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Evaluation of an educational program for nurses providing cancer symptom management: The pan-Canadian Oncology Symptom Triage and Remote Support Online Tutorial

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ABSTRACT

Purpose: To evaluate the acceptability of the pan-Canadian Oncology Symptom Triage and Remote Support (COSTaRS) open-access online tutorial and its impact on nurses' knowledge and perceived confidence in symptom management.

Methods: Retrospective pre-/post-test evaluation of nurses who completed the tutorial knowledge test and/or acceptability survey. The tutorial was modeled after the previously evaluated in-person workshop to prepare nurses providing cancer symptom management using COSTaRS practice guides.

Results: From 2017–2021, 743 nurses completed the knowledge test, and 749 nurses evaluated the tutorial. Mean knowledge score was 4.4/6 and 83% of participants achieved passing scores. Compared to pre-tutorial, nurses improved their perceived confidence in assessing, triaging, guiding patients in self-care ($p < 0.001$), and ability to use the COSTaRS guides ($p < 0.001$). Nurses rated the tutorial as easy to understand (95%), just the right amount of information (92%), providing new information (75%), overall good to excellent (89%), and would recommend it to others (83%).

Conclusions: More than 700 nurses accessed the tutorial. After completion, nurses demonstrated good knowledge and improved perceived confidence in cancer symptom management.

Keywords: clinical practice guidelines, continuing education, oncology nursing, symptom management

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INTRODUCTION

Telehealth or delivery of healthcare services at a distance is an essential element of oncology nursing practice (Hickey & Maloney-Newton, 2019; Steingass & Maloney-Newton, 2020). Although telehealth incorporates a range of technologies (e.g., telephone, video-conferencing, remote monitoring), nurses continue to commonly use the telephone for triaging patients with cancer, who are experiencing symptoms and side effects at home (Nagel & Penner, 2016; Stacey et al., 2014). Nurses assessing and managing patient symptoms at a distance require telehealth competencies, such as conducting assessment with little or no visual stimuli from patients to inform triage decisions (van Houwelingen et al., 2016). Key elements for ensuring quality teletriage nursing services are access to protocols or guidelines, and education to improve nurses' competencies (Edirippulige & Armfield, 2016; van Houwelingen et al., 2016). Use of evidence-based guidelines coupled with standardized training improves nurses' preparedness, perceived confidence, knowledge, and observed teletriage behaviours (Campbell et al., 2015; Varley et al., 2016). A recent systematic review showed, nurse-led teletriage reduces symptom severity and improves quality of life with no difference in health service use (Kwok et al., 2022).



COSTaRS

The pan-Canadian Oncology Symptom Triage and Remote Support (COSTaRS) practice guides were designed to help oncology nurses provide symptom management to patients with cancer (Stacey et al., 2013). Each of the 17 COSTaRS practice guides is based on a systematic review to identify relevant clinical practice guidelines. Evidence from identified guidelines was then synthesized into a two-page, easy-to-use, nurse-friendly format to help nurses integrate best practices in their teletriage practice. Each COSTaRS practice guide provides criteria for assessing the symptom, ratings for triaging severity,

medication review, self-care strategies, and guidance for documenting the agreed upon plan. The practice guides are publicly available online in English and French (<https://kctcanada.ohri.ca/costars>; https://www.cano-acio.ca/page/telephone_guidelines). However, studies evaluating their implementation into clinical practice identified nurses' educational needs related to guide use (Ludwig et al., 2017; Stacey, Green et al., 2016).

The COSTaRS team initially developed an in-person 30- to 60-minute workshop that included a didactic presentation with role play using the COSTaRS practice guides and group discussions (Stacey et al., 2015). It was based on an environmental scan of remote support educational programs and expertise of the team members who provide continuing education for oncology nurses (Stacey et al., 2014; Stacey et al., 2015). The workshop was delivered to 107 oncology nurses over 22 sessions at three ambulatory oncology programs in Canada. Compared to pre-workshop, post-workshop nurses had improved self-confidence in cancer symptom management and self-confidence using COSTaRS practice guides. Workshops were rated positively but participants identified the need to have more time for role play. A study to evaluate another telephone triage educational workshop, delivered over 12 weeks with 12 outpatient oncology nurses, demonstrated improved confidence and skills but no change in knowledge (Ciccolini et al., 2022). Although it was possible to schedule workshops for nurses working in ambulatory oncology programs, the difficulty in scheduling widely-accessible, in-person workshops for large numbers of nurses providing oncology care (Ludwig et al., 2017) necessitated the development of an open-access cancer symptom management educational tutorial to prepare nurses for using the COSTaRS practice guides. The overall aim of this study was to evaluate the acceptability of the COSTaRS open-access online tutorial and its impact on nurses' knowledge and perceived confidence in symptom management.

METHODS

Design. We conducted a retrospective pre- and post-test project evaluation. This type of evaluation is used for assessing educational interventions when the educational program changes participants' frame of reference for assessing their attitudes or skills (Howard, 1980; Yank et al., 2013). This paper was written following the STROBE reporting guidelines (von Elm et al., 2007). An exemption determination was received from the Ottawa Health Science Network Research Ethics Board for this quality improvement project.

Participants. Participants were those who independently completed the tutorial between January 1, 2017 and December 31, 2021. Information on the tutorial was available on the COSTaRS website, in COSTaRS publications, and on the Canadian Association of Nurses in Oncology website (Stacey et al., 2016). Although we did not recruit nurses to complete the tutorial, some nurses may have been encouraged by their employer.

Intervention. The online tutorial is designed to prepare nurses for using the COSTaRS practice guides and enhance their knowledge and skills in providing quality cancer symptom management. At completion, participants are expected to a) describe elements of evidence-informed symptom support; b) explain how to assess and triage clients' cancer symptoms; c) discuss a client-centred approach to self-care symptom support; d) use evidence and theory-based practice guides with clients experiencing cancer symptoms and their families; and e) document symptom assessment, triage, and self-care support.

This free, publicly available English-written tutorial was developed in December 2016 and modeled after the previously evaluated in-person educational workshop (Stacey et al., 2015). The French version was released in August 2017. Two primary differences between the in-person and online tutorial are the ability to answer questions in real time and for the training facilitators to guide participants in using the COSTaRS practice guides during a partnered role play exercise. However, the online tutorial encourages participants to use role play with a colleague or a patient reporting the symptom.

The online tutorial is a series of text-based PowerPoint slides that includes 20 slides with information the nurse needs to read, six interactive slides (e.g., questions to answer, blank boxes to complete, time out to try the practice guide with someone else), five slides describing a case study, and seven other slides (e.g. title page, list of authors, table of contents). At the end of the tutorial, participants are prompted to complete a knowledge test, rate their confidence in symptom management, and evaluate the acceptability of the COSTaRS tutorial. A certificate of completion is provided for those who score 66% or higher on the knowledge test.

The tutorial allows users to work intermittently through sections and resume at different times until finished. If completed in one sitting, the tutorial takes approximately 20 to 30 minutes; followed by separate time to conduct a simulated practice session with a colleague or patient.

Outcomes. Three primary outcomes were evaluated: a) participants' knowledge, measured by the test score (continuous variable from 0 to 6); b) change in confidence in their ability to assess, triage, and guide patients in self-care for their cancer treatment-related symptoms; and c) change in confidence in their ability to use COSTaRS practice guides. Secondary outcomes were acceptability of the tutorial, proportion of participants who passed the knowledge test (pass score was 66% and consistent with achieving a certificate of completion), what users liked, and suggestions for tutorial improvements.

Data sources. The COSTaRS tutorial is a web application that uses a Microsoft SQL Server database to store evaluation data in two separate datasets: a) knowledge test scores; and b) responses to the confidence and acceptability survey. The web server has restricted access and is located on a secure research institute data centre. The tutorial requires participants to pick their own username and password to gain access. The knowledge test, perceived self-confidence in symptom management, and acceptability surveys were voluntary. Knowledge test data are associated with this unique user

name to provide participants, as appropriate, with a certificate of completion. For the purpose of this analysis, findings were blinded after deduplication to ensure anonymity. Acceptability survey responses cannot be linked to participants to protect their anonymity.

Measurement tools. There were three tools used to measure outcomes. First, the COSTaRS tutorial *knowledge test* was developed to reflect the tutorial content. The knowledge test consisted of six multiple choice questions, each with four possible answers. We have not published the knowledge test because it continues to be used within the tutorial.

Perceived confidence in use of the COSTaRS practice guides and confidence in providing symptom management was measured post tutorial. Participants were asked to evaluate their baseline (retrospective) and post tutorial perceived confidence on a scale of 1 (strongly disagree) to 5 (strongly agree). These items previously demonstrated good internal consistency (Cronbach alpha = 0.75) (Stacey et al., 2015).

The *acceptability* survey included multiple choice and open-ended questions to gauge a participant's overall impression, ability to understand the tutorial, comprehensiveness of the information presented, provision of new or additional information about symptom management, whether they would recommend it to others, and suggestions for improvement. Previous use of the acceptability survey for feedback on educational interventions reported Cronbach alpha ranging from 0.85 to 0.95 (Barry et al., 1997).

Data analysis. Two raw datasets were exported from the server database into Microsoft Excel (Microsoft Corporation, 2020) and transferred to SPSS version 27 for analysis (IBM Corporation, 2020). Frequency of use was calculated using the participants' unique logins for those who initiated knowledge test and time stamp. Temporal trends in usage were plotted by number of unique logins by month of completion (Figure 1). After removing empty records and consolidating duplicate test attempts using respondents' user names and timestamps, we

analyzed completed or partial knowledge test scores to identify the mean knowledge score and standard deviation. Knowledge test pass rates were analyzed as the proportion scoring 66% or higher. One-tailed, paired t-tests with 95% significance levels were used to evaluate change in perceived confidence from baseline to post-tutorial for those who completed these items. All complete or partial responses to the acceptability survey items were analyzed descriptively. Due to the anonymous nature of the acceptability data, we were unable to identify and remove potential duplicates. Qualitative data on what participants liked most and their suggestions for improving the tutorial were analyzed using content analysis. Patterns and themes were identified, and frequencies of comments related to each category were tabulated.

RESULTS

We analyzed data recorded in the COSTaRS database between January 1, 2017 and December 31, 2021 (Figure 1). In the dataset of 1,060 knowledge test scores, we removed 137 duplicates, 117 blank forms, and 63 incomplete knowledge tests, retaining a total of 743 participants. Of 743, 658 completed the knowledge test once (88.6%), 66 completed it twice (8.9%), and 19 completed it three or more times (2.6%). For the dataset of 1,147 acceptability surveys and perception of confidence, we removed 398 blank forms, retaining a total of 749 participants.

Participants included registered nurses, registered/licenced practical nurses, nursing students, managers/supervisors, advanced practice nurses, and educators (Table 1). The majority were working in oncology programs or home care settings. The typical participant was female (72%), aged 41 (range 20–73), working full-time (57.5%) for more than five years in their current position (50.2%), and holding a college diploma in nursing (41.0%). Although there were participants from five provinces and one territory, most lived in Ontario, Canada.

The mean knowledge test score was 4.4 out of 6 (standard deviation 1.0). Of 743 participants, 619 (83.3%) achieved

Figure 1

Use of the COSTaRS Tutorial Over Time

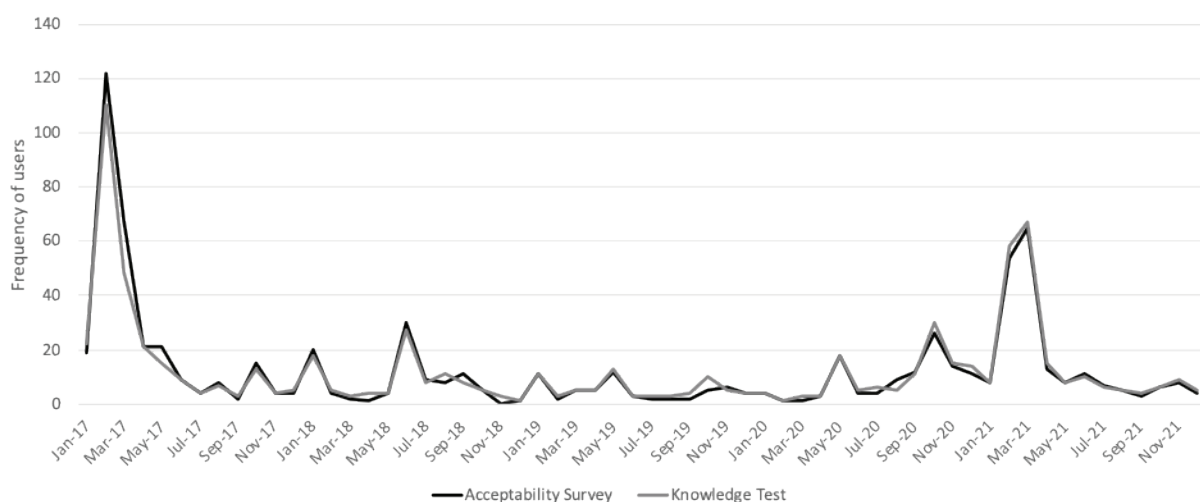


Table 1

Participant Characteristics (N = 743)

Characteristics*		Total n (%)
Gender	Female	535 (72.0)
	Male	29 (3.9)
	Other	1 (0.1)
	n/s	178 (24.0)
Age	Mean (SD) [range]	41.1 (11.7) [20–73]
Position	Registered practical nursing student	16 (2.6)
	Registered nursing student	13 (2.1)
	Registered practical nurse	130 (21.1)
	Registered nurse	413 (67.0)
	Supervisor/manager	15 (2.4)
	Advanced practice nurse	9 (1.5)
	Educator	11 (1.8)
	Other (e.g., clinical trial nurse, care coordinator)	9 (1.5)
Length of time in position	6 or fewer months	121 (19.7)
	7 to 12 months	36 (5.9)
	1 to 2 years	84 (13.7)
	3 to 5 years	64 (10.4)
	more than 5 years	308 (50.2)
Type of setting	Oncology program	287 (38.6)
	Home care services	140 (18.8)
	College nursing program	12 (1.6)
	University nursing program	11 (1.5)
	Provincial college of nurses	9 (1.2)
	Hospice	7 (0.9)
	Other <5	5 (0.7)
	n/s	272 (36.6)
Work/ studying status	Full time	348 (57.5)
	Regular part-time	172 (28.4)
	Casual	85 (14.0)
Education [†]	Currently in school	27 (3.6)
	College diploma in nursing	310 (41.7)
	Undergraduate degree in nursing	193 (26.0)
	Specialty certification oncology nursing	111 (14.9)
	Graduate degree in nursing	100 (13.5)
	Degree in another discipline	17 (2.3)
	Other specialty education	8 (1.1)
	Other (e.g., hospice palliative care certification, nursing management)	5 (0.7)
	n/s	146 (19.7)
	Country	Canada
Outside Canada (USA, Australia, Pakistan)		8 (1.1)
Country n/s		307 (41.3)
Province/ City	Ontario: Toronto (55), Sudbury (37), Ottawa (33), Windsor (25), Newmarket (19), North Bay (8), Cambridge (6), Other [‡] <5 (32)	215 (29.3)
	Alberta: Calgary (29), Other [§] <5 (8), n/s (49)	87 (11.8)
	Quebec: Montreal	7 (1.0)
	Northwest Territories	3 (0.4)
	Nova Scotia	2 (0.3)
	Saskatchewan	1 (0.1)
	Province n/s	420 (57.1)

Note: n/s = not specified. *Frequency values may not always total 100% due to missing data. †Participants sometimes specified more than one response option. ‡Other Ontario cities included: Almonte, Cochrane, Cornwall, Elliot Lake, Hawkesbury, Hearst, Kapuskasing, Kingston, Markham, Mindemoya, Muskoka, Niagara Falls, Nipissing, Parry Sound, Pembroke, Temiskaming, Thunder Bay, Timmins. Other Alberta cities included Bow Valley, Edmonton, Grande Prairie, Medicine Hat, Red Deer. ^{||}Other settings included: de Souza Institute, hospital, primary care, telehealth.

a passing score of 66% (Table 2). For five of six items, > 80% participants rated the item correctly; 78.9% received a correct score on the other item, which tested their knowledge about minimal documentation required.

Perceived confidence in participants' ability to assess, triage, and guide patients in self-care for their cancer treatment-related symptoms changed from 3.22 out of 5 pre-tutorial to 4.06 post-tutorial ($p < 0.001$; Table 3). Perceived confidence in their ability to use the COSTaRS practice guides changed from 2.82 pre-tutorial to 4.02 post tutorial ($p < 0.001$; Table 3).

Of 749 who completed the acceptability survey, participants rated the workshop as easy to understand (95.4%), just the right amount of information (92.1%), and provided new information (75.0%; Table 4). More than 90% indicated each of the six learning objectives were addressed. Overall, participants rated it as excellent (25.8%) or good (63.1%) and would recommend it to others (83.1%). Of 268 open comments about what participants liked, participants describe it as concise, easy to follow, self-paced, has a patient-centred approach,

Table 2

Knowledge Test (N = 743)

Characteristics*		Total n (%)
Number of attempts	One	658 (88.6)
	Two	66 (8.9)
	Three or more	19 (2.6)
Total score	Mean (SD) [range]	4.4 (1.0) [0–6]
Number correct	0 out of 6	2 (0.3)
	1 out of 6	3 (0.4)
	2 out of 6	24 (3.2)
	3 out of 6	95 (12.8)
	4 out of 6	243 (32.7)
	5 out of 6	290 (39.0)
Quiz items correct	6 out of 6	86 (11.6)
	1. Most common symptom	597 (80.3)
	2. Overall goal of COSTaRS	628 (84.5)
	3. When should COSTaRS be used	647 (87.1)
	4. Order of steps when using COSTaRS	624 (84.0)
	5. Documentation at a minimum	586 (78.9)
6. Case exemplar underlying problem	621 (83.6)	

Note. *Frequency values may not always total 100% due to missing data.

Table 3*Change in Perceptions Pre- and Post-Tutorial*

	Mean (Median) [SD]
Confidence in ability to assess, triage, and guide patients in self-care for their cancer treatment-related symptoms	N = 596
Pre-workshop	3.22 (3.00) [1.04]
Post-workshop	4.06 (4.00) [0.75]
p-value*	<0.001
Confidence in ability to use the COSTaRS practice guides to facilitate symptom assessment, triage, and care	N = 597
Pre-workshop	2.82 (3.00) [1.11]
Post-workshop	4.02 (4.00) [0.78]
p-value*	<0.001

Note. *One-tailed paired t-tests. Scale: 1 = Strongly disagree; 5 = Strongly agree.

evidence-based, and free of charge (Table 5). Participants said the case study “showed the importance of using COSTaRS in your assessment to address all of patients’ symptoms.” Of 184 comments about suggestions to improve the tutorial, 71 said “none” and others recommended to add more case study examples, examples of documentation, quizzes throughout, audio presentation of tutorial content, and examples of use with more complex symptoms. Currently, the COSTaRS practice guides are separate from the tutorial and some suggested “Need better access to the COSTaRS form and work with the form during the tutorial.”

DISCUSSION

Since January 2017, 743 participants completed the COSTaRS tutorial knowledge test and 749 completed the acceptability survey. Users were mostly registered nurses and registered/licensed practical nurses with college diplomas. The mean knowledge score was 73% with over 80% achieving a pass of 66% or higher. Compared to baseline, post-tutorial nurses had significantly improved confidence with providing symptom management and using COSTaRS practice guides. Most rated the tutorial as acceptable, indicating it was easy to understand and comprehensive, provided new information, and left them with a positive overall impression. These findings led to the following points for discussion.

Although we did not conduct a baseline knowledge test, 75% of participants indicated the tutorial provided new information about symptom management and 83% achieved a passing score on the knowledge test. It is unclear why few nurses were able to describe what is required for minimum documentation of a symptom management teletriage interaction. The tutorial

Table 4*Acceptability of the COSTaRS Online Tutorial (N = 749)*

	Total n (%)*
How easy was it to understand the information presented?	
Very easy	541 (73.0)
Somewhat easy	166 (22.4)
Somewhat complex	34 (4.6)
Too complex	0 (0.0)
How comprehensively is the information presented?	
Too much information	28 (3.8)
Just right	676 (92.1)
Not enough information	30 (4.1)
Does it provide you with new or additional information about symptom management?	
Yes	543 (75.0)
No or not sure	181 (25.0)
What is your overall impression of the tutorial?	
Excellent	181 (25.8)
Good	443 (63.1)
Fair	75 (10.7)
Poor	3 (0.4)
Would you recommend this tutorial to others?	
Yes	580 (83.1)
No or not sure	118 (16.9)

Note. *Frequency values may not always total 100% due to missing data.

content needs to be reviewed to verify that it is adequately preparing participants to answer the test questions and that it ensures documentation is universal across healthcare settings. One suggestion for improvement was to add more quiz questions throughout the tutorial to reinforce the learning. In addition, three participants requested a refresher course and a more advanced level course. Nurses have easy access to this online tutorial and can use it as needed for ongoing learning. The COSTaRS tutorial is likely able to help nurses overcome their lack of knowledge that was commonly reported as a barrier in the implementation studies (Ludwig et al., 2017; Stacey, Green, et al., 2016).

Participants rated the COSTaRS tutorial as acceptable and it provided easier access compared to previously provided in-person workshops (Stacey et al., 2015). Our findings for acceptability were similar to those who completed the in-person

Table 5

Open Comments About Positive Features of the Tutorial and Suggestions for Improvement

Themes	What people liked (n = 268)			Suggestions to improve the tutorial (n = 184)		
	N	%	Quotes	N	%	Quotes
No changes				71	38.6	“None. I think it was great.”
Comments about acceptability questions	190	70.9	“Clear, concise information.” “Easy to follow and understand” “Helped me gain as much information...” “very good”; “well done” “Each step is discussed in detail.” Organized “Nice flow of information.” “learning new assessment tools” “Head to toe approach nothing ... missed.” “good resource for new oncology nurses”	21	11.4	“more details of using the COSTaRS guidelines” “More info on triaging” “maybe a bit shorter” “Keep it simple; use less technical language”
Case study/ Examples	36	13.4	“The Case study/Examples showed the importance of using COSTaRS in your assessment to address all of patients symptoms.”	33	17.9	More case studies/examples “Further examples of case scenarios specific to symptoms experienced” “Perhaps some example calls?” “interactive case studies would better the learning experience”
Patient-centred assessment	11	4.1	“It was Centered on Pt care. Nurses need to take the time to listen to their pt, need to be able to provide the best possible care.”			
Access online free of charge and self-paced	18	6.7	“easy access on-line”; “free” “do at my own time look back to review as needed”	2	1.1	“more user friendly, using flash??”; “Save entries for when you go to previous page”
Practical application with step-by-step instructions	12	4.5	“Shows me step by step on how to use COSTaRS so that I can assist clients”			
Documentation	6	2.2	“It identifies the need for clear communication and recording information on patient’s chart.”	10	5.4	“Would like to see example of complete form to fill out.”
Use of COSTaRS	7	2.6	“Empowers you on how to use the COSTaRS practice guide with your cancer clients.” “The portions that showed the actual COSTaRS info were interesting...”	3	1.6	“More information on when COSTaRS is used” “Every shift?”
Printable/hard copies (tutorial and guides)	4	1.5	“a hard copy to refer back to.”	5	2.7	“Need better access to the COSTaRS form to work with it during the tutorial”
Reassuring/ reinforces	3	1.1	“It did help me to ensure and verify that how I am currently practising is equivalent to how it ‘should be’”			
Visual appearance but no audio	3	1.1	“The plain language & bullet points to draw your attention.”	11	6.0	“The text was too small at times” “have an audio option available”
Interactive with role play	4	1.5	“Small segments of reader participation to reinforce learned information” “the activity helps to role play”	24	13.0	“More segments of participation/use and practice of filling out COSTaRS” “Give examples of problems that we can do online if not in a group setting”
More quizzes				10	5.4	“more interactive quizzes throughout”
Refresher course and advanced level	1	0.4	“[it was a] refresher on the COSTaRS method”	3	1.6	“Ongoing refresher teaching.” “Advanced level”; “additional examples with more complex symptoms”

workshops; except, in-person workshop participants were more likely to recommend the educational program compared to online tutorial participants (94% versus 83%; $p < 0.05$). Although most participants gave the tutorial a positive rating overall and would recommend it, as many as 17% did not. This may be related to the plain text format and lack of embedded multi-media options. Our research website also includes an example video visually demonstrating use of COSTaRS with a simulated client experiencing chemotherapy-related nausea, but this video was not integrated into the tutorial. Previous research on electronic continuing education reported that multi-component online interventions are more effective than flat text (Lam-Antoniades et al., 2009). However, the format of the COSTaRS tutorial is similar to online educational programs nurses are expected to complete as part of their yearly continuing education (e.g., WHMIS, confidentiality) and this flat text format could be adequate. Further investigation is required to determine most effective formats and design strategies that optimize engagement and learning for these brief types of continuing education programs.

Knowledge, perceived confidence, and acceptability were easy to measure at the end of the workshop, but impact on nurses' behaviours and practice outcomes are equally as important. Higher level evaluation fits within Kirkpatrick and Kirkpatrick's four-level model for evaluating educational programs: reaction (i.e., acceptability), learning (i.e., knowledge, attitudes, skills), behaviours, and results demonstrating patient or organizational outcomes (Kirkpatrick & Kirkpatrick, 2016). Subsequent studies should evaluate at higher levels within this framework. A previous study used baseline and post-training evaluations of standardized virtual triage simulation case scenario to determine oncology nurses' skills and then evaluated the recordings using a 56-item skills checklist (Ciccolini et al., 2022). A previous COSTaRS quality improvement project evaluated the quality of oncology nurses' teletriage provided in 66 actual nurse-patient calls using an eight-item assessment tool (Stacey et al., 2021). Although these instruments for measuring quality of nurses' teletriage skills are available, it would be challenging to scale-up this type of evaluation for the 700-plus nurses who completed the COSTaRS online tutorial.

There are a few limitations that should be considered when interpreting the findings. First, it was not possible to distinguish confidence or acceptability findings from those who scored high versus low on the knowledge test. These two sets of questions are collected in separate databases to allow anonymity of the confidence and acceptability findings. Second, the retrospective pre- and post-survey design used to assess

participants' confidence in providing symptom management may have overestimated the real increase in their confidence. However, the baseline confidence is likely more realistically measured after nurses have learned from the tutorial (Howard, 1980; Yank et al., 2013). Third, our findings may indicate selectivity bias given they are limited to those who completed the tutorial and we do not have knowledge scores or acceptability results from those who initiated but did not complete the tutorial. Finally, due to the anonymity of the acceptability survey data, we were unable to identify and remove potential duplicates.

CONCLUSIONS

Technologies and the global pandemic have revolutionized options for education and swiftly expanded learning environments. COSTaRS is a free, open access, online educational program that can support oncology nurses in providing teletriage and symptom support for patients. This quality improvement project evaluated the online COSTaRS educational program. Post-tutorial, most participants demonstrated good knowledge, significantly improved confidence in providing symptom management, and rated the tutorial as acceptable. Although participants provided positive feedback, the tutorial could be improved by adding more examples of case scenarios and documentation exemplars, quiz questions throughout the tutorial, audio presentation of tutorial content, and an example of use with more complex symptoms. Subsequent studies should evaluate higher levels of application of knowledge by measuring participants' behaviours and impact on patient outcomes.

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DECLARATIONS OF INTEREST

None.

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