



**Charles Sturt
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This dissertation is submitted to Charles Sturt University
for the Bachelor of Paramedicine (Honours)

**Paramedic undergraduate mental health clinical
placement: Does it help prepare for practice?**

Phoebe Thornberry 11627077
Bachelor of Paramedicine (Honours)

School of Biomedical Sciences
Faculty of Science
Charles Sturt University

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Statement of authorship & readiness for examination

I, the student, hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at Charles Sturt University or any other educational institution, except where due acknowledgement is made in the thesis.

Any contribution made to the research by colleagues with whom I have worked at Charles Sturt University or elsewhere during my candidature is fully acknowledged.

I, the student, confirm that my principal supervisor agrees that this dissertation is ready for examination.

Student's name: Phoebe Thornberry

Date: 29/01/2021

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Ethics approval

This study was approved by the Charles Sturt University Human Research Ethics Committee. The ethics project approval number is H18262.

Key ethics-related documentation, including the participant information sheet, the ethics approval letter and the ethics amendment application can be viewed as appendices.

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Definition of key terms

For the purpose of this dissertation, the following words and phrases are defined.

- *Undergraduate* – A student studying their first degree within a specific discipline at a university.
- *Paramedic* – A medically trained professional offering emergency health care to people out of hospital.
- *Prehospital* – A patient setting/environment in which patient's receive medical treatment before arriving at hospital.
- *Mental health* – A state of health related to one's mental/psychological well-being.
- *Mental illness* – Any condition or disease affecting thought, mood and behaviour.
- *Placement* – A temporary period where a student is placed within a work environment related to their degree or profession to gain experience under the supervision of trained professionals.
- *Inpatient mental health unit* – A facility/ward providing acute mental health care on both voluntary and in-voluntary basis for patients to receive treatments and recover.

Chapter 1: Article title and abstract

Paramedic undergraduate mental health clinical placement: Does it help prepare for practice?

Abstract

Introduction

This is an explorative and evaluative quantitative study that assesses the educational value of paramedic students participating in a mental health placement initiative. This study was conducted to determine if a mental health placement should be integrated into the Paramedicine degree at Charles Sturt University. This was with the aim of equipping future paramedics with a higher standard of mental health literacy and education that can be translated into practice. Current literature supports the need for further mental health education in the paramedicine field, although a significant gap exists in the research regarding whether specific mental health work-integrated learning placement experiences would be effective in achieving this. As the prevalence of mental health presentations in the community rises, this study aims to address this gap and provide evidence of a way to address the growing need for skill acquisition in this field for paramedics.

Methods

Eight paramedic students completed a pilot placement in an inpatient mental health unit as a part of their Paramedic Non-Emergency Community Internship hours. Following this experience, students were invited via email to participate in an online questionnaire relating to their experience. The survey was a validated and pre-published clinical placement assessment questionnaire that collects Likert-type scale responses. Data collected focused on the student's educational experiences and was reviewed and analysed to determine the effectiveness and educational value of the placement.

Results

Seven out of the eight students that attended the placement responded to the survey giving a response rate of 87.5%. Primary data analysis was initially conducted. Measures of central tendency were calculated by finding both the mode and the median for each question. Frequencies were then found to measure the variability and distribution of the data. Secondary statistical analysis was then conducted to determine if there was a correlation between responses to questions. The results demonstrated an overwhelmingly positive student response toward the placement, supporting the hypothesis that the initiative was a positive experience for students.

Discussion/Conclusion

When reflecting on this study, and comparing and contrasting the results with the literature, multiple positive conclusions were drawn. The placement was found to enhance the professional growth of students and develop industry readiness. Furthermore, not only was student confidence in the field of mental health found to improve, but their clinical skills were also enhanced. The evaluation of the placement was overwhelmingly positive with definite educational value identified for participating students. The results of this study, therefore, demonstrate and support the benefits of integrating a specific mental health placement into the paramedicine degree. This study has also demonstrated further positive implications which could be translated into the field of paramedicine and paramedic education.

Chapter 2: Introduction

This chapter provides a brief outline of the study. All key terms and concepts are defined and clarified. A clear rationale for the research is provided using a literature review. From this review, a gap in literature will be identified further supporting the study. The research aims are identified and all research questions clearly outlined. Finally, the academic value of addressing the research aims and questions are discussed.

Dissertation overview

The overall aim of this research project is to assess the educational value of a paramedic placement in an inpatient mental health unit. The results of the research will help determine the need to integrate a mental health-related placement experience into the Bachelor of Paramedicine at Charles Sturt University so paramedic students will gain a greater understanding and higher level of knowledge surrounding mental health. Previous studies have shown there is a significant gap in paramedic mental health education within undergraduate paramedicine degrees (Smith, Parent, Townsend & Johnston, 2020). An undergraduate paramedic placement could effectively prepare paramedic students to identify, understand and manage mental health patients in a prehospital setting by equipping them with the knowledge and experience required to deal with these complex patients. According to Holmes, Jones, Brightwell & Cohen (2017), practicing paramedics have expressed their concerns regarding the lack of education provided on managing mental health patients. As the prevalence of mental illness in the community is steadily increasing, it is crucial for this fundamental education to be incorporated into the paramedicine program for future paramedics (Australian Bureau of Statistics, 2018).

This research surveyed paramedicine students at Charles Sturt University who participated in a trial placement at an inpatient mental health unit as a part of their Paramedic Community Internship (CLS103) subject. It will provide information about the student's experience within their placement. Through the use of a quantitative survey, the effectiveness of the undergraduate mental health placement was evaluated to determine the educational benefit for students. Analysis of the survey responses using descriptive statistical techniques was conducted. To effectively answer all proposed research questions, frequencies were utilised to assess for common themes in survey responses. Only a small sample size was available for this research. However, given the success of this study, there is potential for a more comprehensive study involving a larger sample size to be undertaken in the future to further support these findings. The results of this research support the inclusion of mental health placements for not only Charles Sturt University, but for all tertiary institutions offering paramedicine education.

Current gap in the literature

The prevalence of mental and behavioural related illnesses in Australia has significantly increased between 2015 and 2018 (Australian Bureau of Statistics, 2018). Despite this alarming increase, paramedics feel that their training and education in the mental health field is not adequate in preparing them to manage and treat patients with mental health illnesses (Roberts & Henderson, 2009). A literature review was conducted to explore research associated with evaluating the benefits of paramedic students undertaking a mental health-focused placement throughout their training (the complete literature review can be found in Appendix 3). The initial research question for this study was *What is the value of a mental health placement for paramedic undergraduate students?* The review identified a significant gap in the research articles for the topic area. The question was therefore modified to *'What is the value of a mental health placement for medical undergraduate students?'* It should be noted that there is extensive literature present regarding medical students undertaking mental health placements. However, there is a notable paucity of research regarding whether mental health placements are both beneficial to and necessary in the education of paramedic students. Throughout the literature review, multiple themes relevant to the research question were identified.

When students participate in social interactions with mentally ill patients, it helps to reduce stigma and increase their understanding of the management of mental illness. Bharathy and Foo (2014) report on a qualitative study that evaluated the benefits of medical students participating in a social interaction program named 'Chat and Connect'. This program involved the students interacting with psychiatric patients in order to enhance their learning. 14 medical students participated in the study by attending and engaging in audiotaped group interviews alongside psychiatric patients and their carers with the help of a semi-structured interview guide. The interviews were then analysed to identify common themes. This study found that following the program, there was a distinct reduction in stigma held by the students towards mental health. Further, the study found that the students involved developed an increased understanding about the management of mental health patients. Additionally, apprehension levels towards working with psychiatric patients were found to reduce following exposure to the program. Petkari, Masedo, Xavier and Küstner (2018) also conducted a literature review to examine the stigma surrounding mental health by health care students. The review explored the student's experiences before and after their completion of a clerkship (placement). Studies were included only if they evaluated students before and after a placement experience where the students had interactions with mental health patients. This review utilised six different databases to locate 22 relevant studies. This body of literature involved 3161 students studying a combination of medicine, nursing and occupational therapy. The results showed

that there was a significant reduction in stigma in all professions towards mental health. The placements, therefore, demonstrated the benefit of a practical mental health experience. By incorporating a variety of professions into this research and not just limiting it to medical students, it can be deduced that practical mental health experience is beneficial for multiple professions and therefore it is reasonable to propose the same would be the case for paramedics.

A mental health placement opportunity for medical students not only assists in reducing stigma but can also improve attitudes towards mental illnesses through improving knowledge and skills. A study by Yidong, Huixi, Xiaoduo, Zhanchou, Lehua, Hailong, Zhimin and Xiaofeng (2014) was conducted to evaluate Chinese medical students' attitudes towards psychiatry and mental illness. The study was conducted before and after an eight-week psychiatry clerkship (placement) to examine changes in student attitudes. When commencing and finalising their clerkship, 325 medical students without any prior psychiatric training completed two different questionnaires. One survey assessed attitudes towards psychiatry and the other assessed attitudes towards mental health. Analysis of the results found that students scored significantly higher on both scales at the completion of the 8-week program. Higher scores on both questionnaires indicate a more positive attitude towards the focused topics, representing an improved attitude by students to both psychiatry and mental health. The data presented in this study highlights the importance of a practical experience to enhance education and understanding towards mental illness.

As mental health presentations are becoming more common in the medical field, it is important that mental health training is an integral part of medical education (Australian Bureau of Statistics, 2018). This training is vital to not only prepare students to manage mental health patients, but also to gain an understanding of mental illnesses and proper treatment/management options. Gulati, Das and Chavan (2014) reported on a cross-sectional study designed to compare and evaluate how psychiatry training can affect students and interns' attitudes towards mental illnesses. 1st and 2nd year medical students without any prior psychiatry experience and interns were administered a series of questionnaires. The questionnaires focused on areas such as psychological distress, attitudes towards mental illness, attitudes towards psychiatric patients and treatment, psychiatrists, psychiatric institutions, teaching, knowledge and career choice. The data showed that students felt that psychiatry should be modified into a compulsory subject for medical students as poor attendance rates to theory lectures was discovered. Reasoning behind this was the desire to create a better understanding of mental illnesses and to create more attentive students. It can therefore be concluded that practical experiences in psychiatry training impact not only knowledge on mental health, but attitudes towards the subject as well.

To adequately prepare students with the necessary knowledge and skills required to manage mental health patients, it is important to incorporate a variety of teaching and learning methods into their education, including practical experience. In order to ensure the enhanced learning of medical students, a report on the reconstruction of the psychiatry curriculum using the blended learning format by Mian, Chachar, Saeed and Naseem (2018) was conducted. The curriculum was reconstructed into 8 different modules, intending to engage students in a combination of learning methods. This included incorporating real-life patient encounters in clinics and wards. The new curriculum was received with high praise from participating medical students who found themselves more engaged in their learning experience. Additionally, the use of virtual learning was also found to be beneficial when incorporated into the medical student psychiatry clerkship. This report highlights the importance of practical experience for psychiatry education, in addition to the incorporation of multiple teaching and learning methods to enhance education.

Student immersion in practical mental health settings has resulted in the creation of student-run clinics and additional training programs. These programs have allowed students to develop an understanding in the field of psychiatry, preparing them for the workforce. Martinez, Fargason and Meador-Woodruff (2017) describe the use of a case report format of a student-run psychiatric training clinic. The purpose of the clinic was to expose medical students to mental health patients. The aim was to enhance the student's clinical skill sets, while also increasing their interest and improving attitudes towards psychiatry through a practical experience. Medical students were able to participate in the training program as early as their first year of study. Students were given the opportunity to interact with patients during consultations and have direct involvement in case reviews and clinical decision making by working alongside a qualified attending and resident. This study describes the increase in interest from participating students. However, no data is presented that relates directly to the effectiveness of the experience. The positive interest shown from students, however, may suggest the powerful impact that volunteering had on their education. Similarly, an article by Delbridge, Zubatsky & Fowler (2017) reports on the Medical Family Therapists Training Program that trains medical students in primary and integrated care settings to provide therapy. This program allows students to observe and participate in patient consultations and team meetings for patients with complex medical issues. According to this article, exposure to skills and techniques during training allows medical students to become better equipped and prepared to handle the complex mental health challenges of patients when entering the workforce. This encourages the notion that practical training is a necessary component to prepare and educate students in the mental health field.

Studies have discovered the educational benefit that working with mental health patients in a practical setting can have on a student's knowledge. Marwood and Hearn (2019) created a cross-sectional study that evaluated Mental Health Literacy (MHL) levels of medical students via the mental health literacy scale. An additional purpose of the study was to validate this measurement tool. An online survey that incorporated the MHL scale as well as a questionnaire regarding mental health experiences was completed by 251 medical students aged 18 years and over enrolled in undergraduate medical training. The results found that there was a steady increase in scores with each year of study completed. Additionally, MHL scores were significantly higher in students who had previously worked with patients with a mental illness. These results represent that there is a greater understanding of mental health in students who have had practical experience with mental health patients, further representing the benefits of a mental health placement.

Students who have participated in a mental health related placement have given an overall positive evaluation of their experience. Russel, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith (2018) utilised a mixed-method design to evaluate and determine if participation in a psychiatry clerkship by medical students offers any educational value. Fourth-year medical students participated in a consultation/liaison psychiatry clinical clerkship. The students were allocated the tasks of joining discussions with primary care clinicians, performing supervised clinical assessments, and administering a depression screening instrument. Students were required to develop a case report on the patients they interacted with that included diagnostic formulation and treatment recommendations. Following their placement experiences, students participated in focus groups to discuss their experiences and completed an anonymous online questionnaire. The focus group transcripts were reviewed using thematic analysis, and quantitative statistics were calculated from the questionnaire. Multiple themes emerged that demonstrated the added educational benefit that the psychiatry clinical clerkship had for medical students. Students reported higher levels of learning activity while on placement, how their professional identity had been positively shaped from the experience and additionally, how their personal stigma towards mental health has been modified. This study provides evidence that practical experience is an integral part of medical education.

Students with a history of interacting with mental health patients in a practical setting are found to be more comfortable in handling mental health situations. Murzl, Durns, Mowrey, Tubbs & Boeve (2017) reported on the creation of a student-run psychiatry clinic, pioneered by volunteer medical students with the assistance of fully qualified psychiatrists for supervising and consultation purposes. 96 medical students volunteered at the clinic, 47 of which completed an online survey regarding their experience. The results indicated that the comfort levels of students working with

patients with a mental illness increased following volunteering and exposure. 57% of students initially felt comfortable or very comfortable compared to the 79% of students who felt comfortable after volunteering. This demonstrates the importance of mental health exposure throughout education in order for students to develop confidence for future practice.

When considering the benefits of a mental health practical experience for students it is important to consider the patients participating in the placements. A systematic review by Dearman, Joiner, Gordon and Vince (2018) was used to evaluate how interactions between patients with a mental illness and medical students were perceived from the patient's viewpoint. Studies were located that reported on patients with a primary diagnosis of mental illness without any prior medical training interacting with medical students. Two databases were utilised, producing 11,103 potential articles which were then condensed into 8 relevant studies to be utilised for the review. Overall, the review found that when interacting with medical students, a majority of patients found their experience to be a positive one. Additionally, patients perceived their interactions to be positive for the student as well to enhance their learning, develop empathy and professionalism and to reduce stigma. This research does not evaluate the benefits of student mental health placements concerning the student's experiences. However, it does demonstrate patient's willingness and desire to assist in student education by consenting to said placements.

Although multiple studies discuss the benefits of a practical experience to improve attitudes towards mental health, there are some studies that have not found it to be of any value. Furthermore, it is believed that sociocultural influences such as personal experiences with mental health result in higher acceptance levels. Chiles, Stefanovics & Rosenheck (2017) aimed to determine if students' attitudes towards mental illness, and its causes, change as they progress through their education. 289 responses from students across all five years of medical training were included in the study. Students were emailed a questionnaire containing questions that evaluated attitudes towards mentally ill patients as well as beliefs about what causes mental illnesses. These results evaluated three main factors including social acceptance, biophysical causation and supernatural causes. The study found no significant evidence showing that longer medical training or the experience of a practical clerkship impacted on the attitudes towards the above factors for the participating medical students. However, it showed that students who documented having a personal experience with a mental illness scored higher levels of acceptance.

As previously stated, the notable gap identified in the literature is the lack of research into whether a mental health placement would be an effective implementation into the paramedic degree for future paramedics. Further research is therefore recommended. However, it can be concluded that

there is a definite value in medical students undertaking a mental health placement during their education. A parallel can be drawn to the paramedic profession, where mental health placements might also have significant benefit. To address this gap, this research aims to evaluate a pilot student clinical placement in an inpatient mental health unit to gauge the educational and practical benefits. Additionally, if this placement is found to be effective, it will be recommended that similar placement experiences should be integrated into and become a compulsory component of the paramedicine degree. This could potentially result in a curriculum change for paramedic degrees, specifically, where mental health placements are made to be a critical and compulsory component of paramedic education.

Research aims and questions

The overall research aims for this study are:

- What are the benefits of students participating in a placement at an inpatient mental health unit?
- Should a mental health specific placement be integrated into the Bachelor of Paramedicine degree at Charles Sturt University?

These research aims will be subdivided into eight specific research questions relating directly to the utilised survey instrument:

1. Was the placement in an inpatient mental health unit a pleasant learning experience?
2. Did students feel well prepared for their placement?
3. Did students meet objectives to their satisfaction whilst on placement?
4. Did the placement assist in students' learning?
5. Did the placement enhance students' clinical skills?
6. Was the placement supportive of students' professional growth?
7. After their placement experience, did students feel confident working in a mental health environment?
8. Were there learning opportunities for students at the placement venue?

The academic value of addressing the research questions

This study is expected to hold academic and practical value. By answering the proposed research questions and demonstrating that there are, potentially, significant benefits of mental health specific placements for student education, this research could establish the need for a substantial change in curriculum in the Bachelor of Paramedicine degree at Charles Sturt University. Furthermore, all tertiary institutions offering an undergraduate degree in paramedicine could adopt this type of

placement into their curriculums. This could lead to advancements in the national, and potentially global, mental health education for undergraduate students in the paramedicine field. Ideally, higher levels of paramedic education will lead to increased positive patient outcomes.

Currently, there is limited mental health training offered to students in the paramedicine undergraduate degree (Smith, Parent, Townsend, & Johnston, 2020). Through the integration of this placement into the degree, students will gain the ability to advance their skill set, knowledge and confidence in the mental health field. This educational advancement is imperative for students advancing into the paramedic profession where mental health presentations are significantly increasing (Australian Bureau of Statistics, 2018).

Hypothesised findings

It is hypothesised that this study will establish the practical and educational benefits that a mental health specific placement can have for paramedic undergraduate students.

It is possible that, due to lack of prior mental health education, students will feel underprepared when commencing this placement. Scores are expected to range between 1-3 for question 2. However, it is expected that at the completion of their placement's students will have higher levels of knowledge and confidence in the mental health field. For questions 4, 5, 6 and 7, answers are anticipated to range between 4-5. It is expected that student's overall evaluation of this placement will be a positive one with answers to question 1 ranging between 4-5. It is anticipated that answers to questions 3 and 8 will range between 3-5. Such a finding would suggest that students were provided with sufficient learning opportunities and were facilitated efficiently throughout their placement experience.

It is predicted that the findings of this study will support the integration of a mental health placement into the paramedicine degree. As a result, students will gain increased exposure to mental health conditions, and gain enhanced knowledge and skills regarding how to manage and support mental health patients.

Chapter 3: Method

This chapter will explain the research methodology. This research is designed to be exploratory and evaluative in nature. Data was gathered using a purposive sample model with the use of an online survey. A predesigned survey tool that incorporated both qualitative and quantitative questions was used. However, as the focus of this study was quantifiable only the quantitative data was analysed. Data analysis was conducted using a descriptive approach with frequencies and modes.

Participants

A purposive sampling technique was utilised for this study as it was deemed the most appropriate. This type of sampling purposely selects participants with known knowledge and personal experience in the specific research area based on a pre-defined criterion. This approach allowed for the data collation process to be relevant and beneficial to the research aims (Crookes & Davies, 2004).

A total of eight participants were included in this study. The sample size reflects that this is the initial evaluation of a pilot placement trialled in the current subject. As effective clinical placements require extensive liaison and time to be established, this trial, which is the basis of the study, was only made available to a small group of students from the Port Macquarie campus of Charles Sturt University. The sample group invited to participate in the research were the relevant 2nd year Bachelor of Paramedicine Students from Charles Sturt University. These students had completed the subject Paramedic Community Internship (CLS103) in their first year of study. The subject, CLS103, requires students to undertake a quantity of volunteer hours in a community non-emergency setting. All participating students were required to have completed a portion of their community placement hours in the inpatient mental health trial setting.

Students eligible to participate in this research study were individually emailed by a third party with an invitation statement containing a link to the survey (Refer to Appendix 4 for full invitation statement). The invitation statement invited all eligible participants to partake in the survey. The statement informed the invitees of the purpose of the study. It also explained the potential impact that participation could have on participant's future education, as well as the education for future students. Additionally, the statement outlined to participants the requirements and the time expectations of completing the survey. The link directed participants to Survey Monkey where they were provided with an Information Statement and the survey. To avoid the ethical issue of coercion, a third party was utilised to distribute these invitations. Essential demographical information and other personal information was not collected from students as all participant information was kept

confidential. To further ensure confidentiality, Survey Monkey deidentified all student participants before the results were returned for analysis.

Materials

A pre-published questionnaire, based on the work of Penman and Oliver (2004), was chosen for this research. Penman and Oliver (2004), created a questionnaire for nursing students to evaluate contextual learning, reflection and involvement, throughout their clinical placements. This instrument was found to be beneficial for nursing students and it was therefore selected for this paramedicine related study. The clinical placement assessment questionnaire (Penman & Oliver, 2004) was created to evaluate a student clinical placement experience against the objectives of the placement. The objectives were; to identify learning opportunities during the clinical placement, to develop strategies to improve clinical skills and to evaluate clinical placement.

The survey instrument consists of 12 quantitative questions utilising a Likert-type scale. This attitudinal scale is a commonly used tool in medical and educational research and has been proven to be an effective instrument in collecting quantitative data (Sullivan & Artino Jr, 2013). The measurement scale offers a choice of responses ranging from one to five. One representing strongly disagree and five strongly agree. The middle three numbers allow for neutral responses to be given. This may pose a limitation as the neutral responses can be difficult to interpret. However, Sullivan and Artino Jr (2013) suggest that this measurement scale is an effective way to gather inferential statistical evidence. There are also two qualitative open-ended questions in this survey although for the purpose of this honours research project, these questions were excluded from the analysis.

Due to the specificity of the research aim, that being the investigation of what the benefits of students participating in a placement at an inpatient mental health unit may be, only responses to specific questions relevant to the research were reviewed and analysed. The questions chosen to be included in the analysis were those that focused on the student's personal and educational experience. As a result of not meeting this criterion, questions regarding the placement environment, location and organisational quality were excluded. As a result, the answers to questions 1, 2, 3, 4, 5, 6, 10 and 11 were analysed and will be discussed whilst the answers to questions 7, 8, 9, 12, 13a and 13b were excluded from the study. This means that the qualitative questions were excluded from the analysis and therefore only quantitative analysis was conducted.

The quantitative questions are shown below. (See Appendix 5 for complete questionnaire)

1. Overall, the clinical placement was a pleasant learning experience.
2. I felt well prepared for the placement.

3. I met my objectives to my satisfaction.
4. The placement assisted my learning.
5. The placement enhanced my clinical skills.
6. This placement was supportive of my professional growth.
10. As a result of my experience, I felt confident working in this venue.
11. There were many learning opportunities for me in this venue.

An example of the Likert-type scale is shown below.

<u>Strongly disagree</u>			<u>Strongly agree</u>		
1	2	3	4	5	
1	2	3	4	5	
1	2	3	4	5	

The use of a previously published survey instrument is beneficial as it has already been established to be an effective tool (Griffiths & Mooney, 2012). According to Chiang, Jhangiani & Price (2015), reliability can be defined as the ability of an instrument to produce consistent data overtime. This assists in determining the repeatability of research (Chiang, Jhangiani & Price, 2015). Further, validity refers to the authenticity and accuracy of the results found relating the measurement or calculation specific to the research aims (Chiang, Jhangiani & Price, 2015). To date, there have not been any studies that have been conducted which test the reliability or validity for this specific instrument. While the survey evaluates a clinical placement, there is the potential for further research to develop a more reliable questionnaire for paramedic students who complete a mental health specific placement that can be deemed valid.

Design

The study was designed to utilise an explorative and evaluative methodology. Exploratory research designs are used when the research being conducted is relatively new with limited past studies to refer to. The goal of a new study is to set foundations for future research through the provision of a holistic picture of the topic (Sacred Heart University Library, N.d.). The literature review associated with this study revealed that whilst mental health placement experiences and their associated benefits have been extensively researched in other fields of healthcare, there is limited research available specific to the paramedicine field. This supports the exploratory nature of the research design.

The overall aim of evaluative research such as this study is to enhance both knowledge and decision making and to produce a change in an explored area (Powell, 2006). This systemic research approach explores and evaluates targeted questions and topics to assess impacts and effectiveness (Powell, 2006). This research aims to establish the effectiveness of paramedic students undertaking mental health related placements in order to encourage a curriculum change. Through the evaluation of the effectiveness of this placement, there is potential to document and support the need for change.

Procedure

After receiving an invitation statement via email to participate in this study, students were directed to the third-party site Survey Monkey. Prior to commencing the survey, participants were presented with an information statement (refer to appendix 6 for complete participant information sheet). An outline was given of the questionnaire to explain its purpose in relation to the evaluation of a placement experience and analysis of potential benefits and value for paramedic student education. This statement also outlined to students the benefits of participating in the study, why it is being conducted and what the researchers were hoping to achieve.

It was explained to students that participation was completely voluntary. Students were also made aware that by starting the survey, they were giving their consent to participate in the study and for their answers to be analysed and used for research purposes. Additional information in the information statement highlighted that an incomplete survey would not be included in the data analysis. The statement also explained that the researchers would ensure that should potential participants choose to participate in the study, no personal or identifying information would be collected. This ensured that issues regarding confidentiality did not arise.

The document also addressed various other ethical considerations. To address the potential issue of a mental health situation being triggered for potential participants, information about the availability of counselling services was also provided in the information statement and at the beginning of the survey. Additionally, students were given the option of withdrawing from completing the survey if they so desired at any stage.

The time taken for participants to complete the questionnaire generally did not exceed 20 minutes. There was no formal debriefing for this questionnaire as all responses were completed online. At the completion of the survey, participants were given a written statement thanking them for their time and participation that read "On behalf of the researchers involved in this project, we would like to thank you for your time and input. Your responses are greatly appreciated."

Data Analysis

After completion of the survey by participants, all responses were reviewed and analysed. During primary analysis, descriptive statistical techniques utilising frequencies were used to analyse the quantitative data. Descriptive statistics are used to examine the number of responses given to particular questions, expressed usually as percentages, in order to gain organisation and meaning from the data (Griffiths & Mooney, 2012). To sort the data with frequencies, individual answers to each question were placed into groups based on the given numerical value. These groups were then counted allowing for data to be categorised and described (Schneider, Elliott, LoBiondo-Wood, & Haber, 2003). All hypothesised findings were then explored and discussed.

During analysis, Likert scales usually combine all answers together into single variables in order to gain a quantitative measure (Boone & Boone, 2012). For this reason, a Likert-type scale was used instead. This allowed for responses to single questions to be independently analysed without combining all answers together (Boone & Boone, 2012). The Likert-type responses were given based on an ordinal scale, measuring the magnitude or extent that participants had agreed with the questions. To analyse the ordinal scale of the responses, the frequency of answers was calculated and the mode, or most common answer, for each question was identified. Trends were then determined for each question (Boone & Boone, 2012).

Secondary data analysis was then completed using Spearman's Rho in order to determine if there was any correlation or statistical significance between responses to questions. This was calculated for all possible combinations and results were then formatted into tables for analysis.

Chapter 4: Results

This chapter will present the results of the research project. It will explain and justify the data analysis processes used. Primary analysis of the data was conducted using the measures of central tendency and measures of variability. All data was then graphed for analysis. In order to determine if there was any correlation present between responses, secondary statistical data analysis was completed. The complete process is presented below.

Measurement scales/tools

A measurement scale is used in research to define and categorise numbers and variables. There are four main scales utilised for this purpose; nominal, ordinal, interval, and ratio. Nominal scales are used for categorical data and to assign labels rather than to scale variables, and therefore do not have a quantitative value. Alternatively, ordinal scales use a continuum to scale data in sequential order, although the gaps between each variable is unknown. Interval scales are numerical scales that have a defined difference between variables. Finally, ratio scales are similar to interval scales in that there is a clear order and difference between variables although ratio scales have an absolute zero. This research study utilises an ordinal measurement scale in the form of a Likert scale as this was the most appropriate tool to analyse the data (Howell, 2013; Marateb, Mansourian, Adibi, Farina, 2014).

A Likert scale is formally used as a measurement procedure for attitudinal scales (Boone & Boone, 2012). This method utilises a sequence of questions or statements with multiple differing response options. These options range from strongly agree, agree, undecided, disagree and strongly disagree. Answers to all questions/statements are then combined to find the composite score or variable via an interval measurement scale. This represents an attitudinal scale to measure character and personality traits (Boone & Boone, 2012; Sullivan & Artino, 2013). Alternatively, Likert-type scales are used when the questions/statements are analysed independently of each other (Boone & Boone, 2012). While the response options are similar to the Likert scale with multiple differing responses, Likert-type scales allow for varied options such as never, sometimes, usually or often. Answers are then analysed using an ordinal measurement scale with descriptive statistics including a mode, median and frequencies. This allows for multiple aspects of research to be analysed independently of each other (Boone & Boone, 2012; Sullivan & Artino, 2013). For the purpose of this research study, a Likert-type scale was chosen as all singular questions in the questionnaire were individually analysed.

Measures of central tendency are statistics in research that indicate the centre of the data. This measurement represents the centre of distribution through either the mode, median or mean. The

mode is the most common score given, also known as the highest point of distribution. The median, however, signifies the central or middle score when all values are placed in numerical order. Finally, the mean is the average score. This is the most common measure and is calculated by the sum of scores being divided by the number of scores (Howell, 2013). When interpreting Likert-type data, the most appropriate measures of central tendency is the median or the mode (Sullivan & Artino, 2013). For this reason, both the median and the mode were utilised for this research.

Measures of variability give researchers additional information regarding the distribution of data, rather than just the centre of distribution. This measure indicates a deviation from the average score. Examples of measures of variability include range, interquartile range, average deviation, variance, standard deviation and frequencies. The range measures the point between the lowest and highest scores given. The interquartile range, however, removes 25% of the highest and lowest scores to find the range of the remaining scores. The average deviation is the difference from the mean of a data set and each score within that data set. Variance is similar to average deviation except for the differences between the mean and the scores of a data set are squared and the average of the squares are found. Standard deviation is simply the square root of the variance. Finally, frequencies give the number of times that certain scores are used within data (Howell, 2013). This research will use frequencies when measuring variability as it is the most appropriate when analysing Likert-type data (Boone & Boone, 2012).

Primary statistics

Initially, eight students were invited to participate in this study via email. Two weeks after the initial invitation, four participants had completed the survey. A reminder email to complete the survey was sent to all students. After a further two weeks, five participants had completed the survey and a final reminder email was sent out to all students. Six weeks following the initial invitation email, seven students had completed the survey out of the eight students who participated in the placement in the inpatient mental health unit. This gives this study a response rate of 87.5%.

Once the appropriate measures and scales were chosen for this study, all raw data was gathered and analysed using Excel. Initially, counts of all responses to individual questions were mapped out. Following this, measures of central tendency were calculated by finding both the mode and the median. Frequencies were then found to measure the variability and distribution of the data. All raw data can be found in Appendix 7. Once these measures were calculated, responses to the individual questions were then arranged in graphs displaying the frequencies, modes and median (Figure 1).

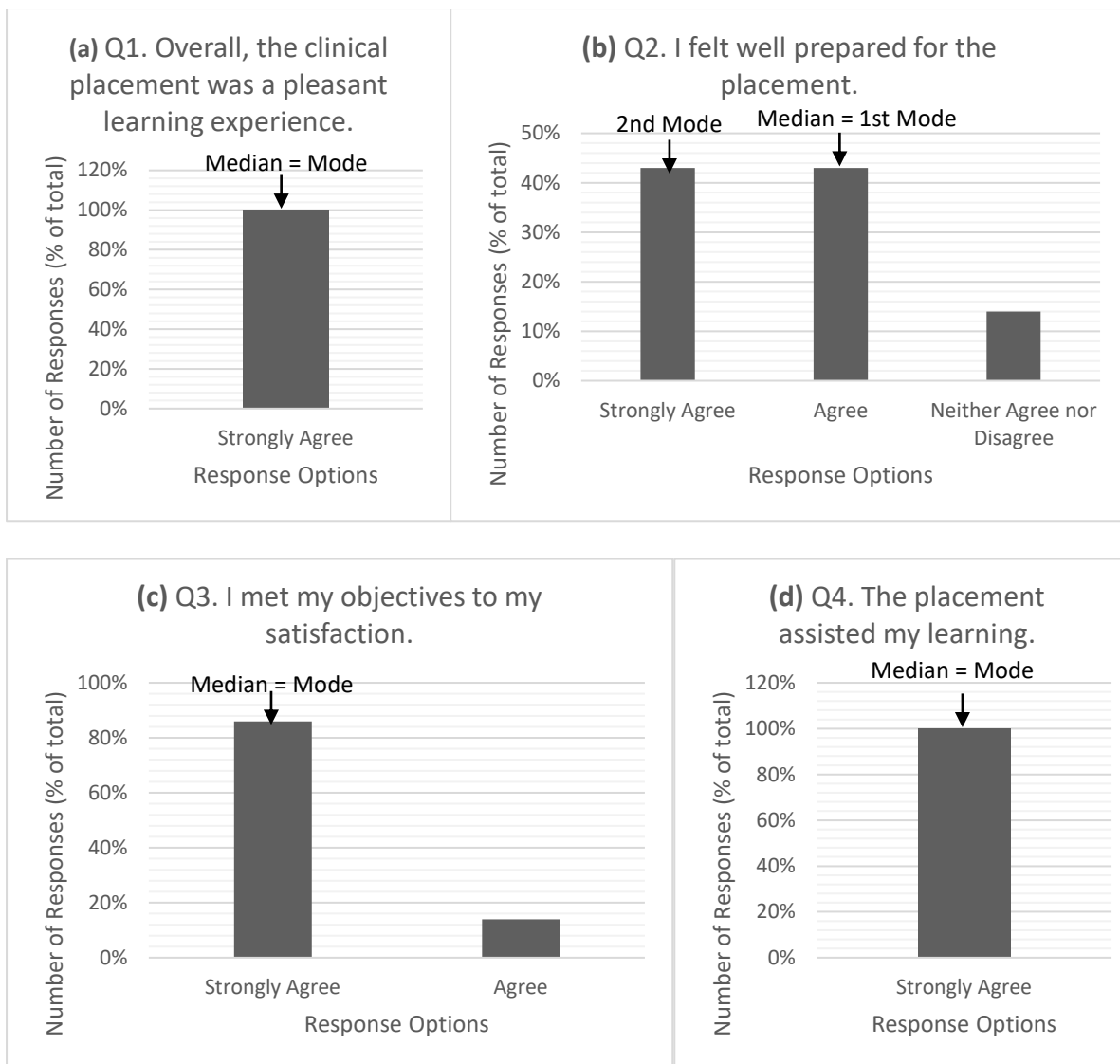


Figure 1 Response graphs displaying measures of central tendency and variability. (a) Question 1. (b) Question 2. (c) Question 3. (d) Question 4.

Figure 1a shows the percentage of respondents that selected strongly agree for Question One in the survey. No respondents selected any other option for this question. Figure 1b shows the percentage of respondents that chose strongly agree, agree and neither agree nor disagree for Question Two. Equal percentages selected both strongly agree and agree, and a smaller percentage selected neither agree nor disagree. Figure 1c shows that the majority of respondents selected strongly agree for Question Three, with a small percentage selecting agree. Figure 1d shows the percentage of respondents that selected strongly agree for Question Four, with no other option being selected for this question.

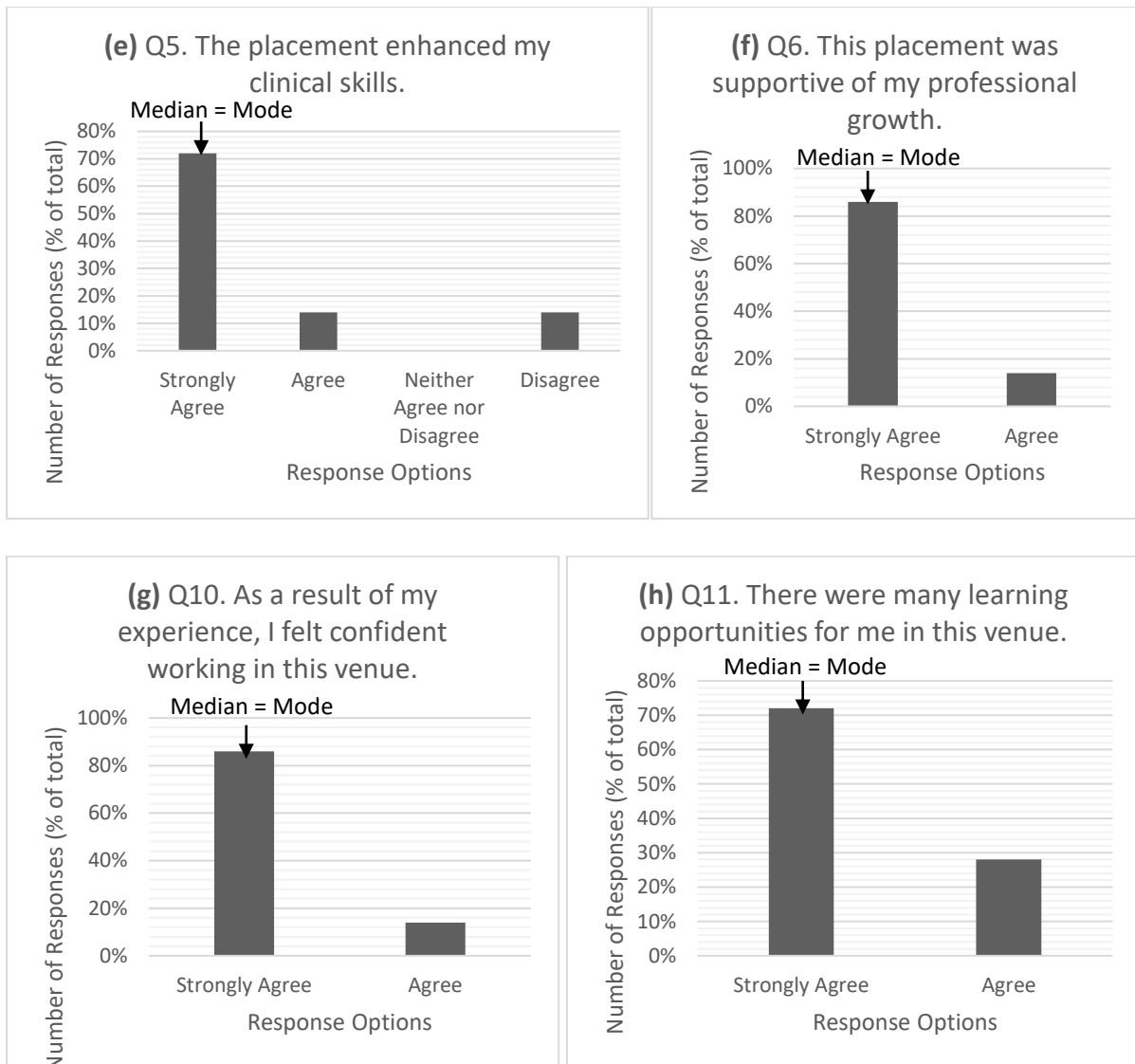


Figure 2 Response graphs displaying measures of central tendency and variability. (e) Question 5. (f) Question 6. (g) Question 10. (h) Question 11.

Figure 2e shows the percentage of respondents that selected strongly agree, agree and disagree for Question Five. The majority of respondents selected strongly agree although an equal small percentage also chose both agree and disagree. Figure 2f represents the percentage of respondents that chose strongly agree and agree for Question Six with the larger majority choosing strongly agree and a small percentage selecting agree. Similarly, Figure 2g shows that a large majority of respondents selected strongly agree for Question Ten with a small percentage selecting agree. Finally, Figure 2h shows the percentage of respondents that selected strongly agree and agree for Question eleven with the majority selecting strongly agree and the rest selecting agree.

Secondary statistics

In order to determine if there was any correlation and relationship between responses to questions in this study, Spearman's Rho was calculated for all possible combinations.

Spearman's rho is a measurement tool used when analysing ordinal data to measure strength of the association between variables (Mackridge & Rowe, 2018). Essentially, this tool is used to see if there is a relationship or link between responses to questions to determine statistical significance.

Spearman's Rho calculations provide a coefficient representing a range between perfect correlation and no relationship at all between variables. This coefficient can range from -1 to +1 with -1 representing perfect negative correlation, +1 representing perfect positive correlation and zero representing no relationship at all. The further from zero the coefficient is, the stronger the relationship is between variants (Mackridge & Rowe, 2018). These calculations can be found in Appendix 8.

All respondents strongly agreed that overall, the placement was a pleasant learning experience. Similarly, all respondents strongly agreed that the placement assisted in their learning experience. Due to these results, there was no variability for these questions. Spearman's Rho was therefore unable to be calculated. In order to determine if there are any relationships between these questions and others, the median was compared. Table 1 shows responses to Questions One and Four compared to that of Two, Three, Five, Six, Ten and Eleven.

Table 1 Comparisons between the medians of questions that could not be statistically analysed using Spearman's Rho

	K	Q2	Q3	Q5	Q6	Q10	Q11
Q1	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Q4	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

As can be seen from this table, all respondents that strongly agreed to both Question One and Four also strongly agreed that all objectives were met to respondent satisfaction, clinical skills were able to be enhanced which allowed support of clinical growth, the overall experience enhanced confidence and that learning opportunities were adequately provided. When asked if respondents felt well prepared for their clinical placement where the median of responses was agreed, a slight deviation was found. From this analysis, it can be assumed that there is a relationship between responses regarding the placement being a pleasant learning experience and assisting in enhancing participants learning experience.

Initial analysis of the Spearman's Rho correlations was completed to see if there was any statistical significance at 0.05 level. These calculations can be seen in Table 2.

Table 2 Spearman's Rho correlations at 0.05 level

0.05 level	Q5	Q6	Q10
Q3	$r_s = 0.764$		
Q5		$r_s = 0.764$	$r_s = 0.764$

Analysis found that there was a positive correlation in the clinical placement satisfactorily meeting student objectives and enhancing clinical skills ($r_s = .764$, $p = 0.046$). Similarly, there was further positive correlation between students enhancing their clinical skills throughout this placement and developing their confidence in the placement environment ($r_s = .764$, $p = 0.046$) as well as being provided with ample learning opportunities ($r_s = .764$, $p = .046$).

When calculating if there was any statistical significance at 0.01 level, no correlation was found. Further analysis was then completed to determine if correlations could be found when calculating statistical significance at 0.001 level. These calculations can be seen in Table 3.

Table 3 Spearman's Rho correlations at 0.001 level

0.001 level	Q6	Q10	Q11
Q3	$r_s = 1.000$	$r_s = 1.000$	
Q5			$r_s = 0.986$
Q6		$r_s = 1.000$	

Respondents who found that their objectives were met satisfactorily perfectly correlated with them feeling supported in their professional growth ($r_s = 1.000$, $p < .001$) and having their confidence enhanced during the clinical placement ($r_s = 1.000$, $p < .001$). Respondents who felt their clinical skills were enhanced on the placement also felt that multiple learning opportunities were provided ($r_s = .986$, $p < .001$). Further, a perfect correlation was found between respondents feeling supported in their professional growth and increasing their confidence throughout the placement experience ($r_s = 1.000$, $p < .001$).

The above analysis shows that the overall participant response to the placement experience was overwhelmingly positive. The median answer to 87.5% of responses in the data was strongly agree to questions regarding if their experiences was a positive one. Further, trends were found between responses to specific questions which were statistically significant at both 0.05 and 0.001 levels. Overall, these results support the hypothesis that the placement was a positive experience for students.

Chapter 5: Discussion and Analysis

This chapter will reflect upon and discuss the findings of the research. It will seek to establish whether a mental health placement for paramedic students holds any educational value. Interpretation of the data and comparison with previous literature demonstrates that students gained an extreme amount of benefit from the placement. This was demonstrated through the findings that students indicated that they experienced increased confidence, knowledge, clinical skills and professional growth in the mental health field. The student response to this placement was overwhelmingly positive with the study findings demonstrating that the overall experience was deemed as a success for students. Furthermore, the findings of this study support the integration of a mental health placement into the paramedicine curriculum. The research findings indicated this placement would be extremely beneficial to enhance the education and training of future paramedics in order to improve preparedness for mental health presentations once in the workforce. This study has created a potential for further development in the growing discipline of paramedic research and thus has numerous positive implications for the field of paramedicine.

Aims of the research

The research project was conducted to assess if a mental health placement in an inpatient mental health unit had any educational value for paramedic students. The study was conceived with the anticipation of its results presenting the evidence to inform and support the integration of a mental health placement experience into the Bachelor of Paramedicine degree at Charles Sturt University. It aimed to demonstrate a way to provide paramedic students with the opportunity to develop a greater understanding of and a higher level of knowledge surrounding mental health. The reasoning behind this was driven by the high prevalence of mental health cases encountered by paramedics, as well as the concerns held by paramedics that they feel underprepared and undertrained in managing mental health patients in the pre-hospital setting (Mildenhall, 2013). Further, the placement aimed to better prepare paramedic students for the workforce through enhancement of their ability to interact with mental health patients in the pre-hospital setting. This would be achieved through direct experience, exposure and the provision of education required for complex scenarios.

These research aims were then measured using a survey tool that gauged student perceptions regarding elements of the mental health placement. This included whether the placement was a pleasant learning experience, if students felt well prepared for the experience, if learning objectives were met to student satisfaction and if learning was assisted. Additionally, the study also assessed if clinical skills were enhanced, if the placement was supportive of professional growth, if students felt

comfortable working in the mental health environment and if learning opportunities were provided to students.

Interpretation and reflection of the data in light of relevant literature

In order to deeply reflect on the findings of this research, all results were initially compared to studies found in the literature review (Table 4). From this comparison, common themes were able to be determined. These themes are discussed below.

Comparison of this study's findings with other research from the literature review, presented in the introduction, highlighted multiple alignments between studies. The findings of this study demonstrated that the incorporation of a mental health placement will potentially support and enhance the professional growth of participating paramedic students. Medical students had similar experiences in student-run psychiatric clinics when preparing to enter the workforce (Martinez, Fargason & Meador-Woodruff, 2017; Delbridge, Zubatsky & Fowler, 2017). This alignment of findings demonstrates that practical experiences will enhance industry readiness and professionalism, across a range of health professions. Confidence improvement was another positive theme that emerged from this study. Following practical exposure in their placement experience, paramedic students reported improved comfort levels when working in mental health settings. This aligns with the study by Murzl, Durns, Mowrey, Tubbs & Boeve (2017) which also found that confidence in the mental health field was increased for medical students following practical exposure. A clear alignment can be found when comparing these studies regarding the benefits of placement experiences for student confidence.

At the completion of their placement experience, paramedic students also reported an improvement in their knowledge through enhanced clinical skills. This aligned with the study by Russel, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith (2018), who also found that a mental health placement resulted in increased knowledge of medical students. Students from both studies were reported to have had an overall positive experience. This comparison clearly demonstrates the educational value that a mental health placement has to offer. Further to this finding, paramedic students involved in the study also reported that the incorporation of the mental health placement assisted in their learning and enhanced their skills. When practical mental health experiences were incorporated into the curriculum for medical students, Mian, Chachar, Saeed and Naseem (2018) found that students became more engaged in their learning. These findings display that the inclusion of a placement experience enhances student skills and knowledge.

Table 4 Comparing results to literature review

Study	Previous Work	This Study
-Martinez, Fargason and Meador-Woodruff (2017) -Delbridge, Zubatsky & Fowler (2017)	Medical students displayed an increasing interest in student-run psychiatric clinics, as it supported their preparedness for entering the workforce .	The overall survey results demonstrated that students perceived their mental health placement experience to be a positive one with their professional growth being supported and enhanced .
Murzl, Durns, Mowrey, Tubbs & Boeve (2017)	An improvement in the comfort levels of medical students was found, following exposure to mental health patients in a practical setting.	Students that participated in this placement found that as a result, their confidence levels for working in mental health environments improved .
Russel, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith (2018)	Following a psychiatry placement, medical students reported a positive change in attitude towards mental health and an increase in knowledge , giving the placement an overall positive evaluation.	Students who participated in this placement overall felt that it was a positive experience. Further, students felt that both their confidence and knowledge was improved from the placement.
Mian, Chachar, Saeed and Naseem (2018)	A curriculum change, for medical students that incorporated mental health patient encounters received high praise as the students were found to be more engaged in their learning .	All students agreed that this placement experience assisted in their learning and many found that it allowed for an enhancement of skills.
Gulati, Das and Chavan (2014)	Medical students have demonstrated their desires for compulsory mental health subjects to enhance their understanding and become more attentive students.	Students who participated in this placement not only found it to be a pleasant learning experience that assisting in their learning, but that the experience supported their professional growth and provided them with ample learning opportunities .
- Bharathy and Foo (2014) -Petkari, Masedo, Xavier and Küstner (2018)	Following interaction with mental health patients, students studying medicine, nursing and occupational therapy portrayed both an increased understanding of managing mental health patients as well as a reduction in overall mental health stigma, demonstrating the benefits of a practical mental health experience.	All participating students strongly agreed to this placement assisting in their learning experience. Students also agreed that the mental health practical experience allowed not only for clinical skills to be enhanced but for confidence when working in the mental health field to be improved.
Chiles, Stefanovics & Rosenheck (2017)	Contrastingly, this study found that there was no evidence that a mental health placement experience improved student attitudes towards mental health.	The overall student response to this placement experience was overwhelmingly positive.
Yidong, Huixi, Xiaoduo, Zhanchou, Lehua, Hailong, Zhimin and Xiaofeng (2014)	After participation in a psychiatry placement, medical students received higher scores in surveys assessing attitudes towards both psychiatry and mental health.	Students who participated in this placement felt that they were assisted in their learning and able to meet their learning objectives, although no further mental health knowledge has been assessed to determine if attitudes have been improved.
Marwood and Hearn (2019)	Medical students with mental health patient experiences scored higher for mental health literacy testing.	While students personally believed that this placement experience enhanced their knowledge and clinical skills, there has been no measurement or testing completed to confirm that this is the case.
Dearman, Joiner, Gordon and Vince (2018)	Mental health patients' viewpoints of participating in student placement experiences were positive in regards to enhancing student learning, developing professionalism and reducing mental health stigma.	Students found that this placement experience was supportive of their professional growth, although no research was conducted from the patient's perspective.

Finally, paramedic students gave their mental health placement experience an overall positive evaluation, agreeing that it was a pleasant experience providing ample support and learning opportunities. This demonstrated a strong desire for further practical mental health experience. This theme aligns with the findings of Gulati, Das and Chavan (2014) who found that medical students showed strong desires for further mental health education. An alignment can be found between the medical and paramedic fields in the student desires for further training in mental health to enhance skills and knowledge. Overall, this study strongly aligns with previous literature regarding the benefits of practical mental health placement experiences. However, further research is required to establish whether these propositions can be backed by empirical evidence.

While connections have been drawn between this study and previous findings, there were certain studies from the literature review that were not able to be directly compared to the data presented here. Studies by both Bharathy and Foo (2014) and Petkari, Masedo, Xavier and Küstner (2018) found that practical mental health exposure benefitted medical students by reducing mental health stigma. In this study, no data was collected from students regarding stigma, therefore it cannot be determined if the placement had an effect on this. A study, by Chiles, Stefanovics & Rosenheck (2017) found no evidence that medical students' attitudes towards mental health were altered from a mental health placement experience. These findings are not consistent with this data as it was found in this particular study that the overall student response to the placement was in fact a very positive one.

There were multiple studies found in the literature review that were unable to be compared to this study. Student knowledge or attitudes surrounding mental health were not assessed in this study, as personal student opinions regarding the placement experience were the primary focus. This means that it was unable to be identified if student attitudes towards mental health improved following their experience. Due to this, this study is unable to be compared with the findings of Yidong, Huixi, Xiaoduo, Zhanchou, Lehua, Hailong, Zhimin and Xiaofeng (2014). Similarly, this study did not measure mental health literacy before and after the placement experience. This means that it cannot be confirmed whether mental health literacy was improved for paramedic students in the same way that Marwood & Hearn (2019) found that it improved in medical students. Finally, this study only analysed student responses to the placement and did not survey any other parties, including patients. This means that patient feelings towards students completing placements in mental health facilities were unable to be analysed. This therefore means that this study cannot be compared to the study of Dearman, Joiner, Gordon and Vince (2018). While these studies are unable to be compared to this research, they have assisted in identifying gaps and the need for further research.

The research presented in this study is consistent with that of previous studies found in the literature, however, it was also found that data from the study offered new perspectives and knowledge. The initial search in the literature review was specific to paramedicine students, however, due to the limited number of studies available specific to the paramedic field, this had to be expanded to medical students. This study however, relates directly to paramedic students and therefore offers new and precise evidence for the paramedicine field. One such perspective provided by this study was the finding that not all students felt completely prepared when commencing the placement. This demonstrates that a more comprehensive and paramedic specific subject that provides initial education and training, prior to the placement would be highly beneficial if incorporated into the paramedicine degree.

Application of results and potential implications

The results of this research have great potential for further applications and implications in the paramedic field. This study has provided evidence to support the value of, and identified the need for the integration of a mental health specific placement into the bachelor of paramedicine degree. Further, this research could also be used to assist in the facilitation of a curriculum design for a paramedic specific mental health subject that incorporates a culmination of practical and theoretical experiences. Such a subject could create the bridge that spans the gap which this study identified existed in student perception of preparedness for such a placement experience. If this type of workplace learning experience deliberately followed a specific mental health theory subject, which provided foundational education in mental health, then it is reasonable to suggest that a much richer and deeper learning experience would be provided to paramedic students. Such a structure could provide the students with a sense of readiness or preparedness to participate in a mental health placement where they interact with and help care for patients suffering mental health conditions. Whilst this was not possible for the purposes of this pilot research study, enough evidence has been provided to support its consideration in future curriculum development within paramedic programs. A curriculum redesign, using the data collected in this study, has the potential implication of an innovative, highly praised and sought-after mental health paramedic program for Charles Sturt University.

Although research in the field of paramedicine is advancing, to date, the number of studies available are limited. This study adds to the body of published paramedic research and has highlighted several new perspectives for future research to be undertaken.

Practical benefits

After analysis of the data obtained in this study and consideration of the results, many practical benefits have emerged. This study has highlighted how a practical experience can improve paramedic student's confidence in the mental health field. Further, it has demonstrated that student knowledge and understanding of mental health and management of mental health patients has been enhanced following participation in a mental health placement. This demonstrates the significant benefit of this type of workplace learning. Research shows that paramedic student exposure to mental health within their training has been limited (Smith, Parent, Townsend & Johnston, 2020). Additionally, a study by McCann, Savic, Ferguson, Bosley, Smith, Roberts, Emond, & Lubman (2018), found that working paramedics felt the mental health education they were provided was disproportionate to the increasing frequency of mental health jobs encountered on road. This study also found that paramedics believed that further education was needed in order to improve this theory-practice gap. The incorporation of mental health placements for paramedic students will increase student exposure to complex mental health patients which will, in turn, provide richer learning experiences in this field. This would assist Charles Sturt University in ensuring that students meet the required Graduate Learning Outcomes that are in place, ensuring that the Paramedicine degree aligns constructively with professional standards and the role requirements of a modern paramedic (Charles Sturt University, 2020). Through the achievement of these Graduate Learning Outcomes, the University can ensure that students develop the necessary skills and competency required for a more seamless transition into practice. This will more adequately prepare students for participation in the industry upon graduation.

This research has provided evidence that mental health placements for paramedics hold meaningful educational value. By incorporating this placement experience into the Paramedicine curriculum, paramedic students may be provided with a higher standard of education. This could assist students to provide safer and thus more effective care when entering the workforce. The potential result of this is that mental health patient outcomes will 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 a stronger insight into their own mental health. This 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 could prove to be extremely beneficial to future paramedics (Mildenhall, 2013).

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 managing mental health patients, they will have the ability to adopt a more effective and safe approach to mental health when entering the workforce. It is reasonable to postulate that 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 required to confirm this.

A further benefit a mental health placement could have, although not focused on in this study, is the impact these types of placements could have toward improving some of the negative stigmas surrounding mental health, particularly those held by paramedic students. While this study does not discuss this, there is a body of literature that demonstrates how medical students undertaking mental health placements showed reduced levels of stigma concerning mental health upon completion of mental health placements (Dearman, Joiner, Gordon and Vince, 2018). It is speculated here that this benefit would also most likely translate similarly to the paramedic profession.

Study Limitations

The main limitation present in 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. While this is a limited sample size, it is appropriate for this type of study design where its purpose is descriptive in nature and no inferential statistics were required (Crookes & Davies, 2004). Further, as this is also an exploratory study, only small sample sizes are required to set foundations for future research.

As this was a pilot study there was a lack of an available specific validated survey tool for paramedic mental health placements. It was not evident from within the literature that this type of specific paramedic placement had previously been conducted, formally evaluated and the results published. A pre-published survey instrument was used as it had already been verified as an effective tool for nursing students. The limitation of this tool was that it only contained a limited range of questions which restricted the data mined for analysis.

Future study and developments

This research has identified multiple gaps in the literature and has established numerous possibilities for further research into the benefits of undergraduate paramedicine mental health placements. The

development of a survey instrument that is specific to both paramedic students and a mental health placement would be extremely beneficial to evaluate the success of future placements. This would allow for more specific questions to be asked in order to produce a more comprehensive body of research. Additional studies could also be conducted in the area of assessing paramedic student's knowledge before and after participation in a mental health placement in order to assess and evaluate improvement and efficacy. This would help to further identify the educational benefits that this type of placement offers students. Studies could be scaffolded and at a later stage, participating students could be assessed again. This would assist to determine whether this experience has translated to improved practice and has assisted in preparing students for participation in the field with enhanced skills and competency in dealing with mental health related cases. The aim would be to further support the importance of additional and improved mental health training and education for paramedic students.

In order 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 like they were not provided with sufficient information or adequate orientation. In future, for this placement to be increasingly successful, a more organised and structured placement design is required. This improvement would not only make the placement a more organised experience, it will also allow for students to have an increasingly successful placement where they gain the highest educational experience possible.

An additional research gap that was identified by this study was the paucity of research surrounding assessing the stigmas held by paramedic students toward and surrounding mental health. While mental health placements have 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. Simpson, Agho, Van Nugteren, Rasku, Thompson & Thyer (2020), discuss that further training in mental health education could potentially assist in improving student stigma and attitudes towards mental health. Further research into this area would be extremely beneficial toward identifying if a mental health placement experience would assist in addressing this issue.

Chapter 6: Conclusion

The aim of this research was to assess the educational value of paramedic students participating in a mental health specific placement environment. A noticeable gap was identified in the literature regarding research into the benefits of such a placement for the paramedic profession. This created the opportunity to commence this research. A pilot placement was created for paramedic students at an inpatient mental health unit. Participating students were then given a questionnaire relating to their placement experience in order to evaluate its effectiveness and educational value following completion of the experience.

The overall feedback from students which formed the evaluation data set was positive. The findings of the study demonstrated that this placement was extremely beneficial. Not only was it found to enhance the professional growth of participating students, but it also found that student confidence, knowledge and clinical skills in the mental health field improved. Additionally, when considered against other comparative research, the findings also supported that the integration of a mental health placement into the curriculum would be extremely beneficial toward enhancing paramedic skills and knowledge. Particularly if this was done in conjunction with a well-designed and constructively aligned theory subject. This research also supports the notion evident within the existing literature that currently, paramedic students feel underprepared to deal with mental health patients. This further supports the notion that integration of a mental health placement into the curriculum could be the key to addressing this.

Overall, the results of this study have multiple positive implications for the field of paramedicine. This includes improving the education, skills and competency of the future paramedic workforce and expanding research possibilities.

Appendices

Appendix 1: Ethics approval



ETHICS AND COMPLIANCE UNIT

Locked Bag 588
Boorooma Street
Wagga Wagga NSW 2678
Australia

Tel: +61 2 6338 4628
Email: ethics@csu.edu.au
www.csu.edu.au/research/ethics_safety/human/

7 December 2018

Dr Natalia Bilton
Email: nbilton@csu.edu.au

Dear Dr Bilton,

Thank you for providing further information in response to a request from the Charles Sturt University Human Research Ethics Committee relating to your research proposal.

The Charles Sturt University Human Research Ethics Committee is constituted and operates in accordance with the National Health and Medical Research Council's [National Statement on Ethical Conduct in Human Research \(National Statement\)](#).

Based on the guidelines in the *National Statement* the Committee has approved your research proposal. Please see below details of your approved research project:

Project Title:	Students' Perceptions and Attitudes of Virtual Reality in Anatomy and Physiology Teaching
Approved until:	06 December 2021 (subject to annual progress reports being submitted)
Protocol Number:	H18262 (to be included in all correspondence to the Committee)
Progress Report due by:	06 December 2019

You must report to the Committee at least annually, and as soon as possible in relation to the following, by completing the 'Report on Research Project' form:

- any serious and/or unexpected adverse events or outcomes which occur associated with the research project that might affect participants, therefore, the ethical acceptability of the project;
- amendments to the research design and/or any changes to the project (Committee approval required);
- extensions to the approval period (Committee approval required); and
- notification of project completion.

This approval constitutes ethical approval in relation to humans only. If your research involves the use of radiation, biochemical materials, chemicals or animals, separate approval is required by the appropriate University Committee.

Please contact the Governance Officer on (02) 69334213 or ethics@csu.edu.au if you have any queries.


The Committee wishes you well with your research.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ellen Hannigan'.

Ms Ellen Hannigan
Governance Officer
on behalf of Associate Professor Catherine Allan
Presiding Officer, HREC

Appendix 2: Ethics amendment letter

Human Research Ethics Committee Variation/Extension Request		 Charles Sturt University																														
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<p>The University's Human Research Ethics Committee is required to monitor research projects to which it has given approval. Please use this form to request any variations to your approved research project. This includes an extension to the approved end date of the project.</p> <p>The Primary Contact as per the Human Research Ethics Application (HREA) form (usually the Chief Investigator) is responsible for notifying the committee by completing and submitting this form to ethics@csu.edu.au.</p> <p style="text-align: center; color: red;">All fields with a red border are required.</p>																																
1. Research Project																																
Title Paramedic Student Perceptions of their Placement Experience in an Inpatient Mental Health Setting	Protocol Number <input style="width: 100%; height: 20px;" type="text"/>																															
	Approved End Date <input style="width: 100%; height: 20px;" type="text"/>																															
2. Primary Contact (main applicant on approved HREA form for this research project usually the Chief Investigator)																																
Name Dr Natalia Bilton	Staff/Student ID No. (if appl.) <input style="width: 100%; height: 20px;" type="text"/>																															
Phone or Mobile 0265829359	Email nbilton@csu.edu.au																															
School/Faculty School of Biomedical Sciences	Work Address 7 Major Innes Drive																															
3. Research Project Team																																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Name</th> <th style="width: 35%;">Role</th> <th style="width: 30%;">Staff/Student ID No. (if appl.)</th> </tr> </thead> <tbody> <tr> <td>Natalia Bilton</td> <td>Chief Investigator/Researcher</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Rob Bear</td> <td>Associate/Assistant/Sub-/Co- Investigator/F</td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td>Phoebe Thornberry</td> <td></td> <td>11627077</td> </tr> <tr> <td>Emma Carney</td> <td></td> <td>11630875</td> </tr> <tr> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> <tr> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> <td><input style="width: 100%; height: 20px;" type="text"/></td> </tr> </tbody> </table>	Name	Role	Staff/Student ID No. (if appl.)	Natalia Bilton	Chief Investigator/Researcher	<input style="width: 100%; height: 20px;" type="text"/>	Rob Bear	Associate/Assistant/Sub-/Co- Investigator/F	<input style="width: 100%; height: 20px;" type="text"/>	Phoebe Thornberry		11627077	Emma Carney		11630875	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>		
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Attach an additional page if there are more team members to list.																																

4. Variation Details

What component of the research project are you applying to vary?

We are adding two students to the research team. The students are Phoebe Thornberry and Emma Carney. They will both be contributing to this project as part of their Honours dissertation.

Attach an additional page if the response does not fit in this field.

What are the specific changes that are proposed and why? Please also explain EITHER the ethical implications of the proposed variation/s and how they will be addressed OR why you believe the variation/s will not have any ethical implications.

One ethical implication that may arise is that Phoebe and Emma are both Peer Tutors in the paramedicine degree meaning they have partial involvement and interaction with the research participants. We will manage this by not including any personal information of the researchers in the online surveys and refraining from discussing the research project with the research participants. We do not think that there will be any other ethical implications from Phoebe and Emma joining the research team because even though they are both novice researchers they will be supervised by Natalia Bilton and Rob Bear.

Attach an additional page if the response does not fit in this field.

Do you require an extension?

Yes

No

If Yes, what is the new anticipated end date for the research project?

Reason(s) for extension

Attach an additional page if the response does not fit in this field.

What is the value of a mental health placement for medical undergraduate students?

Introduction

The prevalence of mental and behavioural related illnesses in Australia significantly increased between 2015 and 2018 (Australian Bureau of Statistics, 2018). Despite this alarming statistic, paramedics feel that their training and education in the mental health field does not prepare them for managing and treating patients with mental health illnesses (Roberts & Henderson, 2009). This literature review explores the research associated with evaluating the benefits of paramedic students undertaking a mental health-focused placement throughout their training. The initial research question was *'What is the value of a mental health placement for paramedic undergraduate students?'* While conducting this literature review, a significant gap was identified within the research articles concerning the topic area. The question was modified to *'What is the value of a mental health placement for medical undergraduate students?'* Whilst extensive literature is present regarding medical students undertaking mental health placements, there is a notable lack of research surrounding paramedic students and whether similar mental health training is beneficial to, and necessary in their education.

Methods

In order to find relevant research articles, a literature review was conducted using the search engine CINAHL Plus. The search engine ERIC was initially considered for this search although after a brief scan through each database it was decided the CINAHL was more appropriate and relevant. This was because the articles that appeared held more relevance to the topic. The initial search consisted of the keywords 'emergency medical technicians' OR 'education, emergency medical services' AND 'student' OR 'undergraduate' OR 'university' OR 'college'. These words were combined with the terms 'mental health' OR 'mental illness' OR 'mental disorder' OR 'psychiatric illness' AND 'placement*' OR 'student placement' OR 'training'. This search produced nil results therefore the search was expanded to include all medical students. The search phrases 'emergency medical technicians' OR 'education, emergency medical services' was replaced with 'students, medical'. This search produced 106 results. To further refine the results, a further search option was implemented to limit the results to be within the last five years. This produced 62 articles, which were downloaded and the abstracts were reviewed (Table 1). A review of these abstracts found eight to be of relevance, nine required further reading and 45 were found to not be relevant to the research question. The 17 relevant articles were retained for further reading. Five of these articles were excluded, one due to the full text not being available in English, and four due to not being relevant to

the research after further reading. The 12 remaining articles were then critically examined for common themes relevant to the research question (Table 2).

Results

In reviewing the relevant articles multiple themes relevant to the research question were extracted. When students participate in social interactions with mentally ill patients it helps to reduce stigma and increase understanding of the management of mental illness. Bharathy and Foo (2014) report on a qualitative study to evaluate the benefits of medical students participating in a social interaction program named 'Chat and Connect' with psychiatric patients to enhance their learning. 14 medical students participated in the study. With the help of a semi-structured interview guide, they attended and engaged in audiotaped group interviews alongside psychiatric patients and their careers. These interviews were then analysed to identify common themes. This study found that following the program, there was a distinct reduction in stigma towards mental health as well as an increased understanding of the management of mental health patients. Additionally, apprehension levels towards working with psychiatric patients were found to reduce following exposure to the program. Further, Petkari, Masedo, Xavier and Küstner (2018) conducted a literature review to examine the stigma surrounding mental health by health care students before and after the completion of a clerkship (placement). Studies were included if they evaluated students before and after a placement experience where they had interactions with mental health patients. Six different databases were used to locate 22 relevant studies. This group of literature involved 3161 students studying a combination of medicine, nursing and occupational therapy. The results showed that there was a significant reduction in stigma in all included professions towards mental health before and after placements, showing the benefit of a practical mental health experience. By incorporating a variety of professions into this research and not just limiting it to medical students, it can be deduced that a practical mental health experience is beneficial for multiple professions and therefore could be effective for paramedics.

A mental health placement opportunity for medical students can not only assist in reducing stigma but can also improve attitudes towards mental illnesses through an improvement of knowledge and skill-sets. A study by Yidong, Huixi, Xiaoduo, Zhanchou, Lehua, Hailong, Zhimin and Xiaofeng (2014) was conducted to evaluate Chinese medical students' attitudes towards psychiatry and mental illness both before and after an 8-week psychiatry clerkship (placement) to examine changes. 325 medical students with no prior psychiatric training completed two different questionnaires when commencing and finalising their clerkship. One survey assessed attitudes towards psychiatry and the other assessed attitudes towards mental health. Analysis of the results found that students scored significantly higher on both scales at the completion of the 8-week program. Higher scores on both

questionnaires each indicate a more positive attitude towards the focused topics, representing an improved attitude by students to both psychiatry and mental health. The data presented in this study highlights the importance of a practical experience in order to enhance education and understanding towards mental illness.

Mental health presentations are becoming increasingly common in the medical field. It is therefore important that mental health training is an integral part of medical education (Australian Bureau of Statistics, 2015). This training is vital to not only prepare students to manage mental health patients, but to also gain an understanding of mental illnesses and associated treatment/management options. Gulati, Das and Chavan (2014) reported on a cross-sectional study to compare and evaluate how psychiatry training can affect students and interns' attitudes towards mental illnesses. 1st and 2nd year medical students without any prior psychiatry experience and interns were administered a series of questionnaires. These surveys focused on areas such as psychological distress, attitudes towards mental illness, attitudes towards psychiatric patients and treatment, psychiatrists, psychiatric institutions, teaching, knowledge and career choice. The data showed that students felt that psychiatry should be modified into a compulsory subject for medical students to create a better understanding of mental illnesses and to create more attentive students. This is due to the poor attendance rates to theory lectures, as was discovered within the surveys. Additionally, there were significant differences in responses between students and interns in certain areas of the questionnaires. The conclusion which can be drawn from the above is that practical experiences in psychiatry training impacts not only knowledge on mental health, but also attitudes towards the subject.

To adequately prepare students with the necessary knowledge and skills required to manage mental health patients, it is important to incorporate a variety of teaching and learning methods into their education, including practical experience. A report on the reconstruction of the psychiatry curriculum using the blended learning format by Mian, Chachar, Saeed and Naseem (2018) was conducted to ensure enhanced learning of medical students. The curriculum was reconstructed into 8 different modules with the aim of engaging students in a combination of learning methods. This included incorporating real-life patient encounters in clinics and wards. The new curriculum was received with high praise from participating medical students who found themselves more engaged in their learning experience. Additionally, the use of virtual learning was also found to be beneficial when incorporated into the medical student psychiatry clerkship. This report highlights the importance of practical experience for psychiatry education in addition to the incorporation of multiple teaching and learning methods to enhance education.

In order to fully immerse students in a practical mental health setting, student-run clinics and additional training programs have been created. These programs have allowed students to develop both understanding and knowledge in the psychiatry field, preparing them to enter the workforce. Martinez, Fargason and Meador-Woodruff (2017) describe the use of a case report format of a student-run psychiatric training clinic. The purpose of the clinic was to expose medical students to mental health patients, to enhance their clinical skill sets while also increasing interest and improving attitudes towards psychiatry through a practical experience. Medical students were able to participate in this training program as early as the first year of their programs. Students were given the opportunity to interact with patients during consultations and play a hands-on role in case reviews and clinical decision making by working alongside a qualified attending and resident. This study describes the increase in interest from participating students however, no data is presented as it relates to the effectiveness of such an experience. The positive interest shown from students, however, may suggest the positive impact that volunteering has had on their education. Similarly, an article by Delbridge, Zubatsky & Fowler (2017) reports on the Medical Family Therapists training program that trains medical students in primary and integrated care settings to provide therapy. This program allowed students to observe and participate in patient consultations and team meetings for patients with complex medical issues. According to this work, exposure to skills and techniques during training allows medical students to become better equipped and prepared to handle the complex mental health challenges of patients when entering the workforce. This increases evidence of the notion that practical training is a necessary component to prepare and educate students in the mental health field.

Studies have discovered the educational benefit that working with mental health patients in a practical setting can have on a student's knowledge. Marwood and Hearn (2019) created a cross-sectional study which evaluated mental health literacy levels in medical students via the mental health literacy scale. Another purpose of this study was to validate this measure. An online survey that incorporated the mental health literacy scale as well as a mental health experiences questionnaire was completed by 251 medical students aged 18 years and over enrolled in undergraduate medical training. Results were then analysed. It was found that there was a steady increase in scores with each year of study. Additionally, MHL scores were significantly higher in students who had previously worked with patients with a mental illness. These results represent that there is a greater understanding of mental health in students who have had practical experience with mental health patients, further representing the benefits of a psychiatric placement.

Students who have participated in a mental health related placement have given an overall positive evaluation of their experience. Russel, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith (2018) utilised a mixed-method design to evaluate and determine if participation in a psychiatry clerkship by medical students offers any educational value. 4th year medical students participated in a consultation/liaison psychiatry clinical clerkship where they were given the tasks of joining discussions with primary care clinicians, performing supervised clinical assessments, and administering a depression screening instrument. Students were required to develop a case report on the patients they interacted with that included diagnostic formulation and treatment recommendations. Following their placement experiences, students participated in focus groups to discuss their experiences and completed an anonymous online questionnaire. The focus group transcripts were reviewed using thematic analysis, and quantitative statistics were calculated from the questionnaire. Multiple themes emerged that demonstrated the added educational benefit that a psychiatry clinical clerkship had for medical students. Students reported higher levels of learning activity while on placement, how their professional identity has been shaped from the experience and additionally, how their personal stigma towards mental health has been modified. This study provides evidence that practical experience is an integral part of medical education with proven value.

Students with a history of interacting with mental health patients in a practical setting are found to be more comfortable in handling mental health situations. Murzl, Durns, Mowrey, Tubbs & Boeve (2017) reported on the creation of a student-run psychiatry clinic to be pioneered by volunteer medical students with the assistance of fully qualified psychiatrists for supervising and consultation purposes. 96 medical students volunteered at the clinic, 47 of which completed an online survey regarding their experience. The results indicated that the comfort levels of students working with patients with a mental illness increased following volunteering and exposure. 57% of students initially felt comfortable or very comfortable compared to the 79% of students after volunteering. This demonstrates the importance of mental health exposure throughout education to develop confidence and comfort in future practice.

When considering the benefits of a mental health practical experience for students it is important to consider the patients participating in the placements. A systematic review by Dearman, Joiner, Gordon and Vince (2018) was used to evaluate whether interactions between patients with a mental illness and medical students were seen to be a positive or negative experience from the patient's viewpoint. Studies were located that reported on patients with a primary diagnosis of mental illness without any prior medical training interacting with medical students. Two databases were utilised

producing 11,103 potential articles. These databases were subsequently condensed into 8 relevant studies to be utilised for the review. Overall, the study found that the large majority of patients found their experience to be a positive one when interacting with medical students. Additionally, patients perceived their interactions to be positive for the student as well in order to enhance learning, develop empathy and professionalism and to reduce stigma. This research does not evaluate the benefits of student mental health placements regarding the student's experiences. However, the study demonstrates a willingness of patients to consent to said students given that proper consent and they desire to assist in student education.

Although multiple studies discuss the benefits of a practical experience in order to improve attitudes towards mental health, there are some studies that have not found it to be of any value.

Furthermore, it is believed that sociocultural influences such as personal experiences with mental health result in higher acceptance levels. Chiles, Stefanovics & Rosenheck (2017) aimed to determine if students' attitudes towards mental illness, and its causes, change as they progress through their education. 289 responses from students across all five years of medical training were included in the study. Students were emailed a questionnaire consisting of questions that evaluated attitudes towards mentally ill patients as well as beliefs about what causes mental illnesses. Three main factors were evaluated from these results including social acceptance, biophysical causation and supernatural causes. This study did not show any significant evidence that longer medical training or the experience of a practical clerkship impacted on the attitudes towards the above factors for the participating medical students. However, it showed that students who documented having a personal experience with a mental illness scored higher levels of acceptance.

Limitations

It is important to note the limitations found in the researched studies. Petkari, Masedo, Xavier and Küstner (2018) discuss how their study did not evaluate whether mental health stigmas were influenced by peers or supervisors. Similarly, Russel, Clarke, Loo, Bharathy, Vasudevan, Byrne and Smith (2018) discuss the lack of evaluation regarding a supervisor's impact on students' positive outlooks towards their placement experience. There was a common limitation of the use of a small sample size from only one university in multiple studies (Gulati, Das, & Chavan, 2014; Marwood & Hearn, 2019; Yidong et al., 2014). Murzl, Durns, Mowrey, Tubbs & Boeve (2017) studied survey responses from 47 students, although 96 students in total volunteered at the mentioned clinic. Due to the small sample size studied, findings may not be completely accurate. Limitations from Chiles, Stefanovics & Rosenheck (2017), include both the small sample size and the \$20 payment that students received for participating in the study.

Conclusion

When asking the question ‘*What is the value of a mental health placement for medical undergraduate students?*’ it is important to take into account all relevant themes and common ideas found in previous research. Mental health placement opportunities have already had a significant impact on improving the stigma surrounding mentally ill patients (Bharathy & Foo, 2014; Petkari, Masedo Gutiérrez, Xavier, & Moreno Küstner, 2018). Furthermore, mental health focussed placements have been found to improve the understanding, knowledge and skill-sets in regards to mental health treatment and management options (Yidong et al., 2014). Due to the increasing occurrences of mental health presentations mental health education must be integrated into paramedic students training to ensure adequate preparation before students enter the workforce (Gulati et al., 2014). To add value to this training, a combination of different teaching and learning methods, including a practical experience, can be incorporated into curriculums (Mian, Chachar, Saeed, & Naseem, 2018). With the creation of additional training programs, students are able to gain the ability to work practically in the mental health field, and therefore further develop their understanding of psychiatry (Delbridge, Zubatsky, & Fowler, 2017; Martinez et al., 2017). When working in a practical setting alongside mental health patients, students have reported the increased benefit to their education, overall rating it as a positive experience (Marwood & Hearn, 2019; Russell et al., 2018). Placement opportunities have not only improved students’ knowledge and skill set but have improved comfort levels when working with mental health patients (Murzl, Durns, Mowrey, Tubbs, & Boeve, 2017). Mental health patients have also communicated their attitudes towards student placements and the majority were eager to take part and become involved in the education of others (Dearman, Joiner, Gordon, & Vince, 2018). While most of the research has found mental health placements to be of value to student’s education, some studies have had differing results showing no added benefits (Chiles, Stefanovics, & Rosenheck, 2017). A notable gap identified in the literature is the lack of research into whether this would be an effective implementation into the paramedic degree for future paramedics. Further research into this is recommended to prepare paramedic students with both the skills and confidence required in treating and managing mental health patients. Overall, it can be concluded that there is a definite value in medical students undertaking a mental health placement during their education. From this conclusion, a parallel can be drawn to the paramedic profession, where this training will likely significantly benefit.

Table 1. Search Strategy

Search number	Search terms used	Limitations	Results
1	Emergency Medical Technicians OR Education, Emergency Medical Services	Nil	1,238
2	Student OR undergraduate OR university OR college	Nil	351,656
3	Search 1 AND search 2	Nil	216
4	Mental health OR mental illness OR mental disorder OR psychiatric illness	Nil	199,395
5	Placement* OR student placement OR training	Nil	228,592
6	Search 4 AND search 5	Nil	11,939
7	Search 3 AND search 6	Nil	0
8	Students, Medical	Nil	13,630
9	Search 2 and search 8	Nil	13,630
10	Search 9 AND search 6	Nil	106
11	Search 9 AND search 6	Published between 2014-2019	62

Table 2. Articles retained in the literature review

Year of publication	Authors	Title	Journal
2014	Bharathy, A Foo, P. L	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	Medical Education
2014	Gulati, P Das, S Chavan, B. S	Impact of psychiatry training on attitude of medical students toward mental illness and psychiatry	Indian Journal of Psychiatry
2014	Yidong, S Huixi, D Xiaoduo, F Zhanchou, Z Lehua, L Hailong, L Zhimin, X	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	International Journal of Psychiatry in Medicine

	Xiaofeng, G		
2017	Murzl, C Durns, T Mowrey, L Tubbs, A Boeve, S. A	A medical student-run child and adolescent psychiatry clinic: One institution's experience	Academic Psychiatry
2017	Chiles, C Stefanovics, E Rosenheck, R	Attitudes of students at a US medical school toward mental illness and its causes	Academic Psychiatry
2017	Martinez, J. T. C Fargason, R. E Meador- Woodruff, J. H	Pre-clinical medical students as the primary longitudinal provider of psychiatric care in the outpatient setting: A novel training model	Academic Psychiatry
2017	Delbridge, E Zubatsky, M Fowler, J	Integrating mental health professionals in residencies to reduce health disparities	International Journal of Psychiatry in Medicine
2018	Dearman, S. P Joiner, A. B Gordon, M Vince, G	Experiences of patients with mental illness' interactions with medical students: A systematic review	Canadian Journal of Psychiatry
2018	Petkari, E Masedo Gutiérrez, A. I Xavier, M Moreno Küstner, B	The influence of clerkship on students' stigma towards mental illness: a meta-analysis	Medical Education
2018	Mian, A Chachar, A Saeed, H Naseem, A	Mental health curriculum for Pakistan: integrating virtual, classroom and onsite training	Medical Education
2018	Russell, V Clarke, M Loo, C. E Bharathy, A Vasudevan, U Byrne, E Smith, S. M	Medical student perceptions of the value of learning psychiatry in primary care settings in Penang, Malaysia	Academic Psychiatry
2019	Marwood, M. R Hearn, J. H	Evaluating mental health literacy in medical students in the United Kingdom	Journal of Mental Health Training, Education & Practice

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**Paramedic Student Perceptions of their Placement
Within the Inpatient Mental Health Setting**

You are invited to participate in a study about your thoughts regarding your placement experience in the Inpatient Mental Health setting in 2019.

As you were apart of the small select number of students given the opportunity to participate in this placement, you have a significant role and contribution in order to enhance paramedic mental health education and training in the future.

Your experiences and opinions would be highly valued and will play a major role in evaluating and potentially improving the paramedic curriculum. We would love to hear from you about your experience.

The purpose of this study is to gather information about how students perceive their placements as a learning tool in their first year of study in paramedicine.

This information will inform best practice in workplace learning for current and future students of CSU.

We encourage you to please complete a short survey. The survey is expected to take between 10 to 20 minutes of your time and will consist of some rating style questions and some open-ended questions that ask for your perceptions and thoughts regarding your placement experience.

The survey is completely anonymous and participation is entirely your choice. If you would like to participate please click on the following link.

Participation in this study is completely voluntary and will not affect your learning and/or marks in this subject. Furthermore, non-participation will not disadvantage you in any way with regards to your learning and/or marks in this subject.

Survey link <https://www.research.net/r/TX7WL3D>

Ethics approval for this study has been granted by the CSU Human Research and Ethics Committee: H18262.

Thankyou in advance for your contribution to this survey. The researchers greatly appreciate your input.

Appendix 5: Clinical Placement Evaluation Questionnaire

Appendix 1: Clinical Placement Evaluation Questionnaire.

CLINICAL PLACEMENT EVALUATION

Below is a 12-item clinical placement assessment questionnaire. Please circle your responses and submit together with your objectives, appraisal and journal.

The objectives are:

- To identify learning opportunities during the clinical placement
- To develop strategies to develop clinical skills
- To evaluate the clinical placement

	Strongly Disagree			Strongly Agree	
1. Overall, the clinical placement was a pleasant learning experience.	1	2	3	4	5
2. I felt well prepared for the placement.	1	2	3	4	5
3. I met my objectives to my satisfaction.	1	2	3	4	5
4. The placement assisted my learning.	1	2	3	4	5
5. The placement enhanced my clinical skills.	1	2	3	4	5
6. This placement was supportive of my professional growth.	1	2	3	4	5
7. There was adequate orientation provided.	1	2	3	4	5
8. I was expected by the venue.	1	2	3	4	5
9. The staff members were very willing and available to assist my learning.	1	2	3	4	5
10. As a result of my experience, I felt confident working in this venue.	1	2	3	4	5
11. There were many learning opportunities for me in this venue.	1	2	3	4	5
12. The clinical experience would benefit other students.	1	2	3	4	5

(a). What were the best aspects of this placement? Please explain why.

(b). What aspects of this placement could be improved? Please explain how.

Paramedic Student Perceptions of the experience in an Inpatient Mental health Ward

Project Supervisors Contact details:

Dr Natalia Bilton
Charles Sturt University
Port Macquarie
Email: nbilton@csu.edu.au
Phone: 02 65829359

Mr Robert Bear
Email: rbear@csu.edu.au
Phone: 02 65829438

Invitation

If you are a Charles Sturt University (CSU) student who has completed CLS103 (Paramedic Community Internship) and participated in a mental health placement at Port Macquarie Base Hospital, you are invited to participate in a study about your thoughts regarding your placement experience. This research is being undertaken by students from CSU under the qualified supervision of academics from CSU.

1. What is the purpose of this study?

The proposed research will provide information about how students perceive their placements as a learning tool in their first year of study in paramedicine. This information has clear potential to inform current practices leading to more student-centred approaches to learning and teaching.

2. What does this study involve?

If you agree to participate, you will be asked to complete a short survey after completing your placement. The survey is expected to take between 10 to 20 minutes of your time and will consist of some rating style questions and some open-ended questions that ask for your perceptions and thoughts regarding your placement experience.

3. Are there risks and benefits to me in taking part in this study?

There are no risks involved in participating in this study. The survey is completely anonymous. No potentially identifying information will be collected and it will not be possible for individual participant data to be identified. Participation in this study is also completely voluntary which means that you can withdraw your participation at any stage up to the submission of the survey. The benefits of participation are the potential of the information that you provide informing best practice in terms of workplace learning at CSU and other universities thereby enhancing the student experience. The questions are not of a personal or distressing nature, however, if you do feel distressed, you may wish to contact the CSU student counselling service at: counselling@csu.edu.au.

5. What if I don't want to take part in this study?

Participation in this research is entirely your choice. Only those people who give their consent will be included in the project. Whether or not you decide to participate is your decision and will not disadvantage you. If you do decide to participate, you may withdraw from the project at any time up to submission of the survey by simply closing the web browser.

6. What if I participate and want to withdraw later?

If you start the survey but decide that you do not want to complete it, then you can do so at any stage up to submission by simply closing the survey browser. It will not be possible to withdraw individual

data after submission of the survey because no identifying information is contained within the survey. It will not be possible to identify individual data after submission.

7. How will my confidentiality be protected?

No identifying information is collected as part of this research. Completion of the survey is completely anonymous.

8. What will happen to the information that you give me?

The results of this study will form the basis of a paper, or papers, for publication in a peer-reviewed journal and for presentation at an academic conference.

9. What should I do if I want to discuss this study further before I decide?

If you have any questions about this study please contact Dr Natalia Bilton by email (nbilton@csu.edu.au) or by phone (02 65829359).

10. Can I keep a copy of this information statement?

If you feel that you would like to keep a copy of this information statement, you can do this two different ways. The first way is to copy and paste this information into a Word document which you can save electronically. The second way is to email either of the project supervisors using the contact details stated above requesting a copy and one will be emailed to you as a pdf file.

11. Who should I contact if I have concerns about the conduct of this study?

NOTE: Charles Sturt University's Human Research Ethics Committee has approved this project. If you have any complaints or reservations about the ethical conduct of this project, you may contact the Committee through the Executive Officer:

The Executive Officer
Human Research Ethics Committee
Office of Academic Governance
Charles Sturt University
Panorama Avenue Bathurst NSW 2795
Tel: (02) 6338 4628
Email: ethics@csu.edu.au

Any issues you raise will be treated in confidence and investigated fully and you will be informed of the outcome.

Appendix 7: Raw Data

		My Likert-Type Scale is from left to right ----- Strongly Agree ----- Agree ----- Neither Agree nor Disagree ----- Disagree ----- Strongly Disagree								
Respondent Number	Answer Given to Question 1	Answer Given to Question 2	Answer Given to Question 3	Answer Given to Question 4	Answer Given to Question 5	Answer Given to Question 6	Answer Given to Question 10	Answer Given to Question 11		
1	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	
2	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
3	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
4	Strongly Agree	Neither Agree nor Disagree	Agree	Strongly Agree	Disagree	Agree	Agree	Agree	Agree	
5	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
6	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
7	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
Counts	Strongly Agree	7	3	6	7	5	6	6	5	
	Agree	0	3	1	0	1	1	1	2	
	Neither Agree nor Disagree	0	1	0	0	0	0	0	0	
	Disagree	0	0	0	0	1	0	0	0	
	Strongly Disagree	0	0	0	0	0	0	0	0	
	Total Responses	7	7	7	7	7	7	7	7	
MODE	Strongly Agree	Strongly Agree and Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
MEDIAN	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree	
	Strongly Agree	Neither Agree nor Disagree	Agree	Strongly Agree	Disagree	Agree	Agree	Agree	Agree	
	Strongly Agree	Strongly Agree and Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	
Frequencies	Strongly Agree	100%	43%	86%	100%	72%	86%	86%	72%	
	Agree	0%	43%	14%	0%	14%	14%	14%	28%	
	Neither Agree nor Disagree	0%	14%	0%	0%	0%	0%	0%	0%	
	Disagree	0%	0%	0%	0%	14%	0%	0%	0%	
	Strongly Disagree	0%	0%	0%	0%	0%	0%	0%	0%	

Appendix 8: Spearman's Rho Correlations

Table 1: Spearman's Rho Correlations

	Spearman's Rho	p
Answer given to question 1 Coded – Answer given to question 2 coded	NaN ^a	NaN ^a
Answer given to question 1 Coded – Answer given to question 3 coded	NaN ^a	NaN ^a
Answer given to question 1 Coded – Answer given to question 4 coded	NaN ^b	NaN ^b
Answer given to question 1 Coded – Answer given to question 5 coded	NaN ^a	NaN ^a
Answer given to question 1 Coded – Answer given to question 6 coded	NaN ^a	NaN ^a
Answer given to question 1 Coded – Answer given to question 10 coded	NaN ^a	NaN ^a
Answer given to question 1 Coded – Answer given to question 11 coded	NaN ^a	NaN ^a
Answer given to question 2 Coded – Answer given to question 3 coded	0.661	0.106
Answer given to question 2 Coded – Answer given to question 4 coded	NaN ^c	NaN ^c
Answer given to question 2 Coded – Answer given to question 5 coded	0.722	0.067
Answer given to question 2 Coded – Answer given to question 6 coded	0.661	0.106
Answer given to question 2 Coded – Answer given to question 10 coded	0.661	0.106
Answer given to question 2 Coded – Answer given to question 11 coded	0.683	0.091
Answer given to question 3 Coded – Answer given to question 4 coded	NaN ^c	NaN ^c
Answer given to question 3 Coded – Answer given to question 5 coded	0.764 *	0.046
Answer given to question 3 Coded – Answer given to question 6 coded	1.000 ***	< .001
Answer given to question 3 Coded – Answer given to question 10 coded	1.000 ***	< .001
Answer given to question 3 Coded – Answer given to question 11 coded	0.645	0.117
Answer given to question 4 Coded – Answer given to question 5 coded	NaN ^c	NaN ^c
Answer given to question 4 Coded – Answer given to question 6 coded	NaN ^c	NaN ^c
Answer given to question 4 Coded – Answer given to question 10 coded	NaN ^c	NaN ^c
Answer given to question 4 Coded – Answer given to question 11 coded	NaN ^c	NaN ^c
Answer given to question 5 Coded – Answer given to question 6 coded	0.764 *	0.046
Answer given to question 5 Coded – Answer given to question 10 coded	0.764 *	0.046
Answer given to question 5 Coded – Answer given to question 11 coded	0.986 ***	< .001
Answer given to question 6 Coded – Answer given to question 10 coded	1.000 ***	< .001
Answer given to question 6 Coded – Answer given to question 11 coded	0.645	0.117
Answer given to question 10 Coded – Answer given to question 11 coded	0.645	0.117

* $p < .05$ ** $p < .01$ *** $p < .001$

^a The variance in Answer Given to Question 1 Coded is equal to 0

^b The variance in Answer Given to Question 1 Coded, Answer Given to Question 4 Coded is equal to 0

^c The variance in Answer Given to Question 4 Coded is equal to 0

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