BRIEF TRAINING IN PSYCHOLOGICAL ASSESSMENT AND INTERVENTION SKILLS FOR CRITICAL CARE HEALTHCARE PROFESSIONALS: A MIXED METHODS EVALUATION

Running title: Psychological Skills Training in Critical Care

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Abstract

Rationale, Aims, and Objectives: The risk of mental health problems during the coronavirus pandemic is greater for critical care patients, and has led to demand for services to provide effective training in psychological skills to healthcare professionals (HCPs) to enable a timely, service-wide response. A one-day psychological skills training workshop was developed to build critical care HCPs confidence in screening for psychological distress and delivering Cognitive-Behavioural Therapy (CBT) low-intensity psychological interventions. This study aimed to (1) examine whether the training package improved HCPs confidence in assessing and managing symptoms of depression, anxiety, post-traumatic stress disorder and delirium among critical care patients, and (2) explore how HCPs implemented learned skills in practice.

Method: A mixed methods design was used. Self-reported pre and post training questionnaires examined participant confidence in delivering psychological assessments and interventions to patients. A paired-sample t-test and Wilcoxon tests examined differences between pre and post scores. Participants were invited to a semi-structured interview one year after attending the training day. Qualitative data were thematically analysed to explore how practitioners implemented learning into clinical practice.

Results: Most participants (55 of 58) completed pre and post questionnaires. There was a significant improvement in participants' confidence to assess and manage symptoms of psychological distress using brief CBT skills. Four participants were interviewed at follow-up and four themes emerged from analysis: 'facilitating psychologically-informed conversations with patients'; 'recognising the benefits of using standardised questionnaires'; 'facilitating implementation with pre-existing skills and experience'; and 'barriers to implementation'.

Conclusion: The training workshop significantly improved confidence in delivering psychological support with a large effect size. This validates and generalises results from previous studies using similar training in cancer care. Integrating pre-existing skills and knowledge whilst acknowledging and managing HCPs anxieties may help to further boost their confidence in using psychological skills while maintaining rapport with patients.

Keywords: Critical care, psychological skills, anxiety, depression, delirium, PTSD

1. Introduction

Each year, more than 170,000 patients are admitted to adult critical care units (ACCU) within the NHS in the UK.[1] ACCUs can be particularly stressful environments for patients[2] and healthcare professionals (HCPs).[3] For example, 45-80% of critical care patients may experience acute stress manifested as panic, depression, anger, hallucinations and delusions.[4] Additionally, up to 50% of patients may experience symptoms of post-traumatic stress disorder (PTSD; e.g. nightmares, flashbacks and intrusive memories), following ACCU admission.[5] Current guidelines recommend that evidence-based interventions are used to address physical *and* psychological needs from the point of admission, to discharge, and community care.[8,9] This is partly because high stress can contribute to poorer psychological outcomes after discharge from critical care.[6,7] It is therefore important that ACCU providers account for psychological distress when structuring care pathways to improve coping and minimise the impact of long-term physical and mental health conditions.

The NHS Guidelines (2009)[8] for working in critical care recommend that all HCPs should be able to assess and manage psychological difficulties throughout the patient's care pathway. The proportion of critical care services in the UK assessing for mental health needs at present remains undetermined, however, a previous UK-based survey identified that only 28 out of 78 ACCUs used psychological assessment tools (e.g., Hospital Anxiety and Depression Scale[10]) to determine a patients' emotional wellbeing[11]; this may indicate an important gap between national guidelines and clinical practice.

Critical care HCPs have one of the highest rates of burnout syndrome (>50%)[12] across all healthcare specialties, partly due to the stress of the work environment. Contributing factors include high patient morbidity, mortality, regular exposure to patients experiencing traumatic symptoms[13], and little confidence in managing patients' symptoms of psychological distress (e.g., delirium[14]). Recent research recommends that interventions designed to manage HCPs burnout is timely[15] which includes training workshops to improve their confidence in managing patient distress. In 2015, a national gap analysis was carried out across all adult critical care networks in which ACCUs appraised themselves against specified standards.[16] Access to clinical psychology was a gap identified nationally in all units, highlighting a serious potential deficit in the support for emotional recovery in critical care patients.

Under the current COVID-19 pandemic, ACCUs are likely to be providing care for COVID-19 patients over several months. Symptoms of psychological problems (e.g. anxiety, PTSD, delirium) can worsen as a result of COVID-19, both as an inpatient and at follow-up after discharge[17]; this is likely to increase the length of patient recovery and could increase work pressures upon HCPs and foster a more stressful environment for patients. National guidance recommends that COVID-19 patients are assessed for mental health difficulties (and cognitive impairments) ideally before and after discharge.[18] To date, there are no UK-based critical care studies focusing upon improving HCPs confidence to assess and manage patient symptoms of psychological distress. However, research in other areas of physical health (e.g., oncology), indicates that brief psychological skills training programmes can significantly improve HCPs confidence in dealing with psychological distress in patients[19,20], and that

increased confidence can be maintained over a 6-month follow-up period.[20] Offering a brief and effective way to upskill the ACCU workforce to assess and intervene with patients' mental health is therefore essential and timely, particularly in the wake of the COVID-19 crisis.

This study aimed to assess whether a one-day training workshop significantly improved critical care HCPs confidence in screening for psychological distress and delivering low intensity psychological interventions to critically ill patients across any stage of their recovery. The study also aimed to explore how HCPs implemented the training into clinical practice.

1. Method and Materials

1.1. Design

A mixed methods design was used to achieve the study objectives, which were to: (1) statistically examine changes to HCPs confidence (in the knowledge and skills of psychological assessment and intervention) after attending a training course and (2) explore how HCPs implemented psychological knowledge and skills gained from the training into clinical practice, if at all. In order to address the findings from the national 'gap analysis' locally, a focused training package was developed by a clinical psychology service within an acute hospital in the East Midlands, UK. This package was originally designed for cancer care HCPs but was adapted to include management of symptoms specific to critical care settings such as delirium. The training course was delivered to critical care HCPs across the East Midlands Critical Care Network (EMCCN; comprising of five NHS Trusts) as a one-day workshop. Participants were taught the use of brief cognitive behavioural therapy (CBT) interventions with the aim of supporting patients' emotional needs.

1.2. Participants

All HCPs working within the EMCCN were invited to attend one of four training workshops between August and November 2016. Of the 58 participants, 55 consented to include their anonymised data in the quantitative analysis. Of these, four participants consented to include their anonymised interview data in the qualitative analysis. Participants were all qualified HCPs, predominantly critical care nurses and unit leaders working within acute hospital care.

1.3. Assessment

Participants' confidence in the use of psychological assessment and intervention skills was assessed using visual analogue scales (1 to 10) for 12 questions about key domains taught. A score of 1 on the scale was described as "not at all confident" and a score of 10 was described as "very confident" (see Table 2 for all questions; e.g. "How confident do you feel in recognising and managing the symptoms of delirium?"). Participants were invited to complete the same questionnaire directly after the workshop ended. The questionnaire asked

about participant confidence in recognition and assessment of depression, anxiety, PTSD and delirium symptoms; management of suicide risk; psychoeducation about anxiety, depression, PTSD and delirium; alongside use of problem-solving, goal-setting, behavioural activation, distraction, relaxation, pain management and grounding techniques. The questionnaire also asked how confident participants felt about explaining PTSD symptoms to patients and carers/family members.

Participants' qualitative experiences were gained through 60 minute face-to-face semi-structured interviews 12 months after attending the workshop (and the clinical supervision sessions). They were conducted by a trainee clinical psychologist who was independent of training delivery. The interview explored what had changed in clinical practice for participants since attending the workshop; what they had found helpful or unhelpful about the training; and whether they had noticed any changes in their relationships with patients since implementing psychological skills.

1.4. Procedure

The workshops were facilitated by the same Clinical Psychologists across the four events (SB and JL). Both trainers worked within acute physical healthcare and had previous experience of delivering training packages to HCPs within acute hospitals. Data from the questionnaires and interviews were collected and analysed by an independent placement student (CM). The workshop ran from 9am until 5pm with three breaks through the day. Post-training confidence questionnaires were collated at the end of the workshop. Scores on both questionnaires were compared for each participant on each item, and qualitative data was thematically analysed.

1.5.Intervention: One-day Workshop

The workshop adapted training materials from a previously developed and positively evaluated psychological skills training programme for hospital HCPs in cancer services.[20] The programme was subsequently condensed from four sessions to a one-day workshop that was also found to significantly improve HCPs confidence in managing psychological distress among cancer patients.[19] The current workshop was adapted by incorporating content tailored to critical care, which included assessing and managing symptoms of PTSD, delirium and pain.

1.5.1. Training Objectives.

The workshop objectives were aligned with the Guidelines for Provision of Intensive Care Services[21] which highlight the need for increased knowledge, understanding and competency for critical care team members in psychological reactions to critical illness such as distress, agitation, delusions and hallucinations. The workshop was therefore designed to build HCPs confidence by (1) educating them about the types of psychological problems observed in critical care patients and using standardised assessments for symptoms, and (2) training HCPs to use low intensity psychological interventions based upon CBT to support management of patient distress.

1.5.2. Training Structure.

The training day was split into two components. The first half of the day involved teaching skills for assessing symptoms of depression, anxiety, PTSD and delirium. The second half of the day was spent teaching psychological intervention skills to address these targeted symptoms.

1.5.3. Psychological Assessment Skills.

The workshop provided literature on the prevalence and nature of psychological distress amongst critical care patients. National recommendations for assessment of psychological difficulties were discussed. Brief screening methods and tools were presented, including assessment of anxiety, depression, PTSD, delirium and suicide risk. Central to the training approach was teaching attendees to use formal validated assessments in a therapeutic manner (e.g., Hospital Anxiety and Depression Scale)[10] as well as recommended tools for assessing delirium (Confusion Assessment Method for Critical Care Units)[8], psychological distress (Critical Care Psychological Assessment Tool 'IPAT')[22] and PTSD (Post-Traumatic Stress Symptoms-14 'PTSS-14')[23] specifically within ACCU settings. Another key component of the training method involved attendees initially observing role-plays of clinical skills and then practicing the skills themselves with feedback. This included suicide risk assessment, therapeutic use of scaling tools and therapeutic use of "the stress bottle" metaphor to summarise assessment information and normalise symptoms of distress.[24] They were then asked to use a deliberate practice model to role-play the skills during the workshop, by attempting the specified skill then receiving feedback from a peer-observer to refine future practice attempts.

1.5.4. Psychological Intervention Skills.

The core interventions centred around CBT techniques, which are recommended for the management of anxiety, depression and PTSD[25, 26]. Current evidence suggests that CBT interventions can be effective when delivered by trained non-experts in psychotherapy (e.g. acute care clinic nurses) to patients in physical and mental healthcare settings.[27,28] The workshop included 'action-orientated' skills (e.g., problem solving, goal-setting, activity scheduling and distraction) and 'relaxation orientated' skills (e.g., guided imagery, grounding exercises and relaxed breathing). Pain management strategies were also included which involved a biopsychosocial approach to understanding and managing pain.[29] Specific time was allocated to practice using these interventions during the workshop to help apply them to both in-patient and out-patient critical care settings, as deemed appropriate.

2. Method of Analysis

2.1. Quantitative Data

In order to determine whether there was a significant difference in confidence levels before and after attending the course, a paired-sample t-test was carried out on the average pre and post confidence scores (which met all the assumptions for parametric testing). Cohen's *d* was calculated for average confidence change to give an indication of the training effect size.[30] Scores for individual assessment items were not normally distributed so Wilcoxon tests were therefore conducted to determine if there was a significant difference in confidence in each of the individual skills before and after attending training. Additionally, a nonparametric effect size *r*[30] was calculated for individual confidence changes on each item.

2.2. Qualitative Data

Interview data were thematically analysed by a primary analyst (CM). This followed Braun and Clark's (2006)[31] process of data familiarisation, coding data, grouping similar codes into sub-themes and subsequent overarching themes. The process was repeated with a sample of the data by a secondary analyst (SB), as an independent audit of the analysis. Feedback from the secondary analyst was integrated into the final thematic structure.

2.3. Ethics Approval

Approval was obtained from the participating NHS Trust's Information Governance Department prior to commencing data collection. As a service evaluation using routinely collected data, ethical approval was not required.

3. Results

3.1. Participant Characteristics

Professional backgrounds were available for 55 of the 58 participants working within ACCU which included: 26 Nurses, 13 Unit Leaders, 4 Consultant Medical Doctors, 3 Physiotherapists, 3 Critical Care Outreach Practitioners, 2 Clinical Nurse Educators, 1 Junior Doctor, 1 Nurse Consultant, 1 Pharmacist and 1 Dietician. There were 20 spaces available for each study day, the number of participants on each day ranged from 14 to 19.

3.2. Pre-Post Training Confidence

Descriptive statistics indicated a consistent pattern of higher confidence post-training versus pre-training. This was observed across all 12 individual skills, as well as in the overall average confidence scores (see Tables 1 and 2). A paired-samples t-test showed a significant improvement in the average confidence scores from pre-training (M = 4.86, SD = 1.16) to post-training (M = 7.56, SD = 0.83); $t(54)=18.43$, $p < .001$. The effect size was very large (d=2.48), suggesting greatly increased participant confidence after the intervention (see Table 1).

Wilcoxon tests demonstrated there were also significant improvements in the post confidence scores for each of the 12 individual skills, with a large effect-size across all items apart from 'problem-solving' (r=0.29; small effect; Table 2).

3.3. Thematic Analysis of Participant Interviews

Semi-structured interviews were conducted with four participants who attended the training. This included, two Physiotherapists, a Nurse Consultant and a Critical Care Outreach Nurse from two of the five trusts. The themes complemented the quantitative findings with participants elaborating upon how they utilised their learning from the workshop in clinical practice. The four themes were: 'Facilitating psychologically informed conversations with patients', 'recognising the benefits of using standardised questionnaires', 'facilitating implementation with pre-existing skills and experience' and 'barriers to implementation'.

3.3.1. Facilitating psychologically informed conversations with patients.

All participants felt more confident to have psychologically-informed conversations with patients because they were able to draw upon "evidence-based" knowledge and skills from the workshop. Participant 1 described this as a potential reason for her increased confidence, and contrasted this to previous experiences where the use of clinical interventions had been grounded in observations, and anecdotal experiences of patients:

"I think before, we were saying lots of things to patients like, that's absolutely normal to have those memories or feelings or thoughts. We know it's normal because all patients come in and tell us the same thing… But we didn't really have anything to kind of base it on, in terms of actually, psychologically, should you be feeling like that, is that normal? So it is giving us, I guess, the confidence to know that what we're saying is the right thing to say as well."[Participant 1]

Three participants described having a broader awareness of the symptoms of psychological distress (e.g. anxiety) and related evidence-based interventions (e.g. relaxation techniques). This enabled them to feel more confident to initiate conversations with patients about their emotional wellbeing. Specifically, participants felt more attuned to the language used when broaching topics about psychological distress:

"It makes me feel more confident in the way that I can approach the subject and speak to them, in terms of the terminology really. So, it's given me that confidence to approach the subject and start the conversation." [Participant 4]

Furthermore, all participants described how they had greater confidence to explore more challenging conversations with patients such as risk of suicide or self-harm because they felt able to draw upon evidence-based risk assessments:

"Now, I feel more confident that actually, I'm not going to ask them the questions and then be like, oh OK, see you later, I don't know what to do with that information. I know that if I'm asking a question, I'm going to be able to help them through it and I feel like I've got the evidence-based tools to assess and get them the aftercare." [Participant 2]

3.3.2. Recognising the benefits of using standardised questionnaires

Two participants expressed that using questionnaires for assessing psychological distress (e.g. IPAT, PTSS-14) provided them with structured methods to assess for symptoms in line with NICE guidance.[8] In turn, this helped to validate participants' existing knowledge and improve their efficiency within consultations with patients:

"Now we've got tools with very structured questions, that will give us scores that will lead to an answer. And actually, completing that tool takes less time than having those conversations would have taken… I've got something that's going to help me kind of identify what your main problems are, I'm going to ask you some questions. But they still are the questions that I probably would have asked you anyway, it's just in a more formal structure."[Participant 2]

One participant also reported that using questionnaires offered an evaluative component, which helped to provide a focus within future appointments, rather than a "blank canvas":

"When they come back to the second appointment, I'm not kind of thinking, well what am I going to do with this patient? Because the last time they came I didn't know really what to do with them. So, you do feel a bit more like you've got outcome measures to use, you've got tools to use and you've got a plan going forward. So, it's not all just, hope that when they come back in the next session that they're going to be better than they were before." [Participant 1]

It was also reported that the questionnaires enabled participants to provide evidence of patients' psychological distress to communicate with external agencies. Participants felt they could quantify patients' psychological distress and that this was useful for justifying a referral into another service. Participant 3 described that the standardised scores were also important to help other HCPs understand the level of patient distress:

"I wrote the letter to the GP by hand, copied it, took it with the notes to A&E, gave it in at A&E to make sure that it wasn't just the patient saying it, I wanted them to see the scoring tools, I wanted them to see what I'd found and I wanted them to take this patient seriously." [Participant 3]

4.3.3. Facilitating implementation with pre-existing skills and experience

All participants expressed that the skills learnt from the workshop complemented pre-existing therapeutic skills such as empathy and the ability to build rapport. Participant 3 described the way such transferable skills can complement implementation of skills:

"The tools are brilliant… I feel confident to use them because I've got some other skills that are transferable and would apply… In terms of the learning, I think if you've already got some transferable skills, that will, obviously, affect how you use the tools."

One participant particularly described how the rapport they build with patients through frequent and consistent contact as part of their role meant that patients were more receptive to

interventions. They expressed this as an important facilitator in the implementation of skills learnt from the workshop:

"I think, as a physio, they tend to talk to us a little bit more anyway because we spend more time with them… The doctors kind of have that snapshot of time and they're off again. Whereas, with us, we're getting them up and we have time… So, I think it engages the patients a little bit more and they're more engaged with us and more engaged with the therapy." [Participant 2]

4.3.4. Barriers to implementation

Three participants reported that a "lack of autonomy" was an actual or anticipated barrier to implementation of the skills learned. They described that their autonomy may have been restricted by issues within service delivery (e.g. inability to offer follow up clinics). Participants felt therefore that having little time with patients was often a barrier to utilising the psychological knowledge and skills learnt from the workshop:

"In an autonomous clinic we can decide to do, you know… We've been trained, we can do it, so we do it… If you've got people, who… their ability to act may be somewhat more restricted… With service improvement projects, even the simplest thing can sometimes take a long time to get things off the ground." [Participant 3]

Additionally, having limited time and/or flexibility to incorporate the skills into clinical practice was also perceived as a barrier to implementation:

"You do kind of think, where am I going to squeeze that in, in all the time, you know, because we never have enough time anyway and we always spend too long with patients." [Participant 1]

Two participants also described that their own anxieties of "not being able to help" patients were often a barrier to implementing skills from the workshop. Some were able to challenge these impeding thoughts to learn that they were able to use tools appropriately to help their patients:

"On the training day I thought… I'm not going to bother trying to do that. But actually, you give it a go and then use it with a few patients and they do really benefit from it, it doesn't go the way you think." [Participant 2]

4. Discussion

This study is one of the first to use a mixed methods approach to explore the impact of a one-day psychological skills training workshop upon HCPs confidence to provide psychologically-informed care within ACCU. The findings suggest that the workshop significantly improved HCPs confidence across all targeted domains with a large effect size.

The thematic analysis shed further light upon how HCPs implemented their learning, and possible factors that contributed towards improved confidence. This included using evidence-based psychological resources to draw upon when facilitating conversations with patients

about their emotional wellbeing. Interviews also indicated that using standardised questionnaires can help structure assessments of psychological distress, be used as an evaluative measure, and can offer clarity when considering options for signposting patients to appropriate services. Lastly, HCPs used pre-existing clinical skills and experience such as rapport building to further boost their confidence in using psychological resources with patients. The qualitative findings also highlighted barriers to implementing psychological knowledge and skills from the workshop. This included a lack of autonomy within the service and limited time/flexibility. Some HCPs also identified their own anxieties as a barrier to using new skills in clinical practice, which suggests that building confidence through training might play an important role in implementation of psychological skills in critical care.

The quantitative findings were similar to the confidence increases achieved by an established four-day training programme[20] and one-day training programme within cancer care.[19] This suggests that the content from these programmes could be successfully adapted rapidly and recommended for HCPs during and after COVID-19. This study can be seen as an initial evaluation of the training method described for critical care HCPs due to the small sample size. Despite this, the results were consistent across training domains and consistent with results from similar training in larger samples. This study did not account for the role that post training support can play in embedding psychological skills into practice for HCPs within ACCU. A further limitation of this evaluation included the use of questionnaires, which may have predisposed HCPs to give socially desirable responses when rating their confidence. The study would also have benefitted from collating specific participant demographics to see whether certain groups of HCPs find it easier to apply their learning into clinical practice. It is also unknown whether improved HCPs confidence was maintained at six-month or 12-month follow up, which could have helped to understand the sustainability of skills learned from the training day.

5. Recommendations

Following the impact of COVID-19, it is likely that there will be an increase in critical care patients experiencing psychological distress and a demand for rapid training for critical care HCPs. This study provides initial evidence of a potentially effective brief intervention to improve psychologically-informed care. Applying the findings from this study supports the premise that improving HCPs psychological knowledge and skills may be vital for addressing the psychological needs of critically ill patients, and potentially reducing practitioner burnout, during unprecedented times. Future research could offer a range of modes of delivering the training package (e.g. face-to-face or video-link). This could also include online video-based resources as a source of complementary or additional skills training. Future research should also measure material changes to clinical practice made by training attendees, to clarify whether improvements in confidence translate to changes in practice. Future training packages could include strategies for maintaining psychological safety for HCPs and patients[32] and include examples of brief psychological tools that can be used by HCPs with relatives, and carers. Additionally, it is recommended that attending training comes with a commitment from senior management roles to offer time for HCPs to

practise and implement the skills after training to ensure maximum training impact, and benefit to patients and broader services. This could be done by offering psychologically informed clinical supervision, entailing the use of constructive feedback and simulated practice to maximise its effectiveness.[33] Overall, this study offers initial evidence of the impact brief psychological skills training can have in critical care. Future research should focus on the sustainability of new skills and the impact such training has on clinical practice.

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