

ORIGINAL RESEARCH

Undergraduate paramedic students' empathy levels: A two-year longitudinal study

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Received: June 30, 2014
DOI: 10.5430/jnep.v5n1p58

Accepted: September 29, 2014 **Online Published:** October 27, 2014
URL: <http://dx.doi.org/10.5430/jnep.v5n1p58>

Abstract

Empathetic healthcare attitudes in patient care have been credited with increasing patient compliance, facilitating greater prognostic accuracy, enhancing patient satisfaction, reducing patient stress levels, minimising the rate of medical errors and achieving optimal physiological results. However, whether paramedic students have empathetic attitudes is largely unknown. Therefore, the objective of this study was to assess the extent of empathy in paramedic students over a two-year period from six Australian universities. This was a cross-sectional study employing a convenience sample of first, second, and third year undergraduate paramedic students during May 2011 and 2012. Student empathy levels were measured using the Jefferson Scale of Physician Empathy – Health Profession Students' version (JSPE-HPS). A total of 1,719 students participated in the study of which 57% (n = 979) were females. The two-year overall JSPE-HPS mean was 105.92 (SD = 12.85). Females had greater mean JSPE-HPS empathy scores than males 107.45 v 103.86 ($p < .0001$, $d = 0.28$). Interestingly, JSPE-HPS empathy scores did not decline as students progressed through their degree ($p = .541$). Results from this two-year study provide the paramedic discipline with important empirical evidence in its attempt to better understand the complex construct of empathy.

Key Words: Allied health personnel, Curriculum, Empathy, Paramedics, Paramedic students, Undergraduate

1 Introduction

Empathy is widely recognised as an integral component of positive healthcare provider - patient relationships^[1-9] and a highly regarded, if not essential attribute across the health professions. When attempting to define empathy, one encounters a plethora of definitions thus making empathy an elusive concept and difficult to teach and assess. Empathy is a multidimensional concept, viewed by some as cognitive process, other as an emotional (affective) characteristic, and more recently as a combination of both^[10,11] expanded on previous definitions of empathy as “a predominantly cognitive (rather than emotional) attribute that involves an understanding (rather than feeling) of experiences, concerns,

and perspectives of the patient, combined with a capacity to communicate this understanding and an intention to provide help”.^[10] Numerous studies credit empathetic attitudes and the absence of prejudices or stigma towards patients, leading to better patient compliance, more accurate prognosis, increased patient satisfaction, reduced patient stress and anxiety, and optimal physiological results.^[1,2,12,13]

While empathetic engagement with patients is an essential attribute across the health professions, the empathetic ability of paramedics is of particular significance given the unpredictable and often time critical situations they face. Also, as paramedic-patient interactions are brief and during patient-perceived emergency situations, it is imperative to estab-

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lish effective communication that conveys empathy early on in paramedic-patient encounters.^[14,15] Establishing patient trust in highly emotive emergency situations is dependent on paramedics' ability to provide patients with the perception of being understood, achieved through knowledge, (cognitive empathy) and understanding demonstrated through behaviour in the form of communication.^[16]

Empathy in paramedics facilitates the creation of an 'internal frame of reference' that allows paramedics to act in the best interest of the patient without sharing their pain.^[17] In the out-of-hospital environment where paramedics frequently encounter patients acutely unwell and emotionally distressed, the ability to remain objective stems from empathy as a cognitive process, rather than sympathy, as an emotional process.^[16,18] When immediate and life-saving interventions are required, the paramedic adopts a precarious balancing act between provided vital patient care and responding to the needs of the family. In such situations, empathetic communication is vitally important and has been identified as a determinant in relative's ability to cope after an intensely stressful occurrence.^[19]

While the importance of empathy among healthcare providers remains undisputed, there is evidence internationally that many health care students continue to demonstrate limited ability to communicate and demonstrate empathy in practice.^[2,20] A recent study found "Not only are some students incapable of demonstrating empathetic behaviours, many fail to even acknowledge the relevance of this vital skill in relation to their own future healthcare careers".^[11] Despite the abundance of literature supporting empathetic attitudes among the health professions, there are only a handful of papers on empathy specific to paramedics and the out-of-hospital environment.^[7,13,22-24]

Kluszcz and colleagues describe empathy not only as a personal attribute, but as a tangible skill.^[25] Hojat *et al.* (2004) identified that empathy in healthcare workers should be developed through professional education, citing the need to champion empathetic engagement in patient care as one of the most important roles of medical education.^[20] It therefore follows, that the importance of empathetic engagement with patients' and families' be taught to undergraduate paramedic students, as cognitive responses, the basis of empathy, can be learned and developed through instruction and clinical practice.^[16]

According to Kelly^[26] many healthcare students buckle to the pressure of efficiency over excellence and curing over caring. In the same way, inexperienced paramedics and paramedic students may become fixated on acquiring technical and procedural skills at the expense of communicating emphatically towards the patient.^[26,27] Understanding, which is based on learning, requires active effort and objectivity.^[18,28] While the need to develop empathy through undergraduate curricula is apparent, amorphous interpretations

of such a complex concept results in many educators, and clinical educators, struggling to incorporate empathy adequately into the curriculum or clinical training.^[3,29] Fostering empathetic attitudes among undergraduate paramedics in the face of mounting curricular demands and competencies remains a challenge for paramedic educators and associated universities.^[3,29]

Paramedics in Australia are currently an unregistered profession, and as such no national practice standards currently exist. There are 14 universities nationally offering undergraduate paramedic courses. Paramedic training differs between universities, however instilling empathetic attitudes and establishing positive paramedic-patient relationships are basic requirements and considered essential graduate attributes. The six universities that participated in the study offer undergraduate paramedic education in a pre-employment model, (pre-registration or pre-licence). This study adds another year of data and includes several different institutions from the original study.^[3,23] The objective of this study was to assess the extent of empathy in Australian paramedic students across six universities over a two-year period.

2 Method

2.1 Design

A cross-sectional study employing a convenience sample of first, second, and third year undergraduate paramedic students during May 2011 and 2012 across six universities nationally.

2.2 Participants

Ethics approval was initially obtained from the Monash University Human research Ethics Committee (MUHREC) and then from each participating university human research ethics committee. Students enrolled in undergraduate paramedic programs from Monash University (MU), Charles Sturt University (CSU), Victoria University (VU), La Trobe University (LTU), University of Tasmania (UT) and Queensland University of Technology (QUT) provided data for analysis. Because convenience sampling was used we were unable to calculate the total number of eligible students for inclusion in the study from 2011-2012. Inclusion criteria for the study were being enrolled on a full time basis in one of the aforementioned paramedic programs.

2.3 Instrumentation

Student empathy levels were measured using a standardised self-reporting instrument: Jefferson Scale of Physician Empathy – Health Profession Students (JSPE-HPS). There are 20 items, each answered on a 7-point Likert scale (strongly disagree = 1, strongly agree = 7). Ten of the items are positively phrased according to their Likert weights, and the

other 10 are negatively phrased and reversed scored for statistical analyses. The scale takes approximately ten minutes to complete and produces scores between 20 and 140. A higher score reflects a higher level of empathy. The JSPE-HPS has reported validity and reliability within the empathy measurement literature.^[10,20,30]

2.4 Procedures

During academic semester students were asked to contribute and participate in the study by an administrator from each participating university. All students were provided with an explanatory letter and details about the study. Involvement in the study was completely voluntary, had no bearing on their academic grades, and that no data was identifiable.

2.5 Data analysis

The Statistical Package for Social Sciences (SPSS; Version 19.0) was used for data storage, tabulation, and analysis. Means and standard deviations were used to describe the data. One-way repeated measure analysis of variance (ANOVA) was used to analyse differences in the age groups, gender, year level, and University. The effect sizes (d) were calculated to evaluate the findings results were considered statically significant. Results were considered statistically significant when $p < .05$.

2.6 Ethics

Ethics approval was obtained from the Monash University Human Research Ethics Committee (MUHREC) as the lead university in this project; respective ethics clearance was granted from each of the respective universities.

3 Results

3.1 Participant demographics

There were 1,719 students that participated in the study and were enrolled in the respective undergraduate programs from MU, CSU, VU, UT, LTU and QUT. The bulk of participants were enrolled in first year, 2011 $n = 368$ (48.6%), 2012 $n = 488$ (50.7%), predominantly female $n = 979$ (57.0%) v $n = 735$ (42.8%), mostly under the age of 25 $n = 1173$ (68.2%) and participating in a single degree. Victoria University represented the largest number of participants $n = 772$ (44.9%) and La Trobe university represented the least number of participants $n = 28$ (1.6%). The full demographic distribution is outlined in Table 1.

3.2 Mean scores and standard deviation

Empathy did not decline during course progression with third year students recording the highest mean empathy score across all 3 years, 106.37 ($SD = 12.67$). Students from LTU had the highest mean empathy scores, 109.62 ($SD = 15.02$), followed by CSU 107.75 ($SD = 12.97$).

Students from VU scored the lowest mean empathy scores, 104.84 ($SD = 12.92$). The total mean score and standard deviations from 2011-2012 for the JSPE-HPS were $n = 1671$, ($M = 105.92$, $SD = 12.85$). The internal consistency was measured using Cronbach's alpha coefficient. The resultant alpha coefficient for the JSPE-HPS was $\alpha = 0.79$ which was well above the commonly used 0.70 benchmark for scale reliability, (Hair *et al.*, 1995). For the full range of results see Table 2.

Table 1: Demographic distribution.

Variable	Descriptor	N	%
University	CSU	171	9.9
	MU	303	17.6
	QUT	224	13.0
	VU	772	44.9
	UT	221	12.9
	LTU	28	1.6
Total		1719	100.0
Gender	Male	735	42.8
	Female	979	57.0
	Total	1714	99.7
	Missing	5	.3
Total		1719	100.0
Age	15-19 years	416	24.2
	20-24 years	757	44.0
	25-29 years	341	19.8
	30-34 years	90	5.2
	35-39 years	51	3.0
	40-44 years	46	2.7
	45-49 years	9	.5
	50+ years	9	.5
Total		1719	100.0
Year level	Year 1	856	49.8
	Year 2	464	27.0
	Year 3	373	21.7
	Total	1693	98.5
	Missing	26	1.5
Total		1719	100.0

3.3 Empathy scores across different variables

There was a statistically significant difference between males and females ($M = 103.86$ v 107.45 , $t = 5.59$, $p < .0001$) and also between universities $F = 2.716$, $p = .019$, $d = 0.05$. Post-hoc comparison using Tukey HSD indicated that the mean score for VU ($M = 104.84$, $SD =$

12.92) was significantly different from LTU ($M = 109.62$, $SD = 15.02$). There was also a statistically significant difference between the year 2011 and 2012, ($M = 105.01$, $SD = 13.49$) v ($M = 106.68$, $SD = 12.25$) $F = 7.980$ $p = .009$, $d = 0.06$. There was no significant statistical difference between age groups (see Table 3).

Table 2: Mean scores and standard deviation.

Study Year	Variable	N	Mean	Std. Deviation
2011	CSU	75	107.77	14.20
	MU	126	105.76	13.07
	QUT	100	105.25	13.74
	VU	339	103.68	13.13
	UT	105	105.97	13.93
	LTU	12	106.91	15.94
	Male	326	102.41	12.98
	Female	429	106.99	13.55
	Total	757	105.01	13.49
2012	CSU	90	107.74	11.93
	MU	172	107.95	10.78
	QUT	118	106.27	11.59
	VU	411	105.79	12.68
	UT	108	106.89	13.24
	LTU	15	111.80	14.41
	Male	386	105.08	12.63
	Female	525	107.82	11.85
	Total	914	106.68	12.25
Year	1	823	106.14	12.78
	2	456	105.13	13.10
	3	392	106.37	12.67
	Total	1671	105.92	12.85

4 Discussion

This is believed to be one of the first longitudinal studies in Australia to examine paramedic student empathy levels across multiple universities. Numerous studies internationally have been conducted on empathy levels of undergraduate healthcare students using the JSPE-HPS, including nursing, pharmacy, dentistry and medical students.^[1,30,31] There are however only a handful of research papers on paramedic empathy which can be used to provide context and direct comparison to this study. One such study undertaken by Boyle *et al.* (2010) found paramedic students to have an overall JSPE-HPS mean empathy score of 106.32, supporting our finding of a JSPE-HPS mean empathy score of 105.92. The study by Boyle examined empathy levels among undergraduate students in six allied health professions – emergency health (paramedic), nursing, occupational therapy, midwifery, physiotherapy, and health sci-

ences at one Australian University found student paramedic empathy levels to be similar to those of other allied health students.^[22] As commonly reported in other studies, Boyle *et al.* found females to be significantly more empathetic than males, however in contrast to studies of similar subject groups; they found no significant difference between year level of study and course of study. Similarly, our findings demonstrated females to have higher levels of empathy than their male counterparts, supporting the ‘gender-related phenomenon’ well recognised among healthcare academia, where females are consistently identified as being more empathetic than males.^[1,20,22,31] Although recent work by Penprase *et al.* have found that male nursing students have higher empathy scores than non-nursing counterparts, which has been argued plays an important part in their choice to become a nurse.^[6] More work on these gender differences is warranted.

Many conflicting theories have been presented to explain this phenomenon; however academics have argued neural, emotional, anthropological, and societal constructs as potential explanations for the disparity.^[1,20,22,31] Any of these theories, singularly or combined, could potentially be applied to explain increased levels of empathy in female paramedic students; however without further research we cannot extrapolate our results to support any one theory over another. The JSPE-HPS mean empathy scores by gender rose for both males and females from 2011 to 2012. While not clinically significant, reasons for these mean score increases might include a greater awareness of empathy among faculty teaching staff through an increase in paramedic-based empathy studies. The JSPE-HPS identified student paramedic empathy levels declined between first year, ($M = 106.14$) and second year ($M = 105.13$), however were the highest ($M = 106.37$) during third year. These findings are in contrast to previous research, suggesting empathy levels of healthcare students decline during course progression.^[18,20,22,31]

One possible reason for this decay in empathy as students complete their degree is because of exposure to actual patient contact during clinical placements, professional socialisation with healthcare professions and the of systematization of their education.^[5,15,22,31] Exposure to patients and clinical environments for paramedic students at CSU, MU, QUT, VU, UT, and LTU begins in first year; however these shifts are usually observational only, with clinical placements involving actual patient care occurring during second and third years. Further longitudinal data are required to ascertain whether or not these results will alter over time to reflect the inverse relationship between empathy and clinical exposure commonly reported in healthcare research.^[18,20,31,32]

Table 3: Item level results mean scores and standard deviation.

Item	Mean	Std. Deviation
1. Health care providers understanding of their patients' feelings and the feelings of their patients families does not influence treatment outcomes	5.37	2.04
2. Patients feel better when their healthcare providers understand their feelings.	6.19	1.08
3. It is difficult for a healthcare provider to view things from patients' perspectives	5.95	3.93
4. Understanding body language is as important as verbal communication in healthcare provider-patient relationships	6.20	1.07
5. A health care provider's sense of humour contributes to a better clinical outcome	5.28	1.32
6. Because people are different it is difficult to see things from patients' perspectives	4.69	1.55
7. Attention to patients' emotions is not important in patient interviewing	5.71	1.48
8. Attentiveness of patients' personal experiences does not influence treatment outcomes.	4.95	1.54
9. Healthcare providers should try to stand in their patients' shoes when providing care to them	5.14	1.48
10. Patients' value a healthcare providers understanding of their feelings, which is therapeutic in its own right.	5.53	1.18
11. Patient's illnesses can only be cured by targeted treatment; therefore healthcare provider's emotional ties with their patients do not have a significant influence in treatment outcomes.	5.53	1.39
12. Asking patients about what is happening in their personal life is not helpful in understanding their physical complaints.	5.55	1.43
13. Healthcare providers should try to understand what is going on in their patient's minds by paying attention to their non-verbal cues and body language.	5.78	1.23
14. I believe that emotion has no place in the treatment of medical illness.	5.96	1.37
15. Empathy is a therapeutic skill without which a healthcare providers' success is limited.	5.26	1.45
16. Healthcare providers understanding of the emotional status of the patient, as well as that of their families is one important component of the healthcare provider-patient relationship.	5.60	1.18
17. Healthcare providers should try and think like their patients in order to render better care.	4.59	1.46
18. Healthcare providers should not themselves be influenced by strong personal bonds between patients and their family members.	3.42	1.46
19. I do not enjoy reading non-medical literature or the arts.	5.34	1.85
20. I believe that empathy is an important factor in patients' treatment.	5.82	1.20

The JSPE-HPS identified statistically significant differences in mean empathy scores between VU ($M = 104.84$), CSU ($M = 107.75$) and MU ($M = 107.03$). The highest JSPE-HPS mean empathy score was LTU ($M = 109.62$), however the small subject group, $n = 27$ and $SD = 15.02$ is a limitation in the reliability of this result. Universities consistently recording low JSPE-HPS empathy score may benefit from some curricula renewal to ensure adequate educational interventions or activities are in place to address the lower self-reported empathetic responses of their students. Examination of the JSPE-HPS results on a descriptive level revealed interesting results. Item 'Attention to patients' emotions is not important in patient interviewing', produced a mean of 5.71 ($SD = 1.48$), Item 'It is difficult for a healthcare provider to view things from patients' perspectives' produced a mean of 5.95 ($SD = 3.93$), Item 'I believe that emotion has no place in the treatment of medical illness' produced a mean of 5.96 ($SD = 1.37$), Item 'Patient's illnesses can only be cured by targeted treatment; therefore healthcare provider's emotional ties with their patients do not have a significant influence in treatment outcomes' produced a mean of 5.53 ($SD = 1.39$).

Tentative interpretation of these results includes paramedics viewing their future healthcare role in a medical therapeutic context only with little regard for the importance of empathetic engagement with patients. Identifying with the biomedical model of disease contributed to elitist attitudes, increased cynicism, and a resultant decline in empathy among medical students.^[20] McKenna *et al.*^[32] cited that clinical placements erode students' altruism and the replacement of altruism with cynicism corresponds with a decline in empathy. Another explanation proposed by Grevin^[33] suggests low empathy may serve as an adaptive mechanism that allows functional paramedic operation in a persistently stressful emergency workplace. Reduced levels of empathy as a protective mechanism for paramedic's psychological wellbeing requires further scrutiny, as paramedics work in unpredictable environments where they are frequently exposed to traumatic incidents.^[3] Rather than serve to contradict the importance of empathy in paramedic practice, the authors believe the results of this study further highlight the complexity of empathetic engagement with patients in the out-of-hospital setting. The authors believe that although these findings contribute to the body of

knowledge of empathy in paramedic practice, further research is needed to ensure paramedic curricula provides paramedic students with appropriate techniques and skill sets to respond empathically towards patients, without becoming emotionally entangled. It would be important that further research examines this construct into the workplace as full-time paramedics.

5 Limitations

This study has a number of limitations. First, the use of convenience sampling, while easier to recruit participants does not necessarily provide a representative sample. This is important regarding non-response bias particularly over the two-year period. Second, the use of a self-reporting such as the JSPE-HPS have a number of inherent biases that may not reflect participant's actual feelings or views. A further limitation is the uncertainty surrounding students' clinical placement exposure and what, if any, influence this might have on how they self-rate on the scale items.

6 Conclusion

The findings of this study suggest female paramedic students report higher empathy levels than their male counterparts and that empathy levels did not decline during course progression. The overall findings of this study provide a framework for paramedic educators to begin constructing guidelines that focus on the need to promote and instil empathy into paramedic students and ensure they possess the necessary skills to succeed in pre-hospital healthcare practice.

Acknowledgements

We would like to thank the students for participating and completing the questionnaires.

Conflicts of Interest Disclosure

The author declares that there is no conflict of interest statement.

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