provided direct clinical care to a client who had indicated that they are trans, and prior trans specific training were compared between those excluded from the analysis and those included, and there were no significant differences.

Reviewer Comment #3: It is not clear why the authors do not adjust for confounding, when examining differences between those with and without prior training. Even in exploratory analyses, adjusted analyses are usually conducted.

Response: The use of multivariate regression analysis examining the associations between prior trans-specific training and mean composite domain scores, adjusting for any other important factors, though not the primary focus of this study, could be an additional and appropriate statistical approach in a study with a larger sample.

We have added the following to the analyses section of the Method:

Additionally, a multivariate regression analysis examining the potential associations between prior trans-specific training and mean composite domain scores, adjusting for potential confounders, was considered; however, given the limited sample size, was not conducted.

The issue is also acknowledged in the limitations section of the Discussion:

Third, our exploratory analyses assessing the potential impact of prior trans training on mean domain competence across components of care were not adjusted and may be subject to confounding. To fully understand the influence of potential confounding, the impact of prior training on competence in this area may require further examination with multivariate statistics in larger samples.

VERSION 3 – REVIEW

REVIEWER	Nancy Perrin Johns Hopkins University, USA
REVIEW RETURNED	18-Mar-2019

GENERAL COMMENTS	I only have one issue that remains. The authors claim that the sample size is insufficient to conduct a regression analysis with more than one independent variable is not justified. Regression models with N=81 can include multiple variables. I think a stronger justification of this decision is needed, if they are not going to conduct the analyses.