Using Simulation to Educate Police about Mental Illness

A collaborative initiative

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Following the fatal shooting of an individual with a mental illness in 2006, an inspector with Durham Regional Police Service (DRPS) contacted a nursing educator in the Faculty of Health Sciences at the University of Ontario Institute of Technology (UOIT) to explore possible educational opportunities for frontline officers. This initial contact led to the UOIT faculty member and a nursing colleague from Ontario Shores Centre for Mental Health Sciences (Ontario Shores) collaborating with DRPS to develop and implement two educational sessions, one for Special Constables who are responsible for the administration and care of individuals in police custody, including their transportation between police facilities and the courts, and one for police negotiators responding to a hostage taking. Based on the success of these educational initiatives, the two nursing colleagues were approached by a member of the DRPS leadership to develop a week-long educational program for frontline officers that focused on mental illness awareness and effective interpersonal skills and communication strategies for engaging with individuals challenged by mental illness. The initial agreement was to educate 20–25 officers a year for a three-year period. However, this nurse-led initiative was so successful that the two nursing colleagues were asked to continue to provide educational sessions past the original three-year commitment; the collaboration is now in its sixth year.

The need for comprehensive police education is strongly supported by the number of interactions police, as first responders, have with people experiencing mental illness. One in five Canadians is affected annually by mental illness. Currently, there are 6.7 million Canadians living with mental illness and over 1 million Canadian youth living with mental illness. By 2041, it is estimated these numbers will have increased to over 8.9 million Canadians and 1.2 million Canadian children and youth (Smetanin et al. 2011). The following statistics from Smetanin et al.'s (2011) report, *The life and economic impact of major mental illness in Canada*, highlight the prevalence of police interactions in Canada: 1 in 20 police dispatches involve people with mental health challenges, and half of these police encounters

result in transport or referral to services. Three in 10 people with mental illness have had police involved in their care pathway. Two in five people with mental illness have been arrested in their lifetime and two in five encounters with police involve situations that are unrelated to criminal conduct. People with mental illness are also over-represented in police shootings, stun gun incidents and fatalities.

Wanting to build on the collaboration's previous achievement, and having recognised the need to educate greater numbers of officers within existing time constraints, the nursing colleagues elicited the support of Durham College's Innovation Centre and, in collaboration with DRPS, applied for and received a content development grant from Inukshuk Wireless, a provider of wireless broadband and a joint venture of Bell Canada and Rogers Communication.

Each of these successes ultimately contributed to the development of this unique partnership involving a police service (DRPS), a mental health facility (Ontario Shores), and two postsecondary institutions (Durham College and UOIT). Currently, there is no other known partnership of its kind.

The funding from Inukshuk was used to support the development of four online computer simulations depicting incidents involving individuals with mental illness; the purpose was to promote a greater understanding of the challenges individuals with a mental illness may experience and to facilitate the ability of frontline officers to respond effectively in their interactions with individuals with mental illness.

The nursing associates, having already established a level of trust and respect, accepted a leadership role in this project and were quick to recognise the importance of including DRPS police constables in all phases of the simulation development, which took place over a period of about eight months. Together with frontline officers who volunteered to participate, they first identified critical incidents involving individuals with mental illness that officers commonly encounter on the job. They also partnered with several different officers to develop the scripts and to determine the response options and feedback to be provided, as well as the content and format for the learning activities and resources to be included in the library. In addition, the police depicted in the video clips in the simulation scenarios and in the feedback boxes were members of DRPS. Nurses from Ontario Shores have extensive experience working with individuals challenged by mental illness and were therefore capable of role playing the individuals with mental illness who were depicted in the video clips. Their participation was voluntary. The Innovation Centre provided the multimedia expertise to create the Flash framework for the simulations and to oversee the shooting and editing phases of the project. Frontline officers and staff nurses were also actively involved in these two phases of the project.

Subsequently, the partnership was awarded additional funding from the Canadian Council on Learning for a follow-up research study to determine if simulation is an effective educational resource. The research team consisted of the UOIT nursing educator, the nursing colleague from Ontario Shores, a member of DRPS's leadership team, the head of the Innovation Centre and another UOIT faculty member/statistician.

Specifically, this study examined three major research questions:

1 To what extent can simulations be used as a tool to educate police officers about mental illness and how to respond effectively in interactions with individuals living with mental illness?

2 To what extent do simulations enhance police officers' confidence in their ability to interact effectively with individuals living with mental illness?

3 To what extent do police officers find simulations (a) easy to use, and (b) reflective of reality?

BACKGROUND

Mental illness is not only a major public health concern in Canada but indeed globally. According to the World Health Organization (2003), four of the six leading causes of years lived with disability are due to neuropsychiatric disorders (depression, alcohol-use disorders, schizophrenia and bipolar disorder). First responders to emergencies are generally not mental health professionals; therefore, it is imperative that first responders develop the skills necessary to be effective when interacting with citizens with mental illness. Police officers are often the first responders to situations in the community involving people with mental illness.

In 2011, the first large-scale Canadian study (Smetanin et al.) to examine the nature of police interactions with individuals with mental illness was conducted with support from the Mental Health Commission of Canada. Approximately three-quarters of the participants indicated they had been apprehended and/or arrested by police at some time in their life; the vast majority had also experienced being handcuffed, though their contacts with police were not related to criminal behaviour. The majority of the interactions ended without an apprehension or arrest; however, police use of force was a common experience. A consistent theme expressed by the participants was the importance of police officers being better educated on how to successfully manage situations involving individuals with mental illness.

Police contacts with individuals who have a mental illness have risen dramatically over the past few years. The push to deinstitutionalise individuals with mental illness without having the required community supports, inadequate social assistance rates, increasing poverty, reduced number of hospital beds for psychiatric admissions, lack of affordable housing and increasing rates of homelessness are all contributing to this alarming

community issue (Watson, Corrigan & Ottati 2004). Police services are becoming increasingly aware of the need to provide officers with training beyond what is currently offered to new recruits in terms of mental illness and strategies for effectively engaging individuals who are presumed to have a mental illness (Hanafi et al. 2008). Current literature indicates that the best practice models for police response involve specialised and ongoing education for all frontline officers (Coleman & Cotton 2010b; Watson et al. 2011; Weaver et al. 2013).

According to a study by Cotton and Coleman (2008), all new police officers in Canada currently receive mental health education; however, the length of this education varies greatly, anywhere from 1 hour to 24 hours, with most officers receiving less than 10 hours of education. At a minimum, police officers are introduced to some of the issues they may encounter when interacting with individuals with mental illness, such as indicators of stress, substance abuse or suicidal intent, as well as behaviour management strategies, mental health law and assessing services. Another study by Coleman and Cotton (2010a) found wide variations in the quality and availability of in-service programs for Canadian police.

According to both studies, the vast majority of the education is delivered in lecture format, and online resources are not common practice.

An increasingly popular method of education for adults and professionals is e-learning. Defined as instruction delivered electronically via DVD, internet, intranets or other multimedia platforms (Smart & Cappel 2006), e-learning often incorporates simulations and other gaming technology. Kleinpell et al. (2011) conducted a comprehensive review of research published since 1996, and found 250 relevant citations involving 'e-learning', 'computer assisted learning' and 'web-based learning'. Although their search was directed towards critical care education, their findings affirmed the growing availability and utilisation of education tools developed in this format.

The educational benefits of simulations and other modes of e-learning include improved psychomotor skills, enhanced retention of knowledge as well as enhanced decision-making skills, interactive learning, options for immediate feedback, the opportunity for repetition and ongoing reinforcement of skills, and the ability to 'restart' or 'reset', so users can learn from their mistakes without risk (Dror 2011; Lanzilotti et al. 2006; Perkins et al. 2010; Rentroia-Bonito, Jorge & Ghaoui 2006). However, not all e-learning efforts are equally effective. The effect of a well-designed module depends not only on the content but also the presentation, including technical aspects such as graphics, ease of use and the overall 'fidelity' or 'realism' of the program (Trapp 2005). Moreover, research has indicated that end-users' perspective

is essential to the development of effective computer-based learning tools, as users' perceptions influence the acceptability and use of such tools (Moisio, Markkula & Smeds 2003).

As more institutions have begun incorporating e-learning techniques into their adult education and professional training programs, research in the area has increasingly focused on maximising users' retention and transfer of knowledge. A number of themes have emerged from the literature; the most effective e-learning tools appear to be those that (a) are tailored to their target population, (b) have a high degree of realism and authenticity, and (c) are part of a wider educational curriculum. Tailoring an e-learning tool to the intended audience ensures the materials meet the specific learning needs of the users (Blake 2010), as well as the reality of users' busy schedules and unique ingrained habits and perceptions (Adler et al. 2009; Blake 2009). In addition, where simulations and other e-learning tools closely resemble the situations in which the learned skills need to be used, users report greater satisfaction and engagement (Kovacs & Toms 2010; Schuwirth & van der Vleuten 2003; Tashiro & Dunlap 2007). Effective e-learning tools cannot act as a complete substitute for hands-on training in real-life settings, as users report (Issenberg & Scalese 2008; Kyle & Murray 2008); rather, simulations and other techniques should be planned, scheduled and carried out thoughtfully in the context of a wider curriculum (McGaghie et al. 2010), allowing for a 'blended' education approach that integrates the strengths of both e-learning and face-to-face instruction (Abdelaziz et al. 2011).

METHOD

To determine the effectiveness of the simulations as an educational resource for police services, a mixed method, quasi-experimental pre- and post-test research design (two intervention groups and a control group) was selected by the researchers in order to capture the best of both quantitative and qualitative approaches. A questionnaire asking about participants' knowledge and understanding of mental illness was used to collect quantitative data about the effectiveness of the simulations; and focus groups were conducted to explore the impact of the simulations on police officers' level of confidence in interacting with individuals with mental illness, and officers' perceptions of the simulations' ease of use and level of realism. Focus groups give participants an opportunity to discuss a topic in greater detail through a group process that assists them to explore and clarify their points of view (Farnsworth & Boon 2010; Kamberelis & Dimitriadis 2013). Focus groups also provide descriptive data that can be used to make decisions about program modification and development (Sagoe 2012).

Recruitment and Participants

The recruitment phase proved to be challenging. All frontline officers with DRPS were formally invited by email to participate in the study. In an effort to increase the sample size, additional

emails were sent out over a period of several weeks reminding officers of the opportunity to participate in the research study. In addition, individual officers and members of the DRPS leadership assisted with the recruitment phase by encouraging their fellow officers to consider participating in the study. A total of 51 police officers (12 females; 39 males) volunteered to participate. They ranged in age from 22 to 51 years, with the majority of participants (61 per cent) over 30 years old. Their policing experience ranged from one month to 28 years, with the majority of officers (67 per cent) reporting six or more years on the job. Also, the majority of the participants had some previous mental health education (59 per cent), as well as experience interacting with individuals with mental illness both on (92 per cent) and off (78 per cent) the job. Officers who had attended one of the week-long mental illness education sessions provided by the two nursing colleagues (prior to the development of the simulations) or who had participated in the development of the simulations were not eligible to participate in the study.

There were two experimental groups, representing two intervention approaches that were explored for providing education on interacting with people with mental illness: (a) face-to-face education; and (b) simulation-based education. Those in a separate control group did not obtain this education by either approach. Officers did not sign up to be part of a particular group (face to face, simulation, control). Dates were set according to officer availability and the group type was assigned later, with consideration given to maintaining a similar sample size for each of the three groups.

Despite the randomised assignments of participants to groups (with allowances for scheduling and so on), some differences in the groups' final compositions were observed, possibly because of different scheduling requirements: the control group's members were found to be somewhat younger than the two intervention groups' members, with less prior policing experience and less additional education related to mental illness. Seventy-three per cent of the control group had on-the-job experience with individuals with mental illness in comparison to 100 per cent for the intervention groups. While these differences may have slightly affected some partial results, they do not appear to have impacted the study's general findings.

Materials

The participants' knowledge of mental illness, at the point of joining the study, was assessed using a questionnaire and an answer guide that were customised for this research. Two of the researchers, who are also mental health nurses, developed the 16 questions covering the key concepts and issues related to mental illness that were covered in the content of the simulations, including identifying signs of mental illness, assessing suicide risk, and strategies for effectively engaging with people with mental illness. All but one of the questions were in short answer format;

the other was a true/false question. The two researchers answered the questions individually and then compared their responses before finalising the answer guide. The questionnaire was marked out of 30. The following are examples from the knowledge questionnaire:

1 What are some key thoughts, feelings and behaviours that might indicate an individual is experiencing a mental illness?

2 List 3 risk factors for suicide.

3 Asking individuals if they are thinking about killing themselves is not wise since this may put the idea into their head. True/False

4 For an individual who is talking about feeling suicidal, what question(s) would you want to ask her/him to determine the level of risk?

5 When communicating with an individual, what does it mean to respond with empathy? Provide an example.

6 When is a depressed person at the highest risk for suicide?

Each of the four computer-based simulations (young man exhibiting suicidal behaviour, male adult demonstrating delusional thinking, male adult experiencing hallucinations, and young woman exhibiting self-harming behaviour), includes interactive video clips with response options (see Figure 1), learning activities (see Figure 2), detailed feedback on both the response choice and the answers selected on the learning activities, and a library containing additional learning resources.

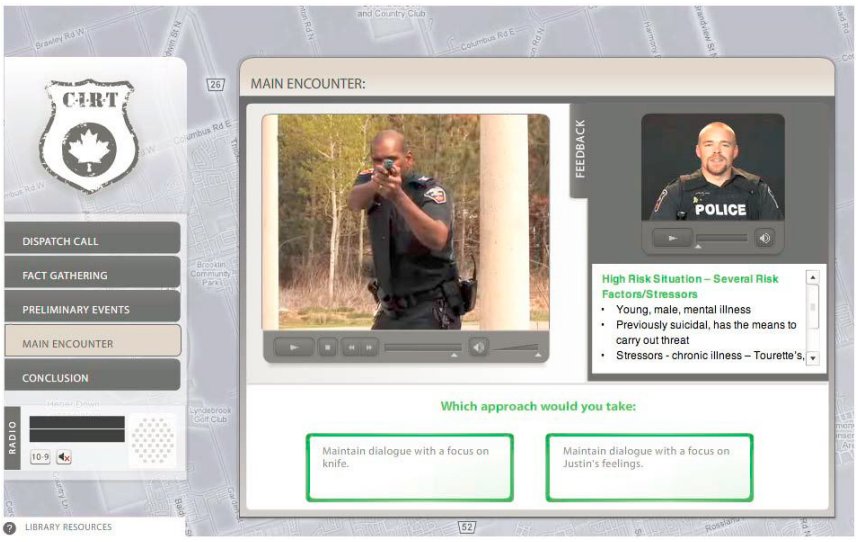

Figure 1: Example of an interactive video clip and feedback box in the simulation depicting suicidal behaviour

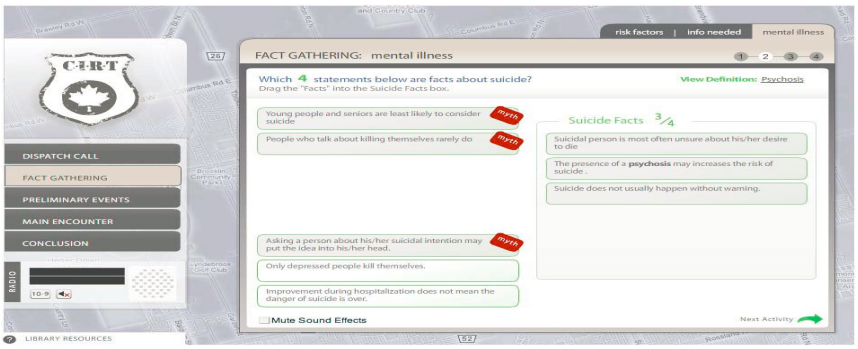

Figure 2: Example of a learning activity screen in the simulation depicting suicidal behaviour

Procedure

Randomly assigned, as described above, to one of the three groups – simulation (17), face to face (16) or control (18) – all of the participants were tested on their current knowledge about mental illness. For the experimental groups, these were their pre-tests. Their responses on the knowledge questionnaire were double-blind marked and any discrepancy in scores was reconciled through discussion among the researchers.

Officers in the simulation group worked independently on a laptop computer to complete each of four prepared simulations. The participants were provided with a brief explanation of the navigation tools prior to commencing. The same educational content was delivered to officers in the face-to-face group by the study's nursing colleagues in a seminar format. To ensure equivalence of the content, a learning package that replicated the content and sequencing of the simulations was prepared in advance. It included a written description of the scenarios, the response options, and the learning activities. Officers in the face-to-face group were each given one simulation scenario at a time to read. This was followed by a discussion about the response options, the response they would have selected and the likely outcome of each of the response choices. The participants went on to complete the learning activities and, after each activity, they were provided with the rationale for both the correct and incorrect answers. A summary of the key concepts (identical to the summary provided at the end of each simulation) was also provided after each of the scenarios.

To accommodate the nature of police work and the limited time that participants could be away from direct service, officers who were assigned to either the simulation or face-to-face groups were subdivided into clusters, based on the officers' availability to participate in the research on particular dates. All clusters within a given intervention group (simulation or face to face) were treated as identically as possible.

Following the education intervention given to officers in the experimental groups, the officers took a post-test about their knowledge of mental illness. Results were recorded and data were analysed primarily through the use of ANOVA tests (analysis of variance), as further described below. Included were two-way ANOVA tests to check whether the above-noted subdivisions of the experimental groups (simulation versus face to face) into subclusters for practical implementation had any direct or interaction effects on study outcomes. The final phase of the research was the focus groups, and following the interventions all of the officers participated in one of these group interviews. The officers in the control group also participated in a focus group.

The focus groups were conducted using a semi-structured interview guide to gather the officers' subjective perceptions of their knowledge about mental illness and how to effectively interact with people with mental illness, and to share their experiences

in this area. They were also asked to discuss how confident they were in their ability to effectively interact with people with mental illness and about factors that affected their confidence. Participants in both the simulation and face-to-face groups were asked what impact, if any, they believed the educational session they had just participated in would have on their confidence in future interactions with people with mental illness. The simulation group was also asked for feedback on the simulations in terms of their ease of use and how closely the simulations reflected reality.

Each of the focus groups lasted for approximately an hour and a half. All of the focus groups' responses and comments were audiotaped and later transcribed verbatim to ensure transcript accuracy. Handwritten notes were also taken by one of the two researchers present. These notes were then used to summarise for the focus group participants the major ideas expressed by the group, and enabled the participants to elaborate further or provide necessary clarification. The transcripts were read a number of times by each of the researchers and, with each reading, themes were identified and the data were coded, supported by NVivo software, version 8.0.

FINDINGS AND DISCUSSION

Research Question 1: To what extent can simulations be used as a tool to educate police officers about mental illness and how to respond effectively in interactions with individuals with a mental illness?

The effectiveness of simulations for educating police officers about mental illness and appropriate responses was confirmed in both the focus group data and the experimental pre- and post-test analyses. Further analyses with a separate control group added additional support.

In the focus groups, officers described the simulations as engaging, and they appreciated the multiple interactive media and the ability to choose options in their responses to the scenarios presented. Being able to go at one's own pace, with different learning styles, and even backtrack for redoing a scenario were all considered positive features of the simulations. Nonetheless, officers did share a desire for some face-to-face contact in their learning, or at least to have an opportunity for discussion or clarification of what had been covered in the online resource.

Experimentally, for officers receiving simulation-based training, their mean scores on the knowledge questionnaires increased from 18.47 (of 30) on the pre-test to 24.15 on the post-test. This increase is statistically significant, based on a paired t-test for mean difference (pre-scores minus post-scores): T-value = -9.84, p-value $\approx$ 0.000.

Although for practical scheduling purposes, these officers did not train in one common group (e.g. with the same room and facilitator), this factor had no impact on results. This was confirmed with an unbalanced two-way ANOVA test (analysis

of variance), which included as an extra variable the officers' training group. As for the t-test, the mean differences in pre-/post-test scores were found to be significant for those undertaking simulation training (F-value = 49.97, P-value ≈ 0.000), while no difference in scores could be attributed to one's specific training group or to any interaction with that variable.

The effectiveness of the simulation training was shown to be comparable to the effectiveness of face-to-face training. For officers trained face to face, mean scores on the knowledge questionnaires increased from 16.66 (of 30) on the pre-test to 22.66 on the post-test. This increase is statistically significant, based on a paired t-test for mean difference (pre-scores minus post-scores): T-value = -10.42, p-value ≈ 0.000. Again, a check was made, using an unbalanced two-way ANOVA test, which confirmed that (a) the pre-/post-test differences were significant for members of the face-to-face group (F-value = 17.55, P-value ≈ 0.000), and (b) their arbitrary clustering into different training groups did not appear to have any impact.

An unbalanced two-way ANOVA test was also used to compare directly the impacts of simulation versus face-to-face training on officers' knowledge scores. By either training method, scores increased significantly after training. In the experiment, simulation-training actually showed a slightly greater beneficial effect than did face-to-face, but the nominal significance of the difference was borderline (P-value = 0.049). Certainly, it appears that simulation training is at least as effective as face-to-face training.

In addition, there is further evidence of the benefit of the training, by either intervention type, if data are included from a control group who wrote the knowledge questionnaire (once) but did not receive the training on mental illness. Based on the results of an ANOVA test, those who had either type of training showed a significantly higher questionnaire score than those who were yet to (or did not) receive the training intervention (F-value = 77.82, p-value ≈ 0.000). Tests taken after training had a mean score of 23.42; those which reflected officers' knowledge without the training had a mean score of 16.35. (Note that the three subgroups that were yet to (or would not) receive the training had slightly different scores from each other, at that stage; but the significance of their jump in scores, in aggregate, after training was not impacted.)

Research Question 2: To what extent do simulations enhance police officers' confidence in their ability to interact effectively with people with mental illness?

In the focus groups, officers unanimously agreed that additional education can have a positive impact on their confidence. They discussed not always feeling confident about their level of knowledge and understanding of mental illness, and it was clear that they experience some trepidation when responding to the Emotionally Disturbed Person (EDP) calls they receive because of a perceived level of unpredictability associated

with these encounters. While participants expressed concern about the unpredictability, they also acknowledged the importance of building rapport and engaging individuals in conversation, one of the strategies that is emphasised in each of the four simulations.

Officers also identified additional factors that affect their confidence and decision-making in their interactions with individuals with mental illness. These included frustration with the healthcare system and lack of mental health services, being responsible for the safety of everyone involved in the incident, feeling pressured by peers or supervisors, issues of legal liability, and the public's perceptions of their actions. Officers also indicated they gained confidence through their on-the-job experiences and the ability to learn from their mistakes and each other.

Although officers did admit to being out of their 'comfort zone' and thus probably never feeling totally confident in their ability to engage with individuals with mental illness, the majority of participants self-identified as being very confident on the job. They talked about the nature of policing and the need to appear confident. They also mentioned being absolutely confident in terms of the use of force policy and they were adamant that, if at any time their efforts to diffuse or contain a situation involving a person with mental illness failed, the use of force policy provided clear directions as to the required course of action and that they would not hesitate to follow those directives.

In defining how they saw an effective interaction with an individual with mental illness, they showed sensitivity to the condition of the individual and to the circumstances that could either escalate the situation or defuse it. Such awareness also helps explain the frustration they have in dealing with emergency departments where their opinions are not valued, their time is consumed, and they witness the person with mental illness being released in what they believe is a premature fashion.

Research Question 3: To what extent do police officers find simulations (a) easy to use, and (b) reflective of reality?

Officers in the focus group offered very positive feedback on the simulations and the collaborative initiative of WMHC and UOIT in developing these resources and providing the education. They reported that the simulations were easy to use and realistic of common incidents they encounter on the job. Officers indicated that basing the simulations on real, critical incidents in the community and using actual police officers in the videos added to the credibility and realism of the simulations. They also found navigating through the simulations to be relatively straightforward. There were no criticisms of the interface, and comments were made that validated the usefulness of the learning activities and library resources. In probing whether the learning activities were best placed before the main encounter or interleaved with the video, the officers preferred to view the video in an uninterrupted fashion and complete the activities either before or after it. They also offered some suggestions for improving the simulations, which included creating a larger video screen,

providing more response options, having access to a 'help box' prior to making a decision and having the ability to ask questions of the despatcher.

LIMITATIONS AND FUTURE RESEARCH

The findings of this study are based on a one-time knowledge assessment and self-reported data of a small group of officers with the Durham Regional Police Service. Further research with a larger sample size is required to determine if the officers' increased knowledge and understanding of mental illness is sustainable over time and if they are actually applying what they have learned to their on-the-job interactions with individuals experiencing mental illness. Also, every effort will be made in any future education and research initiatives that are undertaken to include individuals with lived experiences of mental illness and their support persons. This was an identified limitation in the development of the simulations and the current research study. Including representatives from other police services as well as community mental health organisations in future research endeavours would also make a valuable contribution to the existing research.

In spite of efforts to ensure randomisation, there were demographic differences between the control group and the intervention groups in this study. Participants in the former were generally younger with less experience. This problem might be mitigated in future studies by adding exclusion criteria for potential volunteers to ensure that all participants have at least some minimum level of experience.

CONCLUSION

As police services become increasingly aware of the need to provide officers with education about how to interact effectively with individuals who may be experiencing a mental illness, identifying effective educational strategies and resources will also become more of a priority within the policing sector. The findings of this research study support simulation as an effective resource in addressing this important educational challenge. Police officers who participated in either of the education sessions (face-to-face or simulation) demonstrated a statistically significant increase in their scores on a knowledge about mental illness questionnaire that was administered pre and post their educational session, indicating that the simulations are at least as effective as face-to-face education sessions. In addition, there was a statistically significant difference between the post-test scores of officers who participated in an education session and the scores of the officers who did not (control group).

There will also be greater demand for efficient educational resources, given the current fiscal constraints and high costs of education. The simulations' online format is a definite cost benefit. In 2010, the four police simulations that provided the basis for this research were recognised by Accreditation Canada as a 'leading

practice', which is described as: (1) creative and innovative; (2) demonstrating efficiency in practice; (3) linked to Accreditation Canada standards; and (4) adaptable by other organisations. Also, Durham Regional Police Service and the Ontario Provincial Police, the largest police force in the province, made the decision to include the simulations as part of the mandatory training they provide to all of their frontline officers. The most recent addition to the partnership is the Ontario Police College. An agreement has just been signed that will enable the simulations to be included in the mental health education that is provided to all new police recruits in the province. The success of this unique and growing partnership can be attributed to several factors: (1) a shared commitment to better serve the citizens in our communities who are living with a mental illness; (2) a genuine respect for the expertise and contributions of each of the members; (3) a willingness to set personal interests and 'politics' aside; and (4) sharing credit for accomplishments and successes. It is also clear that mental health nurses and nursing educators, as knowledge professionals, have the requisite skills and expertise needed to foster interprofessional collaborations within communities and lead new learning initiatives aimed at strengthening awareness and understanding of mental health issues.

Based on the momentum generated to date, it is likely that the partnership will continue to expand and eventually include representation from police services, community organisations, education institutions and citizen groups from across the province. Certainly, citizens who are living in our communities and trying to manage mental illness can best be served by a strong collective 'voice' that advocates for the sharing of experiences, resources and expertise.

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