Developing confidence in mental health students to recognise and manage physical health problems using a learning intervention

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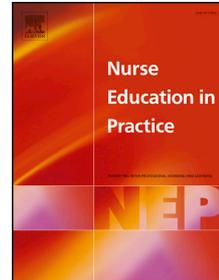| Title	Developing confidence in mental health students to recognise and manage physical health problems using a learning intervention
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Globally, there is increased recognition of a higher prevalence of physical ill health and mortality in individuals with mental health problems. A review of the literature highlighted the need to address deterioration in physical health of those with mental health problems through better recognition and management on the part of mental health nurses. However, mental health nurses have been found to lack confidence and be unsure of their role within this area. The aim of the project was to develop pre-registration mental health students' confidence to be able to recognise and manage physical health deterioration through the use of high fidelity human patient simulation, the development of contextualised clinical scenarios and additional theory around the A to E mnemonic structured assessment. The project involved 95 third year mental health student nurses, using a self-rating pre and post intervention questionnaire to measure their perceived confidence levels and to evaluate the effectiveness of the learning intervention. Findings demonstrate improved overall confidence levels in recognising and managing physical health deterioration in human patient simulators displaying mental health problems.

Highlights

- A project to develop student mental health nurses confidence.

- To be able to recognise and manage physical health deterioration.

- The learning intervention consisted of high fidelity human patient simulation.

- Contextualised clinical scenarios and theory development were utilised.

- Project evaluation was favourable in using experiential learning methods.

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INTRODUCTION

Mental health nurses need to be able to recognise and respond to patient's physical health problems in ever changing nursing practice (DH, 2006). Pre-registration mental health nurse education is one area where this can be developed (MNC, 2010). Using advancements in technology, a project was developed by nursing academics within the United Kingdom, using human patient simulation, contextualised clinical scenarios and experiential learning to develop the confidence of mental health student nurses in recognising and managing physical health deterioration in those they are caring for.

BACKGROUND

There is a wealth of contemporary studies illustrating how individuals with severe mental illness have an increased risk of co-morbid physical illness including; cardio vascular diseases, diabetes, respiratory disease, HIV, infections gastrointestinal disease and increased early mortality (Filik et al, 2006; McCabe & Leas, 2008; Weiser et al, 2009). People diagnosed with severe mental illness have also been found to be at greater risk of developing metabolic syndrome (McEvoy et al., 2005), which can lead to premature mortality, these individuals being likely to die 25 years earlier than the general population (Parks et al, 2006).

Certain barriers exist for individuals with severe mental illness wishing to access physical health care services, thus contributing to their plight of unrecognised and untreated physical illness. These include diagnostic overshadowing; current symptoms of mental illness; difficulty in navigating services (Lester et al., 2005); a

lack of education for service users with mental health problems (DeCoux, 2005) and mental health nurses lacking appropriate knowledge regarding available services to meet the physical health needs of their patients (Phelan et al., 2001: Robson & Gray, 2007; Chadwick et al, 2012). Furthermore, a study by Howard and Gamble (2011) found mental health nurses lacked confidence in the area of providing physical health care and were unsure of their role within this area.

The need to address physical health needs of people with mental health problems can be found in the Chief Nursing Officers' review of mental health nursing (Department of Health (DoH), 2006) which called for competency changes within pre-registration mental health nurse education in the United Kingdom (UK) (Nursing and Midwifery Council (NMC), 2010). An audit undertaken by the National Patient Safety Agency (2008) also highlighted the need for mental health nurses to be able to recognise, assess and manage acute physical health deterioration of those with mental health problems. The audit found that mental health nurses were putting patients' lives at risk through a lack of recognition of those who were acutely ill and their inability to use vital emergency equipment, resulting in an increase in mortality rates during cardiac arrest. However, in order to respond to unmet physical health needs, mental health nurses must first be able to recognise such needs. Furthermore, UK National Health Service (NHS) policy drivers, including the Mental Health Strategy (DoH, 2011) and the National Health Service Outcomes Framework (DoH, 2010), advocate mental health service providers need to address the issue of physical ill health. Likewise, the recent Willis report (2015), a collaborative report between Health Education England and the NMC, has called for parity of esteem

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between mental health, adult and learning disability nursing within nurse education programmes, as a way forward in addressing existing deficits.

These educational recommendations and NHS policy drivers strongly influence the expectations, in terms of knowledge and skills required of the future mental health nurse workforce. Policy expectations include the need for improved screening, care, treatment and partnership working to reduce health inequalities for people with mental health problems. In 2007 the National Institute for Health and Clinical Excellence (NICE) produced clinical guideline (CG) 50, exemplifying early indicators and the management of physical health deterioration. Although this guideline targets adult inpatient services in acute hospitals, it must also be considered in the context of mental health service provision, due to the increase in physical health problems in those diagnosed with mental illness (Robson & Gray, 2007).

Having identified the need to develop mental health nurses ability to recognise and respond to physical health needs, consideration was given as to the methods to employ within pre-registration nurse education. Simulation has been used effectively in healthcare education, allowing students an opportunity to increase their confidence by being able to practice dealing with high-risk events that may happen infrequently (Brown, 2008). Simulation has been described as the reproduction of a real incident where learners can experience an event and practise their skills without any real risks to themselves or to others (Larew, Lessans, Spunt, Foster & Covington, 2006; Broussard, 2008). Simulation has been used within the healthcare arena since the 1940's (Barrows & Tambling, 1980). Within mental health nursing simulation has been predominantly used for the development of; communication

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skills; the therapeutic use of self; complex crisis management; establishing a therapeutic relationship and de-escalation (Donovan, Hutchinson & Kelly, 2003; Edward, Hercelinkskyj & Warelow, 2007; Crider & McNiesh, 2011; King & Ott, 2012). Standardised patients have also been used in role-play with the employment of trained individuals or paid actors (King & Ott, 2012). Role play simulation can be used to develop mental health skills for managing mental health emergencies such as dealing with a psychotic patient (Steeves, 2012).

Additionally films and videos, in conjunction with other educational materials, have been used in mental health education to illustrate the assessment of an individual with mental health problems using simulation (Brown, 2008). Where mental health nursing has lacked simulated training the use of virtual reality to develop essential nursing skills including communication, empathy, ethical insight and critical thinking skills has been found to be invaluable (Guise, Chambers & Valimaki, 2012; Kidd, Morgan & Savery, 2012). Criticisms of this approach include the frustration for students navigating the virtual environment and the inferiority of this experience to real life interaction (Kidd et al, 2012). Whilst these approaches maybe useful in developing core mental health abilities, they are unable to simulate the experience of physical health deterioration with the associated physiological changes (Brewer, 2011).

When discussing simulation the element of fidelity must be considered. This relates to the reproduction and realism of a situation (Nehring & Lashley, 2009). There are

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different levels of simulation, which include low, medium and high. High fidelity simulation involves advanced computerised physiological models to replicate real time physiological changes in response to interventions. For example, within a simulated scenario a computerised physiological model could be programmed to snore, replicating a partially occluded airway. In response to this the student may performs a head tilt chin lift to open the airway and the model will respond accordingly by breathing normally (Seropian et al., 2004). However, high fidelity does not always imply high technology, as realism can be produced in a variety of forms, for example role-play within a clinical environment (Cooper et al., 2012). The use of high fidelity human patient simulation as a teaching tool in the area of physical health deterioration has been used in several studies (Cooper et al., 2010; Liaw et al., 2011). In their study of Australian acute and rural health nursing students' Cooper et al (2010) concluded that simulation has an important role in healthcare education as it has the potential to improve knowledge and skills when using advanced life support computerised mannequins to assess and manage physical health deterioration. Liaw et al. (2011) involved adult pre-registration nurses using a SimMan patient simulator to recognise and respond to physical deterioration. They used the Airway, Breathing, Circulation, Disability, Exposure, ABCDE mnemonic, (Resuscitation Council, 2011) as the process to underpin a systematic assessment and management approach. The results demonstrated how simulation impacts positively on student learning by developing their self confidence and competency in assessing and managing the deteriorating patient. However, the study did not address the complexity of recognising physical health deterioration in someone overshadowed by a diagnosis of a severe mental illness (Lester et al, 2005).

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Further analysis of the literature surrounding physical health deterioration and simulation was found to be limited within the sphere of mental health nursing. Hermanns and Crawley (2011) developed an intermediate fidelity simulation scenario whereby a hanging had taken place. Students were expected to identify, assess and manage this situation using the Airway Breathing Circulation (ABC) mnemonic and then by monitoring the patient until they were transferred to hospital. Overall, the findings revealed that the simulation provided a positive learning experience around crisis management and psychiatric intervention. It is suggested simulation at the intermediate level has the potential to enhance student confidence within their clinical practice (Ogilivie et al., 2011). An educational evaluation by Unsworth et al (2011) explored knowledge and skill development in pre-registration mental health student nurses in recognising physical deterioration in patients with mental health problems. However, in their study some of the scenarios were undertaken by groups of both adult and mental health students. As a result the mental health nurses tended to focus on the mental health assessment leaving the adult students to focus more the physical health aspect and technical skills. While their overall results found that intermediate fidelity was a useful in learning about physical health deterioration, caution needs to be exercised when working with a mixed groups of nursing students.

After reviewing the literature, the project group developed, implemented and evaluated a learning intervention within the pre-registration mental health nurse programme. The aim of the intervention was to develop the confidence of mental health students in recognising and responding to physical health deterioration. This

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required additional teaching and the employment of high fidelity human patient simulation within contextualised clinical scenarios to enable the students, through experiential learning, to recognise and manage physical health deterioration. The project was evaluated using a pre and post intervention survey measuring the students' confidence levels.

AN EVALUATIVE PROJECT

Third year pre-registration mental health student nurses were chosen to participate in the project as they had expressed concerns regarding recognising and managing physical health problems.

Ethical considerations

Ethical approval was sought and granted through the university's ethic committee with subsequent consent obtained from each of the students who participated. Further ethical considerations included the provision of written information to ensure full disclosure, respecting student rights and providing debriefing sessions to ensure a safe learning environment.

In total 95 students were initially introduced to the human patient simulators to ensure familiarity and allay any anxieties with regards to working with them. A taught session was delivered to introduce the students to the A to E mnemonic, a structured assessment they could readily apply to a clinical scenario. The students undertook

one of two developed contextual clinical scenarios. The first scenario centred on a patient within an inpatient setting, who was low in mood and who had attempted suicide by cutting their wrist. The second scenario involved a patient, within a community setting, experiencing a psychotic episode and who had fallen resulting in a compound fractured leg. In both scenarios the patient's physical health deteriorated due to hypovolaemic shock. These were chosen since they were realistic with the first scenario, common within mental health settings.

Over four days, groups of approximately 24 students undertook the learning intervention, splitting into two groups of 12 on each day. One group of 12 students was then further split into smaller groups of three to work together on scenario one in the simulation laboratory. While each group of three dealt with the scenario, the remaining nine students waited in a holding area. The other group of 12 students observed each of the four small groups undertaking the first scenario through a live streamed video recording in another classroom. When each of the small groups had undertaken the scenario the two larger groups swapped over with the second group splitting into smaller groups of three in order to undertake scenario two. Whilst students were observing their peers through the video stream, support was provided from a facilitator, discussing the scenarios and actions as they occurred. Those students actively engaged in the scenarios were also supported by a facilitator whilst in the simulation laboratory. Before the students entered the simulation laboratory the facilitator gave them a verbal brief of the situation and the environment that they were about to enter and informed them of their roles. The laboratory was set up to represent a 'live' setting using props, for example a coffee table, magazines, kettle,

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cups and an armchair in relation to the community setting, and a bed, physiological measuring equipment and charts for the inpatient environment, in order to increase the fidelity of each scenario. Once the students had undertaken one of the two scenarios a debriefing session was conducted with the facilitators. The observers provided constructive feedback and the students engaged in personal reflection on their practice and development. This learning intervention was repeated over four days to enable all 95 students to take part.

This project was evaluated using pre and post intervention questionnaires. A rating scale, based on a Likert scale (1932), was included within the questionnaire to assign a statistical score to assess the strength of the student's belief regarding their confidence in relation to assessing their skills in recognising physical health problems (Oppenheim, 1992). The adjectives used were evaluative with the poles of the scale being 'not confident' to 'highly confident', the higher scores being applied to the more positively worded adjectives. Following permission from the original authors, the questionnaire (Table 1) used was an adapted version of the validated Generalised Self Efficacy Scale (GSES) (Schwarzer & Jerusalem, 1995). The original GSES was developed for measuring a person's sense of self-confidence regarding the stresses of daily life and contained a ten statement psychometric scale (Schwarzer & Jerusalem, 1995). For this project the ten statements were modified to include recognition of physical health deterioration and aspects of management. The questionnaire used a four-point Likert scale asking the students to circle one of the points in relation to each of the ten pre-determined statements in order to measure their level of confidence; 1 - not at all confident; 2 - slightly confident; 3 - moderately

confident and 4 - highly confident. Additionally, the post questionnaire included closed questions in an attempt to provide additional information relating to their overall level of confidence improvement. Although the questionnaire sought students' perceptions pre and post learning intervention to determine any change in their level of confidence, demographic information was also collected, in order to develop a profile of the students participating in the study and the effectiveness of the activity on students with differing characteristics, for example gender and age groups.

In light of modifications made to the original questionnaire it was piloted for clarity of understanding in terms of both instructions and content. Both reliability and validity had been established through correlations in numerous previous studies. Reliability measures using Cronbach's alpha ranged from 0.76 to 0.90 with most in the high 0.80s, indicating good internal consistency (Bland & Altman, 1997). Criterion validity highlighted positive correlations with favourable emotions and negative correlations with negative moods and feelings (Scholz et al., 2002).

<u>FINDINGS</u>

The total population of those who took part in the learning intervention and completed pre and post questionnaires was (n=95). Data collected from the 190 questionnaires were inputted using the computer software package Statistical Package for the Social Sciences (SPSS) (version 20). The descriptive statistics in Table 1 represent the pre-intervention questionnaire results.

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Table 1 – Inserted here

Each scale point is illustrated by the total number of respondents followed by its representation in percentage values. In this evaluation study the 95 participants equate to 100%; therefore the results are a percentage of the total number of those that participated. Prior to the learning intervention the questionnaire findings show that the majority of respondents circled either slightly confident or moderately confident with a very small number indicating that overall they were highly confident.

Table 2 (below) represents the post intervention responses using the same methods as Table 1 for descriptive statistical presentation.

Table 2 – Inserted here

The post learning intervention questionnaire results highlight that the majority of respondents indicated an increase in their confidence rating by circling the moderately and highly confident items, with a very small number indicating that they were overall slightly confident.

These findings demonstrate an overall increase in the perceptions of confidence post learning from the statements relating to the recognition and management of physical

health deterioration. Overall, the greatest improvement in the students' level of confidence is highlighted in statement ten, where they felt more confident in being able to handle whatever happens when a patient's physical health deteriorates. This suggests that the mental health students felt confident in managing a physical health emergency as it unfolded. The smallest increase in relation to the students' level of confidence is associated with statement one and their ability to recognise physical health deterioration. Although there was still an improvement in response to this statement, it also indicates it is an area for further development. Interestingly statement six, relating to recognition of emergency equipment, indicates a positive improvement in relation to the National Patient Safety Agency (2008) audit findings, which recommends mental health nurses need to be able to recognise emergency equipment. Statement eight also demonstrates a significant improvement, the students' believing that they are confident in being able to identify several solutions when confronted with physical health deterioration. This suggests that they perceive an increase in confidence when managing a situation by being able to consider available options open to them whilst dealing with the emergency.

DISCUSSION

Overall the results demonstrate that 90% of the students who had participated in the activity reported an improvement in their level of confidence in recognising and managing physical health deterioration. These results are in keeping with those of other studies focusing on human patient simulation and its influence on improving confidence levels (Childs & Sepples, 2006; Jefferies & Rizzolo, 2006; Decarlo et al, 2008; Kameg et al 2010). However, the importance of this project is that human

patient simulation and the development of specific contextualised scenarios can be effectively used in mental health nurse education to improve the confidence of students in an area of care where there has been criticism of their knowledge and skills (Phelan et al., 2001: Robson & Gray, 2007; Howard & Gamble, 2011; Chadwick et al, 2012).

The results suggest that students' are able to increase their level of confidence through many aspects of the learning intervention including; the use of a human patient simulator used to replicate physical health deterioration within a mental health presentation, experiential learning, observations, discussions through debriefing and personal reflection. The results suggest the students overall perception was that their confidence had developed in a number of areas. These included recognition of physical health deterioration within a contextualised mental health scenario. Although this area scored least in terms of improvement, it did highlight their ability to recognise physical health deterioration, followed by an increase in confidence in using the A to E structured assessment, and prompting the achievement of a higher score regarding the management of physical illness. Generally, the latter included their ability to handle whatever happened in unforeseen situations and to consider several solutions. This is important since physical health deterioration requires the ability to act in the situation in a timely manner as identified in NICE guideline 50 (NICE, 2007).

A criticism of the project could be that not one specific intervention was examined for its impact on the students' improved confidence. Nevertheless it must be acknowledged that when using high fidelity human patient simulation it involves many elements including, experiential learning using clinical scenarios, observation, structured feedback and reflection. Likewise, Roberts & Greene (2011) also acknowledge the important components of high fidelity simulation being; experiential learning where student development occurs through the actual experience, the 'audience' involving observation and provision of feedback from peers, vicarious learning where development takes place from one another's experiences and reflection. The students in this study used aspects of high fidelity simulation by undertaking an experiential learning activity through the contextualised mental health scenarios using a human patient simulator. They were also observed and provided feedback to their peers to support the process of vicarious learning within the debriefing sessions following the scenarios. However, it could be argued that high fidelity simulation could have also been produced through role-play within a clinical environment (Cooper et al, 2012) instead of attempting to reproduce it within a simulated environment, the former perhaps being considered more realistic. Furthermore, criticisms levied against the employment of high fidelity human patient simulation include the cost of the computerised mannequins; their maintenance and the need for additional staff, making this a resource intensive form of education for small numbers of students to access at any one time (Brown, 2008). Other criticisms include the lack of non verbal communication, body language and emotional responses, making it unsuitable for mental health nursing per se (Unsworth et al, 2011). Despite these criticisms the benefits of using this type of technology to replicate physical health deterioration within a given mental health scenario

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outweighs the disadvantages. Furthermore, whilst non-verbal cues are not visible in the mannequins, their voices were operated by lecturers and conveyed intonation and emotion to augment the authenticity of the scenario. Brown (2008) reported that human patient simulation is scarce in mental health nursing due to the lack of standardised mental health scenarios. This study has added to the work of others (Brown, 2008; Hermanns & Crawley, 2011; Unsworth et al, 2011) and continues to develop further mental health contextualised scenarios following this initial project.

Responding effectively in clinical practice requires nurse educators to ensure students are confident in using the knowledge and skills they have acquired during their nurse preparation (Maibach et al, 1996). It is suggested simulation enhances knowledge development and skill acquisition, which contribute to greater confidence (Ogilvie et al, 2011). Through the use of a learning intervention, which included knowledge, skills and practice, using human patient simulators, an increase in the students' confidence resulted. The long term implications for these students in their mental health practice could be that this increase in confidence to respond to physical health problems will enhance the overall patient experience. Confidence to recognise, manage and support those with physical health issues is becoming a pre-requisite in mental health nursing through various National Health Service drivers to improve the health outcomes of those with mental health problems (Parks et al, 2006; Department of Health, 2006; National Patient Safety Agency, 2008; Nursing and Midwifery Council, 2010; Department of Health, 2011; Health Education England, 2015).

The results of this project suggests that there are benefits of using high fidelity human patient simulation within mental health nurse education to address the issue of recognising and managing physical health problems experienced by those with mental illness. The findings of this project are supported by a relatively small number of studies where high fidelity human patient simulation has been used, with the authors recommending further work in this area (Brown, 2008; Hermanns & Crawley, 2011; Unsworth et al, 2011). The reported lack of literature (Nehring & Lashley, 2009; Hermanns & Crawley, 2011) would suggest that further research would be beneficial to examine the wider use of this mode of learning within mental health nurse education. High fidelity human patient simulation would provide an opportunity for qualified mental health nurses to advance their confidence with regard to recognition and management of physical health problems in their field of practice. Collaboration between organisations and disciplines could be developed using high fidelity human patient simulation within practice, using a multi-professional approach. This could further the fidelity of the learning whilst recognising the roles and responsibilities of each of the disciplines and improve the overall package of care available to individual patients.

Limitations of the project

Implementing this project to a large number of students within a limited time frame presented a challenge. Furthermore, the students used a self-assessment questionnaire to measure their confidence levels thus introducing a high level of subjectivity, which could have been affected by a number of variables.

<u>CONCLUSION</u>

The project has highlighted that using high fidelity human patient simulation can develop pre-registration mental health students' confidence in recognising and managing physical health deterioration, through the development of contextualised clinical scenarios.

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Table 1. Self-Efficacy Instrument (Pre-intervention Questionnaire N = 95)

Questions	Not at all confident (1)	Slightly confident (2)	Moderately confident (3)	Highly confident (4)
1. I recognise physical deterioration in patients with mental health problems	0 (0%)	32 (33.7%)	49 (51.6%)	14 (14.7%)
2. I can use a structured approach to assess a person's physical health	5 (5.3%)	47 (49.5%)	35 (36.8%)	8 (8.4%)
3. I can support and reassure a patient who is physically deteriorating.	3 (3.2%)	23 (24.2%)	53 (55.8%)	16 (16.8%)
4. I can deal effectively with unexpected physical health deterioration whilst assessing a patient with mental health problems.	12 (12.6%)	50 (52.6%)	30 (31.6%)	3 (3.2%)
5. I can handle unforeseen situations while assessing a patient's mental health.	9 (9.5%)	51 (53.7%)	35 (36.8%)	0 (0%)
6. I can recognise the emergency equipment required for a patient whose physical health is deteriorating.	12 (12.6%)	41 (43.2%)	36 (37.9%)	6 (6.3%)
7. I can remain calm when responding to a patient's physical health deterioration.	6 (6.3%)	28 (29.5%)	48 (50.5%)	13 (13.7%)
8. When confronted with a problem when responding to a physical health emergency I can think of several solutions.	14 (14.7%)	56 (58.9%)	21 (22.1%)	4 (4.2%)
9. If I am unsure of how to respond to physical health deterioration I know what I should do.	4 (4.2%)	32 (33.7%)	40 (42.1%)	19 (20.0%)
10. I can handle whatever happens when responding to a patient's physical health deterioration.	23 (24.2%)	50 (52.6%)	20 (21.1%)	2 (2.1%)

Table 2.

Table 2 - Self-Efficacy Instrument (Post-Intervention Questionnaire)

Questions	Not at all confident (1)	Slightly confident (2)	Moderately confident (3)	Highly confident (4)
1. I recognise physical deterioration in patients with mental health problems	0 (0%)	11(11.6%)	60 (63.1%)	24 (25.3 %)
2. I can use a structured approach to assess a person's physical health	2 (2.1%)	9 (9.5%)	61 (64.2%)	23 (24.2%)
3. I can support and reassure a patient who is physically deteriorating.	0 (0%)	10 (10.5%)	47 (49.5%)	38(40.0%)
4. I can deal effectively with unexpected physical health deterioration whilst assessing a patient with mental health problems.	2 (2.1%)	17 (17.9%)	62 (65.3%)	14 (14.7%)
5. I can handle unforeseen situations while assessing a patient's mental health.	2 (2.1%)	17 (17.9%)	62(65.3%)	14 (14.7%)
6. I can recognise the emergency equipment required for a patient whose physical health is deteriorating.	3(3.2%)	19 (19.9%)	51 (53.7%)	22 (23.2%)
7. I can remain calm when responding to a patient's physical health deterioration.	1(1.1%)	12 (12.6%)	53 (55.8%)	29 (30.5%)
8. When confronted with a problem when responding to a physical health emergency I can think of several solutions.	1(1.1%)	20 (21.1%)	60 (63.1%)	14(14.7%)
9. If I am unsure of how to respond to physical health deterioration I know what I should do.	2 (2.1%)	10 (10.5%)	48(50.6%)	35 (36.8%)
10. I can handle whatever happens when responding to a patient's physical health deterioration.	1(1.1%)	24(25.3%)	56 (58.9%)	14 (14.7%)