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Nurses and Unlicensed Assistive Personnel's Practices in Caring for Patients With Delirium in Acute Care Settings: Protocol for the PRACTICE Study

Pratiques des infirmières et des préposés aux bénéficiaires dans la prise en charge de patients présentant un délirium en soins aigus : protocole de l'étude PRACTICE

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Article abstract

Introduction: Few studies have investigated nursing practice in relation to delirium in acute care settings, and no studies have investigated the care of unlicensed assistive personnel (UAPs) in this context. As a result, it becomes challenging to support the delivery of optimal care and thereby improve delirium-related patient outcomes.

Objective: This manuscript reports on the development of two survey tools and a study protocol that aims to (1) describe the current practices of nurses and UAPs in the context of nursing care in delirium and to (2) highlight the barriers and facilitators to the delivery of optimal delirium care.

Methods: This multi-method study aims to recruit nurses and UAPs. During an initial quantitative phase, participants will answer two survey tools designed respectively for nurses and UAPs. These tools were developed using a modified Delphi technique and a guide based on Burns et al. (2008) and Eysenbach (2004). They examine delirium knowledge, practice, collaboration, confidence, and the impact of the COVID-19 pandemic on practice relatively to delirium. Descriptive and inferential statistical analyses will be performed on this data. The qualitative phase will include focus groups and interviews with nurses and UAPs to explore topics from the survey tools more in-depth. Thematic analysis will be performed on the transcripts. Data from both phases will answer the two study aims.

Discussion and Research Spin-offs: This study will be the first to report on the delirium care offered by UAPs. The survey tools developed can identify nurses' and UAPs' practices, and the barriers and facilitators to optimum nursing care for people with delirium.

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Pratiques des infirmières et des préposés aux bénéficiaires dans la prise en charge de patients présentant un délirium en soins aigus : protocole de l'étude PRACTICE

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nurses; unlicensed assistive personnel; delirium; practice; survey; multi-method study

Abstract

Introduction: Few studies have investigated nursing practice in relation to delirium in acute care settings, and no studies have investigated the care of unlicensed assistive personnel (UAPs) in this context. As a result, it becomes challenging to support the delivery of optimal care and thereby improve delirium-related patient outcomes. **Objective**: This manuscript reports on the development of two survey tools and a study protocol that aims to (1) describe the current practices of nurses and UAPs in the context of nursing care in delirium and to (2) highlight the barriers and facilitators to the delivery of optimal delirium care. **Methods**: This multi-method study aims to recruit nurses and UAPs. During an initial quantitative phase, participants will answer two survey tools designed respectively for nurses and UAPs. These tools were developed using a modified Delphi technique and a guide based on Burns et al. (2008) and Eysenbach (2004). They examine delirium knowledge, practice, collaboration, confidence, and the impact of the COVID-19 pandemic on practice relatively to delirium. Descriptive and inferential statistical analyses will be performed on this data. The qualitative phase will include focus groups and interviews with nurses and UAPs to explore topics from the survey tools more in-depth. Thematic analysis will be performed on the transcripts. Data from both phases will answer the two study aims. **Discussion and Research Spin-offs**: This study will be the first to report on the delirium care offered by UAPs. The survey tools developed can identify nurses' and UAPs' practices, and the barriers and facilitators to optimum nursing care for people with delirium.

Mots-clés

infirmières; préposés aux bénéficiaires; délirium; pratique; questionnaire; étude multi-méthode

Résumé

Introduction : Peu d'études ont porté sur la pratique infirmière relativement au délirium en soins aigus et aucune ne s'est intéressée à la participation des préposés aux bénéficiaires (PAB) dans ce contexte. Il devient dès lors complexe de soutenir la prestation de soins optimaux et l'amélioration de l'état des patients présentant un délirium. **Objectif** : Présenter le développement de deux instruments d'enquête et le protocole d'une étude qui vise à (1) décrire les pratiques des infirmières et PAB en contexte de soins infirmiers auprès de patients présentant un délirium et à (2) décrire les barrières et les facilitateurs à la prestation de soins optimaux dans ce contexte. **Méthodes** : Cette étude multi-méthode vise à recruter des infirmières et des PAB. Au cours d'une première phase quantitative, les participants rempliront les questionnaires d'enquête spécifiques respectivement aux infirmières et aux PAB. Ces outils ont été développés selon une méthode inspirée de la technique Delphi et un guide basé sur les travaux de Burns et al. (2008) et Eysenbach (2004). Ils comprennent des composantes concernant les connaissances, la pratique, la collaboration, la confiance, et les conséquences de la pandémie de la COVID-19 sur la pratique relative au délirium. Des analyses descriptives et inférentielles seront effectuées sur ces données. La phase qualitative comprendra des groupes de discussion et des entretiens, afin d'explorer en profondeur les sujets du questionnaire. Une analyse de contenu sera effectuée sur les transcriptions. **Discussion et retombées anticipées** : Cette étude sera la première à rendre compte des soins offerts par des PAB pour des patients présentant un délirium. Le questionnaire développé pourra être utilisé pour décrire les pratiques des infirmières et des PAB, ainsi que les barrières et facilitateurs à une prise en charge optimale de ces personnes.

INTRODUCTION

Delirium is an acute alteration of cognitive functioning manifested by impaired attention and an altered level of consciousness and is associated with increased mortality risk (American Psychiatric Association, 2013; Inouye et al., 2014). Research has demonstrated that interventions suggested in best practice guidelines can prevent delirium in 30% of cases and improve patient outcomes (Inouye et al., 1999; Siddiqi et al., 2016). However, delirium is still not well managed, with low detection rates and poor short- and long-term patient outcomes still being reported (Krewulak et al., 2020).

Studies in critical care settings have highlighted that healthcare professionals, including nurses, often do not follow best practice guidelines regarding delirium care (Demir Korkmaz et al., 2016; Luetz et al., 2014; Selim & Ely, 2017; Trogrlić et al., 2017).

There has been an interest in understanding the barriers and facilitators to optimal delirium care in critical care settings to address this lack of awareness and adherence to best practice guidelines. While most studies have focused on the knowledge of healthcare professionals, other barriers related to collaboration and self-confidence in caring for a patient with delirium have been highlighted (Demir Korkmaz et al., 2016; Luetz et al., 2014; Morandi et al., 2013; Selim & Ely, 2017; Trogrlić et al., 2017). Although these results are informative for critical care settings, they are still insufficient to guide practices for acute care settings, where many patients who develop delirium are hospitalized.

Additionally, few studies have investigated the contribution of UAPs to the care of patients at risk for or presenting with symptoms of delirium. UAPs inform nurses about the patient's behavior, such as being disoriented, and provide basic care, such as bathing. Considering the effectiveness of multicomponent interventions such as the Hospital Elder Life Program model that involves volunteers, formally involving UAPs in delirium prevention and management for patients with delirium could improve patient outcomes (Inouye et al., 2000). Thus, the need to better understand what they do in the context of delirium is highly relevant to optimizing care for people with delirium. Also, knowing what challenges and facilitates the application of better practices on delirium prevention and care is vital to the process of knowledge translation. Previous studies highlight that data on current practices in delirium care among an acute care population is scarce, and so is the information on the barriers and facilitators to optimal care for delirium. In using the term "practice", we refer to work experiences in direct patient care with delirium in clinical practice. A better understanding of these issues is needed to inform interventions and ultimately increase the quality of nursing care.

OBJECTIVE

This manuscript reports on the development of two survey tools and a study protocol that aims to (1) describe the current practices of nurses and UAPs in the context of nursing care in delirium and to (2) highlight the barriers and facilitators to the delivery of optimal delirium care.

ETHICAL CONSIDERATIONS

This protocol has been approved by the ethics and scientific committee of the *Centre intégré universitaire de santé et de services sociaux du Centre-Ouest-de-l'île-de-Montréal* (MP-05-2021-2627).

METHODS

PART 1: DEVELOPMENT OF THE SURVEY TOOLS

Rationale for the development of the survey tools. Two survey tools, one for nurses and one for UAPs, were developed. A modified Delphi technique (Niederberger & Spranger, 2020) guided the gathering of the experts' judgment and consensus on the appropriateness of the items to compose the two survey tools. Considering the lack of available evidence on the involvement of UAPs in contexts of delirium care, as well as the lack of tools specific for nurses answering our specific aims, gathering the perspectives of several experts was considered as an unavoidable strategy to conceive more sound survey tools.

Methods for the development of the survey tools. Three groups were involved in the development of the survey tools:

1) Task force. A task force with key stakeholders and experts in the care of patients with delirium generated the items from the survey tools items. This task force involved eight members, that is, two researchers, two clinical nurse specialists, one nursing educator, one clinical administrative coordinator, and two nursing consultants.

2) Small set of respondents from the target population. Members of the target population (10 nurses and six UAPs) reviewed the items of the survey tools. They were asked to rate the clarity and readability of each aspect of the survey tools by answering a specific questionnaire. The answers from this readability and clarity questionnaire were summarized for each question item in the survey tools and were presented to the task force which tested items. To assess the time necessary to complete the survey tools, we asked these same respondents to time themselves while completing them and indicate the time for completion within the readability and clarity questionnaire.

3) Expert panel. The expert panel assessed the validity of the two survey tools. This panel consisted of stakeholders not involved in the development of the initial versions of the survey tools. They were invited based on their clinical expertise as nurses or UAPs or on their expertise with delirium. Specifically, the panel included eight members (four nurses UAP managers, one geriatrician, one pharmacist, one allied healthcare professional, and one patient partner).

PROCEDURES

Preparatory steps. The principal investigator (PI) identified a framework to support the development of the two survey tools and performed a literature search. The guide outlined by Burns et al. (2008) and Eysenback (2004) was selected to guide the task force in developing the survey tools. The development steps of the survey tools are presented in Table 1. As per the framework, the PI (TM) determined a clear objective for both survey tools: to describe the current practices of nurses and UAPs caring for patients with delirium and the barriers and facilitators to delivering optimal delirium care. The target population, nurses and UAPs caring for patients with delirium in an acute care setting, was also determined.

Next, the PI (TM) performed an extensive literature search of previous surveys (shown in Table 2) on delirium care among healthcare professionals and barriers and facilitators to implementing best practice guidelines. The literature search was performed in all relevant databases until fall 2019 (Cumulative Index to Nursing and Allied Health Literature (CINAHL Complete (EBSCOhost); EMBASE (Ovid), MEDLINE ALL (Ovid), and APA PsycINFO (Ovid)). Best practice guidelines on delirium care were also searched.

Development of the initial version of the survey tools by the task force. Based on the literature search, a subgroup of our initial task force developed the survey tools. These items were then grouped into five domains that were identified as relevant by the task force to describe the best delirium care practices: knowledge, practice, confidence, collaboration, COVID-19. A section on COVID-19 was added as the pandemic affected practices such as the presence of visitors and isolation of patients that could impact caring for patients with delirium.

Afterwards, items were submitted to the other members of the task force and reviewed over three rounds. During each round, task force members were asked to identify the relevant items to address the objectives of the survey tools and to suggest modifications to these items. To achieve this, items were listed in an Excel sheet and the task force evaluated the pertinence of each item (yes/no) and suggest modifications or new items. Each conflict on the pertinence or modification of an item was solved by discussing it during the task force meetings. The PI (TM) gathered these data and presented it during the task force meetings.

Translation of the survey tools. As presented in supplemental material 1, the final versions of both tools underwent translation from English to French using a method adapted from Sousa & Rojjanasrirat (2011) transcultural translation framework. The participating centers demanded the survey be available in both languages so that participants would have the option of answering in the language in which they felt most comfortable.

Table 1

Survey tools development steps

Steps	Theoretical Content of Steps [a]
Determine the objectives	A clear objective requires specification of the topic, respondents, and primary and secondary research questions.
Identify the sampling frame	Identify the population of interest and the sampling frame that is accessible and best represents the population of interest.
Generate items	Tap into the important domains through literature reviews, in-depth interviews, focus-group sessions, or a combination of these methods with potential respondents or experts, in order to generate questions.
Reduce items	Limit the large number of potentially relevant questions within domains to a manageable number without eliminating entire domains or important constructs.
Format questions	Each question should be neutral, have 20 words or less and be easy to understand to ensure clarity and readability.
Compose survey	Ensure survey has these key characteristics: • Provide cover letter which clearly describes the survey objective. • Sociodemographic items should be presented first. • Font style should be easy to read. • Multiple items screens should be used, and questions should be presented consistently. • Progress indicators should be used. • Questions should be numbered, organized and clear.
Test the survey	This should be done by experts, as well as group similar to the desired respondents. This is done to ensure questions are understood in a consistent manner, as intended by the investigator, and that each item is appropriate.

Note. [a] Burns et al. (2008); Eysenbach (2004).

RESULT: FINAL CONTENT OF THE TWO SURVEY TOOLS

Survey tools content. Examples of the nurses and UAPs items of the survey tools are presented in Table 3. The complete survey tools are available via email to the PI (TM). Each survey tool includes an embedded consent form. The nurses' survey tool consists of 49 items, including nine sociodemographic questions (eg., age, years of working experience, education, training on delirium) followed by 38 items answered on a four-point Likert scale ("strongly disagree" to "strongly agree") and 2 items on COVID-19. The UAPs' survey tool consists of 30 items, including eight sociodemographic questions followed by 20 items answered on a four-point Likert scale ("strongly disagree" to "strongly agree") and the two items on COVID-19. Items in both survey tools are organized in the five sections mentioned above. For the section on knowledge in the UAPs' survey tool, we opted to adapt a previously published questionnaire, the Family Caregiver Delirium Knowledge Questionnaire (CDKQ) from Bull et al., (2015). The CDKQ was designed to inform on the patients' families' knowledge of delirium. The CDKQ consists of 19 items (yes/no/don't know response) divided into three sections: risks, action, and symptoms of delirium. It is available in English and has been validated with families. For the proposed study, and with the permission of the author of the CDKQ, we adapted the items for the UAPs and retained only items relevant to the specific aims of our study. The items included in the UAPs' survey tool target the knowledge of delirium and highlight what UAPs know about the manifestations and risk factors of delirium, and how they act when caring for a patient with delirium.

Survey tools formats. Each survey tool takes a maximum of 20 (nurses' tool) and 10 minutes (UAPs' tool) to complete. Participants will be able to complete the survey tools either via their home computers or tablets, their cellphones, iPads or the paper-based format, both available on the units.

Table 3

Examples of survey items

Section of Survey	Nurses' Survey Tool Example	UAPs' Survey Tool Example	Potential Responses
Knowledge of delirium	The manifestations of delirium are: • Sudden change in mental status • A tendency towards fluctuating symptoms • A memory function that is usually affected	Do you think any of the persons below might be at risk for delirium? • Older adults with an infection • Older adults who have had surgery • Older adults with dementia	Strongly disagree (1); Disagree (2); Agree (3); Strongly agree (4)
Delirium practice/Care	On our unit, I commonly use the following interventions to help prevent delirium: • Increasing mobility • Increasing hydration • Ensuring use of hearing and visual aids	When I work as a UAP on the unit, once a patient has delirium, this impacts my care in the following way: • I change the way I communicate (using shorter sentences) • I remind the patient where he/she is	Strongly disagree (1); Disagree (2); Agree (3); Strongly agree (4)
Collaboration/ Communication in context of delirium	On our unit, I commonly use the following methods to communicate about delirium with families: • It is the doctor's role to communicate about delirium with families • Nothing is used • Whiteboards	On my unit, the following methods are commonly used by nurses to communicate about delirium with UAPs: • It is not relevant to discuss the delirium status of patients with UAPs • Nothing is used • Whiteboards	Strongly disagree (1); Disagree (2); Agree (3); Strongly agree (4)
Confidence in context of delirium	Please read each item and indicate your degree of confidence corresponding to the following statements: • Assessing a patient's risk for delirium • Screening for delirium • Preventing delirium before it occurs	Please read each item and indicate your degree of confidence: • Following the nurse's recommendations to prevent delirium before it occurs • Taking care of a patient with delirium • Caring for a patient with delirium who is agitated	Not confident at all (1); Slightly confident (2); Fairly confident (3); Completely confident (4)
COVID-19	For both survey tools the second item is asking the participant to describe their experience caring for patients with delirium during the COVID-19 pandemic.		

PART 2: METHODS FOR THE STUDY

DESIGN

As UAPs has not been the subject of research regarding the aims of this study, we have chosen to perform a two-sites, multi-method design to meet the study aims (Brewer et Hunter, 2006; Morse et Cheek, 2014). The quantitative phase will consist in the application of the survey tools developed for nurses and UAPs. The qualitative phase will consist of focus groups and individual interviews.

Setting/Participants. The study will be conducted in nine acute surgical and medical units (all the medical and surgical units from the two hospitals) of two university-affiliated hospitals in Canada. All nursing staff and UAPs involved in direct patient care in these units will be invited to participate. The same eligibility criteria will be used for both phases. Participants in the qualitative phase may or may not have participated in the quantitative phase of the study. Nurses and UAPs who are not working at the time of recruiting for the study will not be eligible to participate.

Recruitment and sampling. Recruitment at the two sites will be done sequentially for the feasibility of data collection. Recruitment will be rolled out in two steps on each participating unit. First, we will reach out to the director of nursing and then present the study to the nurses and UAPs on each working shift. The study will also be advertised on the units' social media pages and with posters, e-mails, and newsletters to eligible staff members.

Based on the research team's previous experiences with recruitment in both centers and based on previous literature on cross-sectional survey studies on this topic, we are expecting a response rate of 60% or more for the survey (i.e. quantitative phase of the study) (Asch et al., 1997; Burns et al., 2008; Cummings et al., 2001; Engel et al., 2014; LaRose et Tsai, 2014; Liu et Jansen, 2018; Trogrlić et al., 2017). The 60% estimate was determined by averaging the rates of response to surveys on delirium practice among nurses and by considering meta-analyses on response and completion rates for online surveys among healthcare professionals (Balas et al., 2013; Demir Korkmaz et al., 2016; Devlin et al., 2008; Flagg et al., 2010; Jenkin et al., 2016; Luetz et al., 2014; Morandi et al., 2013; Selim & Ely, 2017; Trogrlić et al., 2017). Considering the total number of nurses and UAPs on the different units targeted by this study, we expected a sample size of 300 nurses and 86 UAPs for both sites.

To increase response and completion rates for the survey tools, strategies presented in Table 4 will be utilized (Burns et al., 2008).

PROCEDURES AND DATA COLLECTION

Procedures for the quantitative phase – survey tools. Following recruitment, survey tools will be made available for the entire duration of the study. Paper copies of the survey tools will be made available on the unit as well as online versions via Qualtrics, an online data collection software for surveys.

Procedures for the qualitative phase - focus groups and interviews. Following the initial start of the recruitment efforts for the completion of the survey tools, we will begin recruitment for the qualitative phase. We plan on conducting a nurse focus group for each of the nine units and individual interviews with the UAPs. Individual interviews was selected as a method to collect the qualitative data with the UAPs to increase the feasibility of the study. We aim to offer the interviews during work hours. Considering the small number of UAPs on one unit during work hours, we felt individual interviews increased feasibility. The PI (TM) will lead the focus groups and interviews, and a research assistant will take notes. Discussions will be audio-recorded. If the current guidelines in healthcare centers make face-to-face interviews impossible, Microsoft Teams will be utilized for the focus groups. The focus groups and individual interviews will run a maximum of 60 minutes and the PI (TM) will use an interview guide.

DATA ANALYSIS

Sociodemographic data and the survey tools scores will be summarized using the mean and ± standard deviations for continuous variables and as counts and percentages for categorical variables. Median and interquartile range of scores will be presented for each variable that is not normally distributed.

Table 4

Strategies to increase response and completion rates for the survey tools

Strategy	Implementation
Hand out the survey directly to nurses and UAPs (Corner et al., 2019)	Paper-based survey will be handed out and the PI (TM) will be present on the unit to solicit nurses and UAPs.
Use quantitative questions when possible to increase response rate (Corner et al., 2019)	The large majority of survey items will be answered on same 4-point Likert scale.
Ensure applicability of the survey (Corner et al., 2019)	Clinical relevance of the survey items pre-tested with the key stakeholders.
Use shorter questions when possible (Burns et al., 2008; Edwards et al., 2002)	The length of the survey items and clarity was assessed during the assessment of readability and clarity by members of the sampling frame.
Ensure contact with participants (Burns et al., 2008; Edwards et al., 2002)	The PI (TM) will be present on the unit for information sessions and to provide copies of the paper-based survey tool.
Follow-up with participants (Burns et al., 2008; Edwards et al., 2002)	A reminder will be sent to participants one week following their initial start of completion of the survey. The PI (TM) will visit the units frequently and on all shifts during the data collection window.
Provide monetary incentive (Burns et al., 2008; Edwards et al., 2002; VanGeest et al., 2011)	Participants will be offered the possibility of entering a draw at the end of the survey. Two gift cards per unit will be offered to winners of the draw. Participants of the focus groups will each receive a 25$ gift card for a coffee shop.

We will explore data on the survey tools scores within subgroups based on sociodemographic variables as age and training on delirium Chi-square and Student T-test will be used to compare categorical and continuous variables. All statistical analyses will be performed using SPSS software – version 28.

The focus group and interview transcripts will be submitted to thematic analysis (Braun & Clarke, 2006). The transcripts will be read by members of the research team, and codes inductively generated will pertain to nurses' and UAPs' perceived barriers and facilitators. Codes will subsequently be classified under general categories; in each category, related codes will be combined to create the first series of themes. The relationships among the themes will be scrutinized to understand how they could answer the research questions. A hierarchy of themes will be created, and the themes will be refined until those contributing to answering the research questions are highlighted. The thematic analysis will be subjected to the scrutiny of co-researchers to ensure trustworthiness.

Discussion and Research Spin-offs

Despite their role being crucial to prevent, detect and manage delirium, data on nurses' and UAPs' current practices in delirium care among an acute care population is scarce (Demir Korkmaz et al., 2016; Luetz et al., 2014; Morandi et al., 2013; Selim & Ely, 2017; Trogrlić et al., 2017). UAPs, just like nurses, have frequent contact with patients over 24 hours, and for those patients with no visitors, they represent the largest proportion of social contact these patients will have. Therefore, how they act and the interventions they put in place will greatly impact the development of delirium and its consequences. Similarly, little is known of the barriers and facilitators to optimal delirium care (Demir Korkmaz et al.; Luetz et al.; Morandi et al.; Selim & Ely; Trogrlić et al.). As such, this study aimed to create survey tools that could be used to evaluate nurses' and UAPs' knowledge and delirium care practices in acute care settings. Clinicians, researchers and stakeholders could then use these survey tools to evaluate care practices

and knowledge on their units in order to inform interventions for staff. A better understanding of the practice relative to delirium care and of the barriers and facilitators to optimal delirium care would inform training programs and ultimately increase the quality of care. Moreover, we would suggest that publishing this protocol is relevant to nursing and healthcare for two reasons. It allowed a more detailed reporting of the process used to develop both survey tools, in turn, allowing a better understanding of the results of this study. Finally, we plan on going back on the units with the results of this study by presenting posters and making small YouTube videos available in addition to presenting at conferences and publishing the results.

STRENGTHS AND LIMITATIONS

A strength of this study is that it will employ survey tools that have been validated by both the target population and experts in delirium care. Additionally, by using a multimethod approach, this study will allow for a more comprehensive analysis of nurses' and UAPs' practice and knowledge, as well as barriers and facilitators to optimal care. The focus on UAPs in addition to nurses will also allow for a more thorough description of direct patient care by including a population of care providers that have not been studied in this context previously. Finally, this is a two sites study taking place on several units, thereby positively affecting generalizability of this study.

A limitation of this study is the risk of the low participation rate of nurses and UAPs in the study (qualitative and quantitative phases). Strategies are being employed to mitigate this as discussed above, however, this remains a consideration particularly for the focus groups as they present a more significant time commitment for participants. Second, as limited research has been conducted in acute care settings it is possible that the survey may fail to explore unique barriers to acute care settings. Finally, foreseeable bias will have to be considered when interpreting the results of this study. Social desirability bias may be introduced when participants answer the survey to present themselves in a favorable light. To minimize this bias, the participation is anonymous and focus groups will be conducted by members of the research team who are not affiliated or involved in the units.

Authors' contribution: All authors meet the criteria for authorship and have approved the final article. Furthermore, all those entitled to authorship are listed as authors. All authors were involved in conceptualizing the protocol. TM, CC, MEL and LC were involved in collecting and analyzing the data from the Delphi. TM drafted the different versions of the survey tools. TM and LC drafted the manuscript, and all authors contributed to its content and revisions.

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Table 2

Existing Surveys Related to Delirium Care Among Healthcare Professionals

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
Andrews et al., 2015	To evaluate the implementation and effects of the Confusion Assessment Method for the Intensive Care Unit as a bedside assessment for delirium in a general intensive care unit in a tertiary care hospital.	Y	N	Critical care nurses	N	Y	Specific to the CAM-ICU [a] and the practice in the ICU [b] setting. However, some items could inform the practice portion of the PRACTICE survey.
Bond et al., 2016	Using the Delphi method, this study developed expert consensus guidelines for how family and non-professional carers should assist a person who is developing cognitive impairment or has dementia or delirium.	Y	Unclear	Health care professionals and carer advocates	N	N	Focussed on what families should know in the context of cognitive impairment, delirium or dementia. Not specific enough to inform our UAPs' survey tool and not relevant to our nurses' survey tool.
Buettel et al., 2017	To explore staff knowledge of delirium by eliciting meaning through descriptions of their experiences within a residential aged care facility.	Interview questions developed for this study	Pilot tested interview guide	Nurses from a residential aged care facility	N	N	Focussed on long-term care.
Bull et al., 2016	The aims of this study were to describe family caregivers' knowledge of delirium and preferred modalities for receipt of information about delirium.	Y	Y	Families	N	Y	Survey could inform the UAPs' survey tool.
Chambers et al., 2018	This study aimed to answer the following research questions: 1) Do students who receive online modules plus interprofessional simulation with	Y	N	Medical students in their neurology rotation and	N	N	Targets students and focuses on interprofessional simulation.

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
	standardized patients have more knowledge of delirium than peers who completed online learning only? 2) Are students' attitudes about interprofessional simulation influenced by participating in an interprofessional simulation with standardized patients?			senior nursing students			
Davis & MacLullich, 2009	Describe knowledge of and attitudes to delirium in trainee general physicians.	Y	Y	Trainee physicians acute care hospitals	N	Y	Some items could be adapted for the nurses' survey; however, the survey is too specific to physicians.
Dermir Korkomaz et al., 2015	Determine the knowledge level of cardiovascular surgery nurses regarding delirium.	Y	Y	Nurses employed at the cardiovascular surgery wards and ICU	N	Y	A few items on general knowledge of delirium could inform the nurses' survey tool. Needs to be adapted as it is specific to cardiovascular surgery. Does not cover domains of collaborative approach and self-confidence.
Devlin et al., 2008	Identify current practices and perceptions of intensive care nurses regarding delirium assessment and to compare practices for assessing delirium with practices for assessing sedation.	Y	Y	Critical care nurses	N	Y	A few items could inform the nurses' survey tool for items on knowledge and practice; however the rest of the survey is specific to ICU with questions on sedation practices.
Eliot, 2014	Assess nursing and medical staff knowledge, understanding and management of intensive care unit	Y	Y (piloted)	Critical care nurses and physicians	N	N	Survey is specific to ICU practices.

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
	delirium and assess the perceived barriers associated with intensive care unit delirium screening using a validated screening tool.						
Flagg et al., 2010	Describe nurses' ability to recognize delirium on both intensive care unit and medical surgical units.	Y	Y	Registered nurses from both medical-surgical and ICU	N	N	ICU specific
Gesin et al., 2012	Assess the effect of interventions on the knowledge of each bedside nurse about delirium and its detection by using the Intensive Care Delirium Screening Checklist.	Y	N	Pharmacists and nurses in ICU	N	Y	Several items specific to the Intensive Care Delirium Screening Checklist, but some items could inform the knowledge portion of the nurses' survey. Does not address other domains relevant to our study.
Hare et al., 2008	The objectives of this study were to: 1) Assess nurses' level of knowledge of delirium and the associated risk factors; and, 2) Identify clinical and education implications of the findings.	Y	Y (piloted)	Nurses	N	Y	Some items could inform the knowledge section of our survey. Does not address the other domains targeted by our study.
Herrero et al., 2008	Describe nurses' attitude to patients that may present delirium during the hospitalization time. A second goal is to analyze whether visit time of relative is a factor to be considered. The objective of this study is to value the attitude of the hospital's general population including the nurse staff and family; the latter case, inside the ICU environment.	Y	Unclear	General hospitalization nurses, nurses specialized in ICU, and relatives of patients admitted in ICU	N	Y	Items relative to practice are less relevant in the current context considering existing best practice guidelines. Some items could inform the knowledge portion of the nurses' survey tool, but less so the other domains.

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
Hickin et al., 2017	To determine the impact of education on nurses' knowledge of delirium, knowledge and perception of a validated screening tool, and delirium screening in the ICU.	Y	Unclear	Permanent certified critical-care nursing staff employed in the ICU	N	Y	A few items on general knowledge of delirium could inform the nurses' survey. The survey in its entirety is ICU specific and does not meet our needs. Several items are specific to a delirium screening tool and could be adapted to question general screening practices.
Jenkin et al., 2016	Authors used questionnaires designed to test understanding of delirium, including prevalence, knowledge of the DSM-IV [c] diagnostic criteria, use of specific screening tools, association with adverse outcomes and pharmacological management.	N	Y (Davis, 2009)	Junior physicians	N	N	Refer to comments on the Davis 2009 survey.
Law et al., 2012	Describe nurses' perceptions of using the Intensive Care Delirium Screening Checklist, and of barriers to delirium assessment and treatment.	Y	Y	Critical care nurses	N	Y	A few items could inform the nurses' survey, however, survey items specific to ICU and ICU delirium detection tools.
Monfared et al., 2017	Describe knowledge and attitude of critical care nurses towards delirium.	Y	Y	Critical care nurses	N	Y	Items could inform the domains of knowledge and practice for the nurses' survey tool. Needs to be adapted to a non-ICU context. Does not address

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
							self-confidence and collaboration practices.
Morandi et al., 2013	The European Delirium Association (EDA) conducted a survey of its members and other interested parties on various aspects of delirium care.	Y	Y	Delirium experts, members of the EDA	N	Y	Targets experts in delirium, not adapted to the target population for the survey tools for the PRACTICE study.
Nydahl et al., 2018	Assess delirium management in nurses and physicians working in intensive care units in German-speaking countries and to identify related differences between nurses and physicians.	Y	Y	Critical care nurses and physicians	N	N	Survey in its entirety does not meet the study aims and is specific to ICU.
Rawson et al., 2017	Assess emergency nurses' knowledge and self-rating of practice when caring for older patients.	N	Y	Emergency department nurses	N	N	Focussed on aging, not specific to delirium.
Rowley-Conwy et al., 2017	Examine perceived barriers to assessment of delirium for critical care nurses, and the impact of education on their knowledge and practice.	Y	Y	Critical care nurses	N	N	Items available are very specific to ICU context.
Scott et al., 2013	Assess the feasibility and effectiveness of the validated CAM-ICU delirium screening tool in a critical care unit.	Y (adapted from Devlin 2008)	N	Critical care nurses	N	N	See comments for the Devlin 2008 survey.
Selim et al., 2017	The aim of the present study was to survey ICUs health care professionals'	Y (adapted from Ely	Y (previous studies of Ely et al.,	ICU nurses and physicians	N	Y	Focussed on awareness and practice of both nurses and physicians in contexts

Abbreviated reference	Study data				Assessment data		
	Study aim	Survey developed in the study? (Y/N)	Validated? (Y/N)	Population	Answers the aims of the PRACTICE study? (Y/N)	Items relevant for the PRACTICE study? (Y/N)	Reasons if survey does not meet the needs of the PRACTICE study
	awareness and practice related to delirium.	et al., 2004)	2004 and Patel et al., 2009)				of ICU. Some items could inform the nurses' survey tool for knowledge.
Sivani et al., 2016	Assess knowledge, beliefs, and practices regarding delirium of physicians, nurse practitioners, and registered nurses.	Y (adapted from Devlin 2011; Hare 2008; Gesin 2012)	N	Registered nurses, nurse practitioners, and physicians, in a large tertiary care academic institution	N	N	See comments for the Devlin, Hare and Gesin surveys.
Trogrlic et al., 2017	Identify barriers for implementation that should be addressed in a tailored implementation intervention targeted at improved ICU delirium guideline adherence.	Y	Y	Critical care health care professionals (nurses, physicians and delirium consultants)	N	Y	Specific to the ICU setting, however several items could inform the knowledge and practice portions of the survey.
Xing et al., 2017	Assess the knowledge, attitudes, and management regarding delirium of intensive care nurses and physicians, and to assess the perceived barriers related to the intensive care unit.	Y	Y (piloted)	Critical care nurses and physicians	N	N	ICU specific

Note. [a] CAM-ICU: Confusion Assessment Method – Intensive Care Unit.

[b] ICU: Intensive Care Unit.

[C] DSM-IV: Diagnostic and Statistical Manual of Mental Disorders, fourth edition.

Supplemental material 1

Translation method (Sousa et al., 2011)

STEP 1: Forward Translation
Two persons, whose mother tongue is TL, independently translated from SL to TL. This step resulted in two versions of the survey in TL. ▪ Independent Translator #1: $SL_1 \rightarrow TL_1$ ▪ Independent Translator #2: $SL_1 \rightarrow TL_2$
STEP 2: Comparison #1
A third person, not involved in step 1, compared TL_1 and TL_2 to SL_1. This person looked for discrepancies of words, sentences and meanings. Any ambiguities and discrepancies were discussed and resolved within the task force. This step resulted in a third version of the survey in the TL.
STEP 3: Blind Back Translation
One person, translated from TL to SL. ▪ Independent Translator: $TL_3 \rightarrow SL_2$
STEP 4: Blind Back Translation
The task force compared SL_1 and SL_2 which has resulted in the modification of TL_3 when necessary. The task force looked for the same discrepancies as in Step 2. Any ambiguities and discrepancies were discussed and resolved within the task force. The task force then produced a pre-final version of the survey in the TL (PF-TL).
STEP 5: Assessment of clarity of the pre-final version (PF-TL)
Key stakeholders and members of the task force not involved in the previous steps.

Note. TL: Target language (French); SL: Source language (English); PF: Pre-final version of the survey in French.