

RESEARCH

Open Access



# An inpatient mental health placement for paramedic undergraduate students: a pilot study

Emma Carney<sup>1</sup>, Phoebe Thornberry<sup>1</sup>, Robert Bear<sup>1</sup>, Natalia Bilton<sup>1\*</sup> and Dean Bilton<sup>2</sup>

## Abstract

**Background** The prevalence of mental and behavioural illnesses in the Australian community is increasing. Paramedics are frequently the first health responders to a mental health crisis, and their workload associated with mental health presentations is also increasing. The present study explored the experience and perspectives of undergraduate paramedic students who participated in a pilot mental health placement.

**Methods** A pilot workplace learning opportunity was established in which students completed a portion of their community service hours in an inpatient mental health setting at Port Macquarie Base Hospital. Eight students attended and completed the placement and were administered the Clinical Placement Evaluation Questionnaire.

**Results** Student responses to this placement experience were overwhelmingly positive. The data showed that all the students responded “Strongly Agree” or “Agree” to each of the survey items. Thematic analysis of the qualitative data yielded four central themes related to benefits, additional training and education, nursing staff, and improvements.

**Conclusions** This pilot study suggests that mental health placements for paramedics have meaningful educational value and can impact student learning. Since this pilot study, mental health placements have been permanently included as part of the undergraduate curriculum in our institution.

**Keywords** Student, Paramedic, Mental health, Education, Curriculum, Pilot project

## Background

Despite National Strategies and recommendations to reduce the incidence and impact of mental illness, the prevalence of mental and behavioural illnesses in the Australian community is increasing [1]. Mental health encompasses the social, emotional, and psychological wellbeing of individuals, while mental illness refers to a cognitive, emotional, or behavioural condition that

influences an individual’s ability to interact with others, develop as an individual, maintain productivity and achieve goals [2].

Paramedics are frequently the first health responders to a mental health crisis, and the workload associated with mental health presentations is increasing [3]. Two studies report that education in this area is limited and does not prepare paramedics according to their own standards to adequately address this client group’s needs [4, 5]. Smith, Parent, Townsend and Johnston (2020) found that there is a significant gap in paramedic mental health education within undergraduate degrees [6]. Within paramedicine, mental health challenges are not covered in appropriate depth within the curriculum; thus, students are not

\*Correspondence:

Natalia Bilton  
nilton@csu.edu.au

<sup>1</sup>Charles Sturt University, Port Macquarie, Australia

<sup>2</sup>Nurse Unit Manager of Port Macquarie Mental Health Inpatient Unit (Ward 1A), Port Macquarie Base Hospital, Port Macquarie, Australia



© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.

suitably prepared for these challenges within their profession [7].

The present study aimed to explore the experience and perspectives of undergraduate paramedic students who participated in a pilot mental health workplace learning placement. It was speculated that this placement could provide the opportunity for students to develop confidence, comfort, and preparedness to communicate with mental health patients. The researchers in this study were interested in evaluating this new, novel placement experience with the view of gathering evidence to support its implementation in future curricula.

Despite a thorough literature review, the researchers of this study found no papers or studies related to paramedic students and mental health placements. As a consequence, it was decided that a broader view of the literature pertaining to healthcare students in general was required and that inferences to the present study would need to emerge from this broader work. Most of the related literature has focused on medical students.

Previous work in this area was found to span from 2014 to 2019. The 11 studies that were found in the current literature focused only on medical, nursing, and occupational therapy students. No studies were found that specifically addressed paramedic students. The literature to date has shown that experiences with mental health patients allow students to develop very specific learnings. These learnings are with regard to increases and decreases in very specific mental health constructs. A summary of these constructs is shown in the Table 1.

**Table 1** The effect of experiences with mental health patients on student learning. Student discipline is shown in italics under each effect

Decreases in	Increases in
Stigma towards mental illness [9–11] <i>Medicine, medicine, medicine, nursing, occupational therapy, and their combination, respectively</i>	Deep understanding and knowledge of mental illness [11, 12] <i>Medicine and medicine, respectively</i>
Apprehension in communicating with mental health patients [9] <i>Medicine</i>	Positive attitudes towards mental health patients [10, 12, 13] <i>Medicine, medicine and medicine, respectively</i>
	Critical thinking abilities [14] <i>Medicine this should be below one line as all of the other columns</i>
	Clinical skills [15] <i>Medicine</i>
	Enthusiasm in engaging in a mental health placement [15] <i>Medicine</i>
	Comfort and confidence around mental health patients [16] <i>Medicine, nursing and psychology</i>
	Mental health literacy [17] <i>Medicine</i>

One study [8], which is not included in this table, found no change in student attitudes after a mental health placement.

A significant gap clearly exists in our understanding of the effect of a mental health placement on undergraduate paramedic students. Our goal in this study is to add some insights to the paucity of knowledge in this field.

The aim of this study was to evaluate a mental health placement for undergraduate paramedic students. The evaluation in this study will be from the perspective of the students.

## Methods

### Setting

All members of the research team involved in this project were located at Port Macquarie, NSW, Australia, working for or affiliated with Charles Sturt University (CSU). Eligible participants for this research must have studied Paramedicine at Charles Sturt University on the Port Macquarie campus and completed and passed the workplace learning subject CLS103 (Paramedic Community Internship) in 2019 during their first year of study. This subject required students to complete 90 h of community placement in non-ambulance healthcare-related settings. A pilot workplace learning (WPL) opportunity was established in which students completed a portion of their community service hours (42.5 h over five shifts each) in an inpatient mental health setting at the Port Macquarie Base Hospital; this opportunity was subsequently evaluated in this study.

The researchers involved in this project included Phoebe Thornberry and Emma Carney, who were both pursuing a Bachelor of Paramedicine (Honours) degree with Integrated Honours. Both Honours students collected and collated the data, completed the primary and secondary data analysis, and interpreted the results and findings. Phoebe and Emma also carried out all of the research tasks required for them to be able to write their Honours thesis. Natalia Bilton (Senior Lecturer) was the lead Honours supervisor and editor for this project, assisting the researchers in completing their dissertations. Robert Bear (Lecturer and researcher in Paramedicine) was the secondary Honours supervisor and additional editor for the dissertations and assisted in designing and organising the WPL opportunity for undergraduate paramedic students to participate. Dean Bilton (Nurse Unit Manager of Port Macquarie Base Hospital Mental Health Inpatient Unit) established and assisted in organising the WPL opportunity.

Researchers collaborated with the nursing unit manager (NUM) to design and create the placement, which allowed participants to complete 42.5 h of their required 90 first-year community placement hours in the unit at the Port Macquarie Base Hospital.

The placement was approved by senior hospital managers and developed in “*ClinConnect*”, which is New South Wales (NSW) Health’s web-based student clinical placement booking and management system. Twelve individual student places were made available, and expressions of interest (EOIs) were called for from students enrolled in the CSU subject CLS103 (Paramedic Community Internship). Fifteen EOIs were received by the subject convenor (thirteen from the Port Macquarie campus and two from the Bathurst campus), and the twelve students were selected based on a combination of availability for the proposed roster and eligibility per the NSW Health’s student placement compliance criteria.

The twelve selected students were notified by the subject convenor and booked five 8.5-hour shifts in *ClinConnect* by a CSU Faculty of Science WPL administration assistant. Students received their rosters in *ClinConnect* and attended their shifts accordingly where they were each provided with a ward induction before the commencement of their first shift. Of the twelve selected and rostered students, eight attended and completed the placement with four withdrawals before commencement for various reasons, such as illness and withdrawal from the relevant subject. During the placement, paramedic students shadowed and observed mental health nurses during their rostered shifts, assisting with the care of the patients.

The pilot WPL designed for this research project was novel in design because it involved the placement of undergraduate paramedic students within an inpatient mental health unit. This presented a non-traditional and innovative learning environment for these students and one that had previously not been investigated or evaluated within the field of undergraduate paramedicine research.

### Aim

The aim of this study was to evaluate a mental health placement for undergraduate paramedic students. The evaluation in this study will focus on the perspective of the student.

### Design

Mixed methods involves integrating both qualitative and quantitative data in a research study [18]. From the perspective of Creswell and Plano Clark (2010), this study falls under the convergent parallel mixed methods because the researchers merged the quantitative and qualitative data to provide a comprehensive picture of the student experience and where the data was collected at roughly the same time [18].

The participants in this study were the students who had completed their placement hours at the Mental Health Inpatient Unit, who had completed the subject

(CLS103 Paramedic Community Internship) and who had accepted our invitation to participate. The sampling method used was convenience sampling because this type of sampling is commonly used in pilot studies [19]. All eight students who undertook the WPL opportunity at the mental health unit were invited to participate in this study, and a total of seven participants completed the survey, which represents a response rate of 87.5%.

A pre-published questionnaire based on the work of Penman and Oliver was selected for utilisation in this research [3]. This instrument has previously been found to be beneficial for nursing students and was therefore deemed appropriate for use in this study. The Clinical Placement Evaluation Questionnaire was designed to identify learning opportunities during a clinical placement to promote the development of strategies to improve clinical skills and is used as an evaluation tool for clinical placements [20].

The survey instrument consisted of twelve quantitative questions utilising a Likert-type scale. The measurement scale included a range of responses from one to five. One represented strongly disagree, and five represented strongly agree. The middle three numbers allowed for neutral responses to be provided. The survey instrument also included two qualitative questions that allowed participants to provide open-ended responses. To date, there seems to be no available information regarding the validity or reliability of this particular survey.

An initial invitation was emailed to the eight students who participated in the mental health placement. Once this invitation was accepted, each participant was emailed a participant information letter that contained a survey link, which provided a brief outline of the purpose of the research concerning the evaluation of the placement experience and analysis of potential benefits and value for paramedic student education. Informed consent to participate was obtained from all of the students that participated in this study. The researchers involved in the project had their names removed from the participant information letter and survey to negate any potential ethical issues regarding coercion and any possible effects from perceivable power imbalances.

Participants were directed to an external third-party survey site to provide their responses. Students were informed that by beginning the survey, they were giving their consent to participate in the study and for their responses to be analysed and used for research purposes. Following the completion of the questionnaire, the participants were thanked for their time and contribution to the research study. Demographic information and other personal identifiers were not collected from the students to ensure that participant confidentiality was maintained. In addition, the data was deidentified before it was provided to the researchers for analysis.

The primary analysis of the quantitative data involved descriptive statistical techniques utilising frequencies. To analyse the responses, the frequency of answers was calculated, and the mode and median for each question were identified, with trends being determined for each question [21].

The qualitative data were evaluated using thematic analysis via the method of Braun and Clarke, which allows researchers to identify common themes, ideas and topics from student responses. This method involves reviewing the data to identify common themes and applying the appropriate codes, allowing a concept map to be established for presentation [22]. Furthermore, triangulation and a convergence coding matrix were utilised to highlight the correlation between the quantitative and qualitative datasets, thereby increasing the validity and reliability of the results. This **methods** section was written to conform to the SQUIRE. EDU Guidelines [23].

## Results

### The quantitative data

The data presented in the following section are ordinal. These data were obtained from the Likert-type survey used in this study. Unlike traditional Likert scales where all items are summed to obtain an aggregate score, on a Likert-type scale, individual items are analysed independently. Table 2 shows how the students responded to each of the survey items. The median and mode are the most appropriate measures of central tendency for Likert-type data [21].

### The qualitative data

A thematic analysis was used to analyse the qualitative data in this study. Thematic analysis is a relevant and appropriate method for the analysis of qualitative data that identifies, analyses and summarises common themes

within datasets [5]. Due to the mixed-method design of this study, triangulation was incorporated to compare and contrast both data sets to identify links between the quantitative and qualitative data following separate analyses of each. This method allowed a deeper understanding of the research question to be gained [24],

The qualitative data collected from the instrument were gathered and subsequently de-identified. The researcher then reviewed the data to become thoroughly familiar with the dataset. During this familiarization process, any notable findings were identified, highlighted, and documented as potential themes and patterns. This iterative examination of the data continued until the researcher achieved both familiarization and theme saturation. Following this, the data were systematically coded. The collation of all potential codes from the qualitative data resulted in the identification of four central themes. These themes and codes were reviewed and organized to create a mind map that illustrates the relationships between the themes. A visual representation of the thematic analysis is provided in Fig. 1. This mind map was instrumental in defining and discussing the four central themes, which are elaborated upon below.

### Central theme one. Benefits

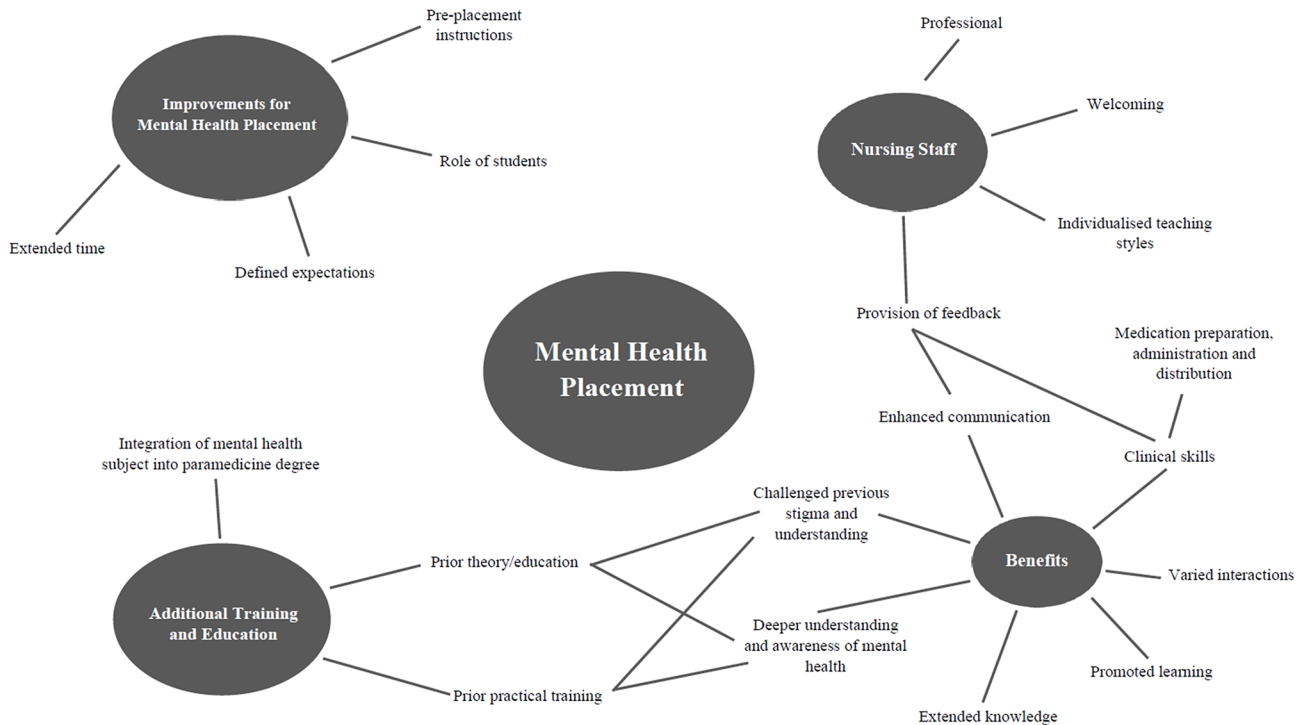
A range of beneficial aspects were revealed in the qualitative data. Participants stated that the mental health placement was a great learning opportunity, allowing students to expand their skills and literacy through experience with mental health patients and mental illness. This is evident in the following illustrative examples:

Participant 1

*It was enlightening to my knowledge and experience with mental health as I had little beforehand.*

**Table 2** The percentage of responses to each of the items in the survey

Survey Item	Percentage of Responses (%)				
	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1 Overall, the clinical placement was a pleasant learning experience.	100	0	0	0	0
2 I felt well prepared for the placement.	43	43	14	0	0
3 I met my objectives to my satisfaction.	86	14	0	0	0
4 The placement assisted my learning.	100	0	0	0	0
5 The placement enhanced my clinical skills.	72	14	0	14	0
6 This placement was supportive of my professional growth.	86	14	0	0	0
7 There was adequate orientation provided.	58	42	0	0	0
8 I was expected by the venue.	72	14	14	0	0
9 The staff members were very willing and available to assist my learning.	72	28	0	0	0
10 As a result of my experience, I felt confident working in this venue.	86	14	0	0	0
11 There were many learning opportunities for me in this venue.	72	28	0	0	0
12 The clinical experience would benefit other students.	86	14	0	0	0



**Fig. 1** Mind map that emerged as a result of the thematic analysis

*I also enjoyed talking and conversing with the patients and understanding their situations and background....*

**Participant 3**

*I didn't realise how much stigma I had subconsciously attached to the label 'Mentally Ill'. Being able to interact with patients of varying ages, different genders, nationalities, and levels of wealth showed just how non-discriminatory mental illness is.*

**Participant 4**

*I was exposed to a range of mental health issues, and it really raised my awareness of mental health....  
...gave me an understanding of the patients' perception of their illness.*

Participants unanimously highlighted the significant benefits of their placement experience in enhancing their understanding of mental health. They reported that the placement provided valuable learning opportunities, increased their awareness of mental health issues, and helped them confront personal biases and stigmas associated with mental illness. Participants appreciated the

chance to interact with a diverse range of patients, which broadened their perspectives on mental health's non-discriminatory nature. Additionally, the placement was seen as essential for developing practical skills in patient interaction and care, including understanding the sociocultural impacts on mental health. Overall, the placement was considered an enriching experience that contributed positively to their professional growth and preparedness as paramedics.

**Central theme two. Additional training and education**

The participants reported that practical training or education on mental health prior to placement may have assisted in improving preparedness and confidence for participation in the placement and therefore in turn, enhance learning opportunities. This is demonstrated with the following illustrative examples:

**Participant 3**

*I believe that having a theoretical component to accompany this practical placement would greatly improve the experience.*

*I believe this placement would be improved by a corresponding course provided to students, whether that be in the form of having to complete a Mental Health Certificate or a specified class incorporated into the degree for Paramedicine.*

## Participant 4

*I think some prior learning into mental health as a subject in the course would have been beneficial to be informed and put knowledge into practice....*

Participants expressed a desire for more comprehensive education and training on mental health before undertaking their placement. They suggested that having a theoretical foundation or formal coursework on mental health would enhance the practical experience. Specifically, participants felt that undertaking a dedicated class or subject within the paramedicine curriculum before participating in this experience would better prepare them for the realities of working with patients experiencing mental health issues. Overall, participants believed that additional training and educational components would allow them to apply theoretical knowledge more effectively in their placements, thereby improving their competency and confidence in managing mental health situations.

**Central theme three. Nursing staff**

The participants reported how the nursing staff positively contributed to the learning experience. The participants responses have additionally demonstrated the benefits of interprofessional learning environments for paramedics outside of those traditionally considered appropriate. This is evidenced by the following illustrative examples:

## Participant 3

*The staff were all extremely professional and welcoming. Each individual had their own way of teaching and explaining the job they do.*

## Participant 4

*Nurses were able to answer any questions.... Happy to explain the issues that affected some patients, and they were happy to explain any medications and how they helped the patient.*

## Participant 5

*Being under the supervision of nurses that were qualified and know what they were doing was great. Provided feedback on how I interacted with them [patients].*

Participants consistently highlighted the positive impact of the nursing staff during their placement. The nursing staff were described as professional, welcoming, and accommodating of paramedic student involvement,

creating an encouraging and safe learning environment. Participants appreciated that the nurses were knowledgeable and willing to answer questions, explain patient conditions, and discuss the effects of various medications. The staff's diverse teaching methods and feedback on patient interactions further enhanced the learning experience for students.

This positive engagement with nursing staff significantly contributed to interprofessional learning between the nurses and paramedic students. Through direct supervision and collaboration with nurses, the paramedic students gained a deeper understanding of the nursing perspective on patient care, including the management of medications and patient conditions. This exposure to the nursing role in healthcare allowed paramedic students to foster respect and communication between the professions. It is evident that by observing and participating in interdisciplinary teamwork, students learn to appreciate the value of different healthcare roles, which is crucial for effective collaboration in real-world healthcare settings. These interactions stand to promote a more integrated approach to patient care, enhancing the quality and effectiveness of healthcare delivery.

**Central theme four. Improvements in mental health placement**

The students highlighted areas where specialty placements such as this could be improved to enhance the learning that could be gained from such an experience in future. Interestingly students highlighted that extending the duration of the mental health placement beyond the week would have allowed them to further develop their clinical and communication skills with mental health patients, thereby increasing confidence and comfort levels. These aspects are apparent with the following illustrative examples:

## Participant 4

*I think I would have felt more prepared for this placement if there was some pre-placement expectations.... I think the nurses should have been given a better idea of what was expected of us and expected of them.*

## Participant 5

*...I feel like with more time spent at the placement I could really become better with interacting patients.*

## Participant 6

*...a more defined role of task set for future students so as not to have too much disruption....*

*...be delivered with better pre-placement instructions about arriving on ward, where to go, what to do, etc.*

Participants suggested several areas for improvement in the mental health placement to enhance the overall experience and learning outcomes. They felt that having clear pre-placement expectations would help them feel more prepared and reduce uncertainty about their roles and responsibilities. Participants also indicated that providing nursing staff with a better understanding of what is expected from both the students and the staff would improve coordination and foster a more effective learning environment. Additionally, there was a desire for more structured placement time, which could enhance students' ability to interact with patients and develop their skills. Participants also suggested having a more defined set of tasks and roles for students to minimize disruptions and ensure that everyone involved understands their responsibilities. Better pre-placement instructions regarding logistical details, such as where to go and what to do upon arrival, were also recommended to help students acclimate quickly and focus on learning.

Incorporating these improvements into further opportunities such as this would lead to a more structured and effective placement experience, fostering a supportive environment for students and staff alike. By clearly defining roles, responsibilities, and expectations, both students and nurses can collaborate more effectively, fostering stronger interprofessional relationships and ultimately enhancing the quality of mental health care. This improvement benefits not only the patients within the placement environment but also extends to those whom these paramedic students will care for in their future professional roles.

## Discussion

The aim of this study was to evaluate a pilot placement in a mental health unit for undergraduate paramedic students. The results showed that this educational innovation was effective and that it had the potential to improve and benefit both the students and the community. Participants reported that this experience and exposure to mental health patients allowed them to develop communication and clinical skills as well as deepen their knowledge and understanding of mental illness. Furthermore, the results suggested that previous negative stigma and attitudes toward mental health patients were challenging. Additionally, participants stated that the nursing staff were professional, welcoming, had individualised teaching styles and provided sufficient feedback, which in turn encouraged learning and assisted in clinical and professional development.

## Triangulation of quantitative and qualitative data

As a means of emphasising the connections and correlation between the quantitative and qualitative datasets, triangulation and, more specifically, a convergence coding matrix were utilised to achieve this. Triangulation is a well-established and reputable process that allows researchers to explore convergence, complementarity and dissonance between quantitative and qualitative datasets [25]. The development of a convergence coding matrix involved listing findings from each component on a page and determining whether they agreed, offered complementary information, or contradicted each other, thereby highlighting the interactions between the quantitative and qualitative datasets. This comparison and comparison of quantitative and qualitative data increases the credibility and dependability of the results and validates the research questions [24, 26]. The convergence coding matrix is shown in Table 3.

Table 3 shows the list of identified themes and sub-themes gathered from the qualitative data, as well as specific percentages attained from the quantitative data. The two sets of results were analysed and found to exhibit both convergence and divergence when interpreted through the framework of the developed matrix [25].

Table 4 shows how the results of this study align with those of previously published work. This table shows that while the results of our study can be directly compared to those of other studies, in some cases, this direct comparison was not possible. This is because our study measured different data from those of other studies.

Table 4 Shows the study itself with its reference number, the study's major findings and the findings of this study. The text that is in bold is to help the reader directly compare both. This table shows that our findings directly align with 9 /11 of the studies listed. Our results did not align with one study and the patient's perspective was not measured. The studies that did not align with our results are shown in *italics*.

This study showed that the placement experience presented in this study has the capacity to improve student confidence, knowledge and understanding of mental health. This has a major impact on student learning. The study was conceived with the anticipation of its results presenting some evidence to inform and support the integration of mental health placement experiences into the Bachelor of Paramedicine degree at Charles Sturt University.

The findings of this study support the integration of mental health placement into the paramedic curriculum. Therefore, based on the evidence provided by this pilot, the faculty at Charles Sturt University pursued the integration of mental health care WPL experiences into the cohort as valuable experiences that can meaningfully

**Table 3** The results of the triangulation of the qualitative and quantitative data

Qualitative Themes	Qualitative Sub-Themes	Quantitative Questions	Convergence Assessment
Benefits	Enhanced Communication Clinical Skills Varied Interactions Promoted Learning Extended Knowledge Deeper Understanding and Awareness of Mental Health Challenged Previous Stigma and Understanding	Question 12 asked if this clinical experience would benefit other students, whereby 86% of participants strongly agreed and the remaining 14% agreeing.	Convergence
Nursing Staff	Professional Welcoming Individualised Teaching Styles Provision of Feedback	Question 9 asked if staff members were available and willing to assist in student learning, whereby 72% of participants strongly agreed and 28% agreed.	Convergence
Improvements for Mental Health Placement	Pre-placement Instructions Role of Students	Question 7 asked whether there was adequate orientation provided, whereby 58% strongly agreed and 42% agreed.	Dissonance
	Defined Expectations Extended Time	Question 8 asked whether they were expected by the venue, whereby 72% strongly agreed, 14% agreed and 14% neither agreed nor disagreed	Partial Convergence
Additional Training and Education	Prior Practical Training Prior theory/education Integration of Mental Health Subject into Paramedicine Degree	There were no questions related to this in the survey that was used in this study.	Not applicable

contribute to increased mental health literacy and skills for paramedic students.

Charles Sturt undergraduate paramedic students now participate in mental health WPL experiences for a minimum of two weeks during their degree, with the option to spend up to four weeks in these settings. These placements occur in either the second or third year of the program and occur in environments such as community outreach teams working alongside mental health nurses, within inpatient facilities and intake centers.

These placements provide students with learning opportunities in psychosocial health care, patient-centered and shared care health models, enhanced communication skills, non-invasive approaches to healthcare and referral services and complete health education. Together, these learning opportunities challenge any preconceived bias or stigmas the students may have held toward this patient population prior to engaging in these placements.

This research provides evidence that mental health placements for paramedics hold meaningful educational value. By incorporating this placement experience into the paramedic curriculum, paramedic students may be provided with a higher standard of education. This could assist students in providing safer and thus more effective care when entering the workforce. The potential result of this is that mental health patient outcomes improve. An additional potential benefit of this type of educational intervention could be the enhanced capacity of students

to recognise and manage their own personal mental health and wellbeing. By being exposed to and developing greater knowledge surrounding mental health issues, students will hopefully gain stronger insight into their own mental health. This approach will in turn better prepare them to more adequately address personal mental health issues safely and effectively. As the prevalence of mental health issues within the paramedic profession is high, this approach could prove to be extremely beneficial to future paramedics [3].

A further benefit of this research is the possibility of minimising the risk to paramedics. If paramedic students can participate in educational interventions that provide a higher level of knowledge surrounding the management of mental health patients (improving their mental health literacy), they will have the ability to adopt a more effective and safer approach to mental health when entering the workforce. Interventions such as these could improve risk mitigation and de-escalation skills through enhanced learning and exposure to mental health patients, although further research is needed to confirm this phenomenon.

A further benefit mental health placements could have, although not focused on in this study, is the impact these types of placements could have on improving some of the negative stigmas surrounding mental health, particularly those held by paramedic students. While this study does not discuss this topic, there is a body of literature demonstrating how medical students undertaking mental health placements experience reduced levels of stigma



**Table 4** The direct comparison of findings from previous studies to that of this study

Year	Author	Findings of studies in the literature	The Findings of this study
2014	Bharathy and Foo [9]	Following involvement in a social interaction program with psychiatric patients, it was emphasised that students had <b>reduced stigma towards mental illness</b> and <b>reduced apprehension in communicating with mental health patients</b> .	As a result of participating in the mental health placement, it was highlighted that paramedic students noted that <b>previously held stigmas were challenged</b> . Furthermore, students demonstrated a <b>deeper understanding of mental illness</b> and therefore, <b>improvement in communication skills with mental health patients</b> .
2014	Yidong, Huixi, Xiaoduo, Zhanchou, Lehua, Hailong, Zhimin and Xiaofeng <sup>12</sup>	Following the comparison of questionnaire results prior to and following a psychiatry placement experience, medical students stated that they experienced <b>deepened understanding and knowledge of mental illness</b> , as well as <b>enhanced attitudes towards mental health patients</b> .	Paramedic students who participated in the mental health placement displayed a <b>more thorough knowledge and understanding of mental illness, as well as improvements in their approach to mental health patients</b> . With this in mind, this study did not examine student knowledge, understanding and attitudes prior to participation in the mental health placement.
2017	Chiles, Stefanovics and Rosenheck [8]	<i>This study found that there was no evidence that a mental health placement experience improved attitudes towards mental health.</i>	<i>The results of this study showed that the students found the experience beneficial and positive experience.</i>
2017	Delbridge, Zubatsky and Fowler [14]	After exposure to mental health patients through a training program, it was illustrated that medical students were able to <b>develop their critical thinking abilities which in turn improved their clinical skills and understanding of mental illness</b> .	Paramedic students had exposure to a variety of different mental health patients throughout the placement, allowing them to <b>develop and refine their communication, clinical assessment and skill set relating to mental health patients</b> .
2017	Martinez, Fargason and Meador-Woodruff Murzl, Durns, Mowrey, Tubbs and Boeve [13]	Following exposure to psychiatric patients as part of a placement experience staffed by medical students, participants reported that they were <b>more enthusiastic and willing to volunteer for this experience</b> . Similarly, it was reflected that a psychiatric placement experience <b>encouraged students to feel comfortable and confident around these patients</b> .	Paramedic students reported <b>enhanced confidence, comfort levels and resilience</b> after participation in the mental health placement, as well as <b>notable improvements in knowledge, communication and clinical skills relating to mental health patients</b> .
2018	Mian, Chachar, Saeed and Naseem [15]	Through the integration of a variety of teaching methods for the mental health curriculum, medical students reported an <b>enhanced engagement and ability to implement clinical skills</b> .	Following participation in the mental health placement, it was highlighted that paramedic students reported <b>improvements in communication, knowledge and clinical skills</b> .
2018	Russell, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith [10]	Through participation in a consultation psychiatry service, medical students reported a <b>significant change in attitudes towards mental health, an increase in knowledge and an improvement in previously held stigma and attitudes surrounding mental illness</b> .	It was evident that through participation in the mental health placement, paramedic students experienced <b>enhanced knowledge and understanding of mental health</b> , leading to <b>improvements in attitude and stigma relating to mental illness</b> .
2018	Petkari, Masedo Gutierrez, Xavier and Moreno Küstner [11]	Students from medicine, nursing and occupational therapy backgrounds revealed an <b>increased understanding</b> and a <b>reduced incidence of previously held negative stigma</b> following participation in a mental health placement.	It was demonstrated that paramedic students reported <b>less incidence of negative stigma</b> and <b>enhanced understanding of mental illness</b> as a result of the placement experience.
2018	Dearman, Joiner, Gordon and Vince [27]	<i>From a mental health patient's perspective, it was demonstrated that there was significant value, comfort, enjoyment and willingness to interact with medical students.</i>	<i>No data was collected on the patient's perspective of this placement in this study.</i>
2019	Attoe, Lavelle, Sherwali, Rimes and Jabur [16]	Following participation in mental health simulations, medical students stated that they noted <b>improvements in resilience, confidence, communication and clinical skills</b> , as well as an <b>enhanced ability to work efficiently alongside other health professionals</b> .	Through engagement in the mental health placement, it was illustrated that paramedic students experienced <b>improvements in understanding and awareness of mental illness, confidence in communicating with mental health patients and enhanced their ability to work effectively with nursing staff</b> .
2019	Marwood and Hearn [17]	Following participation in a <b>Mental Health Literacy</b> survey, it was demonstrated that medical students <b>scored higher</b> for those who had prior experiences with mental health patient.	Although the mental health placement didn't specifically examine mental health literacy of paramedic students, it was clear that this experience <b>promoted students' learning and extended their knowledge of mental health</b> .

concerning mental health upon completion of mental health placements [27]. It is speculated here that this benefit would also most likely translate similarly to the paramedic profession.

Dearman, Joiner, Gordon and Vince (2018) explored the interactions between mental health patients and medical students, intending to establish whether these interactions were positive or negative from the patient's perspective [27]. This systematic review included all studies that reported on patients with a mental illness who interacted with medical students, had a primary diagnosis of mental illness and involved students who did not have any prior training. Two different databases were searched, resulting in 11,103 potential articles, which were narrowed down to eight articles that were examined in the study. These articles included 1088 patients from five different countries. This research revealed that patients experienced significant value, comfort and enjoyment when interacting with students on placement. Mental health patients disagreed with the notion of being talked down to and stated that they would be willing to interact with medical students in the future. Participants stated that they felt more involved in their care and reported enhanced self-esteem and a facilitator of learning. This evidence suggests that there are also benefits associated with mental health placements from the patient's perspective. The patient's perspective is one area that has not yet been explored with regards to paramedic mental health placements. This presents a very exciting opportunity for more research.

The main limitation of this study is the small sample size of participating students. Due to this being a pilot placement initiative and the extensive liaison time required to establish the clinical placement, only a limited number of student places were made available in the first offering. The placement experience that was evaluated for the purposes of this study was only available at one inpatient mental health unit in Port Macquarie, NSW, Australia.

The survey instrument used in this study has been found to be an effective tool for assessing nursing students but was not specifically designed for paramedic placement evaluations. A further limitation of this tool was that it contains only a limited range of questions, which restricts the amount of data available for analysis. A further limitation of this tool is the lack of reliability and validity available for this instrument.

The development of a survey instrument that is specific to both paramedic students and a mental health placement would be extremely beneficial for evaluating the success of future placements. One since this study was conducted has been developed [28]. Further studies could be done using this new tool to determine if those results align with that found here. Additional studies could also

be conducted to assess paramedic students' knowledge before and after participation in a mental health placement. This mental health placement could, in theory, sit alongside a mental health subject in the curriculum of the undergraduate paramedic degree.

To continuously improve the placement experience, the placement itself could also be reorganised to include an induction and supply students with further information and set clear learning objectives. This initial pilot placement was arranged within a limited timeframe, which resulted in students feeling that they were not provided with sufficient information or adequate orientation.

An additional research gap that was identified by this study was the paucity of research surrounding the assessment of stigmas held by paramedic students toward and surrounding mental health. Although mental health placements have been shown to reduce and improve stigma toward and associated with mental health held by medical students, the questions included and analysed in this research study did not involve specific questions regarding stigma.

## Conclusions

The aim of this study was to evaluate a pilot placement in a mental health unit for undergraduate paramedic students. The results clearly demonstrated that this novel placement experience was an overwhelmingly positive learning experience for the students. The learnings that the students took away from this experience were powerful, of high educational value and challenged previously held views about mental health. The importance of this study is further exemplified in its consequences. As a direct result of this pilot, mental health placements are now permanently part of the curriculum. Even in light of the limitations of this study, we feel that it demonstrates how thinking outside the box, and trying something new, can potentially be a unique and valuable learning experience.

### Author contributions

EC, PT, RB and NB were all involved in gaining ethics approval, data collection, data analysis and writing of this manuscript. DB was involved in setting up the placement and editing this manuscript. All authors reviewed the manuscript.

### Funding

This study did not receive any funding.

### Data availability

The dataset used and analysed during the current study are available from the corresponding author on reasonable request.

## Declarations

### Ethics approval

This study was approved by the Charles Sturt University Human Research Ethics Committee (approval number H18262). The datasets used and / or analysed during the current study are available from the corresponding author on reasonable request. The authors declare that they have no

competing interests. EC, PT, RB and NB were all involved in gaining ethics approval, data collection, data analysis and writing of this manuscript. DB was involved in setting up the placement and editing this manuscript. The authors received no financial support for the research, authorship, and/or publication of this article.

#### Consent to participate

All of the students in this study gave their consent to participate and participate and for their responses to be analysed and used for research purposes.

#### Competing interests

The authors declare no competing interests.

#### Clinical trial number

This study is not a clinical trial and thus does not have a clinical trial number.

Received: 6 June 2024 / Accepted: 18 September 2024

Published online: 27 September 2024

#### References

- Government A. *The Australian Government's National Mental Health and Suicide Prevention Plan*. 2021.
- Hungerford C, Hodgson D, Clancy R, et al. *Mental Health Care: an introduction for Health professionals in Australia*. Brisbane, Queensland: Wiley Australia; 2014.
- Mildenhall J. Occupational stress, paramedic informal coping strategies: a review of the literature. *J Paramedic Pract*. 2012;4:318–28.
- Roberts L, Henderson J. Paramedic perceptions of their role, education, training and working relationships when attending cases of mental illness. *J Emerg Prim Health*. 2009;7. <https://doi.org/10.33151/ajp.7.3.175>.
- Ford-Jones PC, Daly T. Paramedicine and mental health: a qualitative analysis of limitations to education and practice in Ontario. *J Mental Health Train Educ Pract*. 2020;15:331–45. <https://doi.org/10.1108/JMHTEP-05-2020-0031>.
- Smith R, Parent A, Townsend R et al. Mental Health Education in Australian Paramedic Curriculum: A scoping review. In: *ANZCP Paramedic Research Symposium* Monash University, 2019.
- Holmes L, Jones R, Brightwell R, et al. Student Paramedic Anticipation, confidence and fears: do undergraduate courses prepare student paramedics for the Mental Health challenges of the Profession? *Australasian J Paramedicine*. 2017;14:1–12. <https://doi.org/10.33151/ajp.14.4.545>.
- Chiles C, Stefanovics E, Rosenheck R. Attitudes of students at a US Medical School toward Mental Illness and its causes. *Acad Psychiatry*. 2017;41:320–5. <https://doi.org/10.1007/s40596-016-0508-0>. 2016/03/10.
- Bharathy A, Foo PL. Medical students' experiences of participation in a Non-governmental Organization Based Social Interaction Program for people with Mental Illness and their carers: a qualitative study. *Med Educ*. 2014;48:36–36. Article.
- Russell V, Clarke MC, Loo CE, et al. Medical student perceptions of the Value of Learning Psychiatry in Primary Care settings in Penang, Malaysia. *Acad Psychiatry*. 2018;43:157–66.
- Petkari E, Masedo Gutiérrez Al, Xavier M, et al. The influence of clerkship on students' stigma towards mental illness: a meta-analysis. *Med Educ*. 2018;52:694–704. 2018/03/03.
- Shen Y, Dong H, Fan X, et al. What can the medical education do for eliminating stigma and discrimination associated with mental illness among future doctors? Effect of clerkship training on Chinese students' attitudes. *Int J Psychiatry Med*. 2014;47:241–54. 2014/08/03.
- Martinez JTC Jr, Fargason RE, Meador-Woodruff JH. Pre-clinical medical students as the primary longitudinal provider of Psychiatric Care in the outpatient setting: a novel training model. *Acad Psychiatry*. 2017;41:538–41. 2017/02/02.
- Delbridge E, Zubatsky M, Fowler J. Integrating mental health professionals in residencies to reduce health disparities. *Int J Psychiatry Med*. 2017;52:286–97. <https://doi.org/10.1177/0091217417730293>. 2017/09/13.
- Mian A, Chachar A, Saeed H, et al. Mental health curriculum for Pakistan: integrating virtual, classroom and onsite training. *Med Educ*. 2018;52:1201–2. 2018/10/23.
- Attoe C, Lavelle M, Sherwali S, et al. Student interprofessional mental health simulation (SIMHS): evaluating the impact on medical and nursing students, and clinical psychology trainees. *J Mental Health Train Educ Pract*. 2019;14:46–58. <https://doi.org/10.1108/JMHTEP-06-2018-0037>.
- Marwood MR, Hearn JH. Evaluating mental health literacy in medical students in the United Kingdom. *J Mental Health Train Educ Pract*. 2019;14:339–47. <https://doi.org/10.1108/JMHTEP-01-2019-0001>.
- Creswell JW, Plano Clark VL. *Designing and conducting mixed methods research*. 2nd ed. ed. Los Angeles: SAGE Publications Los Angeles; 2011.
- Bhardwaj P. Types of sampling in research. *J Pract Cardiovasc Sci*. 2019;5:157. [https://doi.org/10.4103/jpcs.jpcs\\_62\\_19](https://doi.org/10.4103/jpcs.jpcs_62_19).
- Penman J, Oliver M. Meeting the challenges of assessing clinical placement venues in a bachelor of nursing program. *J Univ Teach Learn Pract*. 2004;1:15–29. <https://doi.org/10.53761/1.1.2.3>.
- Boone HN, Boone DA. *Analyzing Likert Data*. *J Ext*. 2012;50:1–5.
- Clarke V, Braun V. *Successful Qualitative Research: A Practical Guide for Beginners*. 2013.
- Ogrinc G, Armstrong GE, Dolansky MA et al. SQUIRE-EDU (standards for Quality Improvement Reporting Excellence in Education): publication guidelines for Educational Improvement. *Acad Med* 2019; 94.
- Creswell JW. *Research Design: qualitative, quantitative and mixed methods approaches*. 4th ed. Thousand Oaks, CA: Sage; 2014.
- O' Cathain A, Murphy E, Nicholl J. Three techniques for integrating data in mixed methods studies. *BMJ*. 2010;341:c4587. <https://doi.org/10.1136/bmj.c4587>.
- Farmer T, Robinson K, Elliott SJ, et al. Developing and implementing a triangulation protocol for qualitative health research. *Qual Health Res*. 2006;16:377–94. <https://doi.org/10.1177/1049732305285708>. 2006/02/02.
- Dearman SP, Joiner AB, Gordon M, et al. Experiences of patients with Mental Illness' interactions with medical students: a systematic review. *Can J Psychiatry*. 2018;63:4–11. 2017/12/06.
- Ebbs P, Gonzalez P, Miller T. Interdisciplinary work integrated learning: a pilot evaluation instrument. *J Paramedic Pract*. 2019;11:348–58. <https://doi.org/10.12968/jpar.2019.11.8.348>.

#### Publisher's note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.