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Simulation Based Learning

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‘Does the use of volunteer patients for skills practice have an impact on physiotherapy student skill performance and acquisition when applying core cardiorespiratory skills? A randomised controlled pilot study’

Background

- High quality patient centred care is at the heart of pre-registration health professional education.
- Key priority of current health care policy and is embedded in the requirements of physiotherapy training.
- The application of theoretical knowledge to clinical placement is a primary goal of undergraduate physiotherapy education.
- Access to clinical placements is becoming an increasing challenge - pressure within clinical sites to provide enough places.
- Availability of time for clinicians to feedback and provide supervision can be limited.
- Increased demand on HE establishments to provide environments that support the 'realism' of the clinical setting.

Levett-Jones and Lathlean (2009) suggest a hierarchy of competence for effective learning in clinical practice.

Students need to:

- Feel safe and secure
- Have self efficacy
- Knowledge and experience of what to expect in the clinical environment

Once achieved – positive impact on clinical placement

Traditional Practice

- Assessment and treatment skills on 'peers'
- Their 'patients' know what to expect
- May have detrimental impact on students learning, teaching and clinical application, due to practice on those with no expectations
- Links with Dewey's theory of experientialism 'action related to its consequences'

- Issenberg et al. 2005 indicate that for the development of clinical/practical skills learners need to engage in repeated and deliberate practice and receive specific and focused feedback.
- Includes communication skills, modifications for effective practice and integration of clinical reasoning.
- Integrating a simulated patient - 'person portraying a patient' may be beneficial for this.

Simulation

An increasing number of HE institutions are using simulated learning environments (SLEs) and simulation based education (SBE) in an attempt to find more effective and efficient means of teaching and assessing clinical knowledge and reasoning skills (Bradley, 2006; McGaghie et al. 2011).

Simulation

Indeed, simulation is now considered a 'central thread in the fabric of medical education' (McGaghie et al. 2010).

Simulation Based Education

- SBE provides a controlled, safe environment and any potential errors are not associated with any adverse consequences (Alinier, 2007).
- Tasks can be separated into different learning components, practised in part, enhanced, and then integrated into an overall competency skill (Alinier, 2007).
- Benefits for the assessment of communication, history taking and interviewing skills (Howley et al 2008) of medical and nursing students have been established (Howley et al 2008).
- The evidence base is however still developing for other health professions.

SLE and Volunteer Patients

- Standardised patients (SP's) has been well documented for over 50 years since Barrows and Abrahamsons' (1964) reports.
- Within RGU they are referred to as Volunteer Patients (VP's).
- Used in order for the students to complete a number of learning outcomes.

Volunteer Patients

- VP's are considered to offer a reliable and valid platform so that clinical skills assessment can be utilised.
- Same scenario to offer the students an equitable learning experience.
- Manipulate the complexities of cases to individualise to particular student needs (Flanagan et al. 2007).

Volunteer Patients

- Role of VP's within simulation affords the student the ability to improve their skills on a similar type of population that they will come face to face within clinical practice.
- Literature into this effectiveness of VP's within physiotherapy is sparse and requires further investigation.
- Anecdotal evidence through feedback at RGU is positive.

Research Question

Does the use of volunteer patients for skills practice have an impact on physiotherapy student skill performance and acquisition when applying core cardiorespiratory skills? A randomised controlled pilot study

Aim(s) and Objectives

Aim – To investigate the impact of volunteer patients on physiotherapy student skill acquisition and performance.

Objectives

1. To measure skill performance and acquisition during teaching of ACBT and initial clinical diagnosis making by way of clinical reasoning within the scenario.
2. To measure the effect of using volunteer patients on communication, attitudes and behaviours when performing the core cardiorespiratory skills.
3. To determine if the use of volunteers has an impact on confidence levels and self-rated competence when the students are performing the core cardiorespiratory skills.
4. To investigate student views and reflections on their learning within the skills practice.

Research Project

- Matched pairs research design - year 2 BSc (Hons) undergraduate physiotherapy cohort (n=28)
- Randomly allocated to 2 groups (1 group consists of volunteer patient teaching practice (n=14) 1 group consists of peer teaching practice (n=14))
- 3 hours of practical cardio-respiratory teaching in their relevant group
- 20 min assessment of their clinical skills with the volunteers - skill application and acquisition within the cardio-respiratory field
- Clinical skills assessed MiniCex assessment tool and subsequent information gathered from the students using the same measurement tool

Data Analysis

- Quantitative - tested for differences in the MiniCex using the non-parametric Wilcoxon Matched Pairs Test.
- Qualitative - The qualitative data was analysed via a thematic framework analysis.

Key Findings

- Statistically significant between-group differences in 6 of the 7 MiniCEX variables in favour of the intervention group ($p < 0.005$)" and no statistically significant between-group difference in physical interview skills ($p = 0.46$)
- Student reflections suggested beneficial effects on the cognitive, affective and psychomotor components of learning. They consistently appeared to feel more professional, focused, confident, and competent and feel more prepared for clinical placement

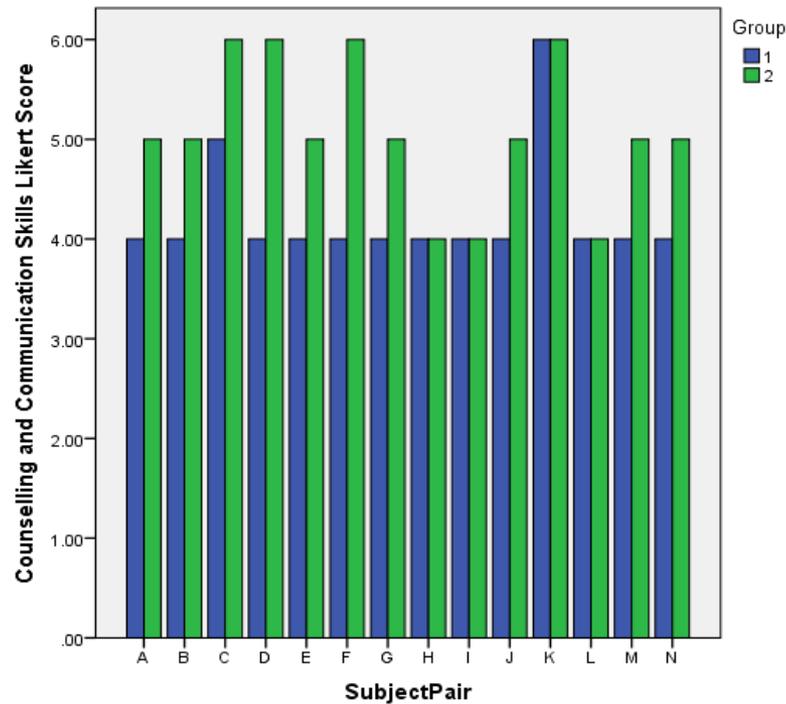
Test Statistics^a

	Medical Interview Skills Gp2 - Medical Interview Skills Gp1	Physical Interview Skills Gp2 - Physical Interview Skills Gp1	Counselling and Communication Skills Gp2 - Counselling and Communication Skills Gp1	Clinical Judgement Gp2 - Clinical Judgement Gp1	Consideration Patient/Professionalism Gp2 - Consideration Patient/Professionalism Gp1	Organisation/Efficiency Gp2 - Organisation/Efficiency Gp1	Clinical Competence Gp2 - Clinical Competence Gp1
Z	-1.999 ^b	-.816 ^b	-2.972 ^b	-3.035 ^b	-2.804 ^b	-2.810 ^b	-2.889 ^b
Asymp. Sig. (2-tailed)	.046	.414	.003	.002	.005	.005	.004

a. Wilcoxon Signed Ranks Test

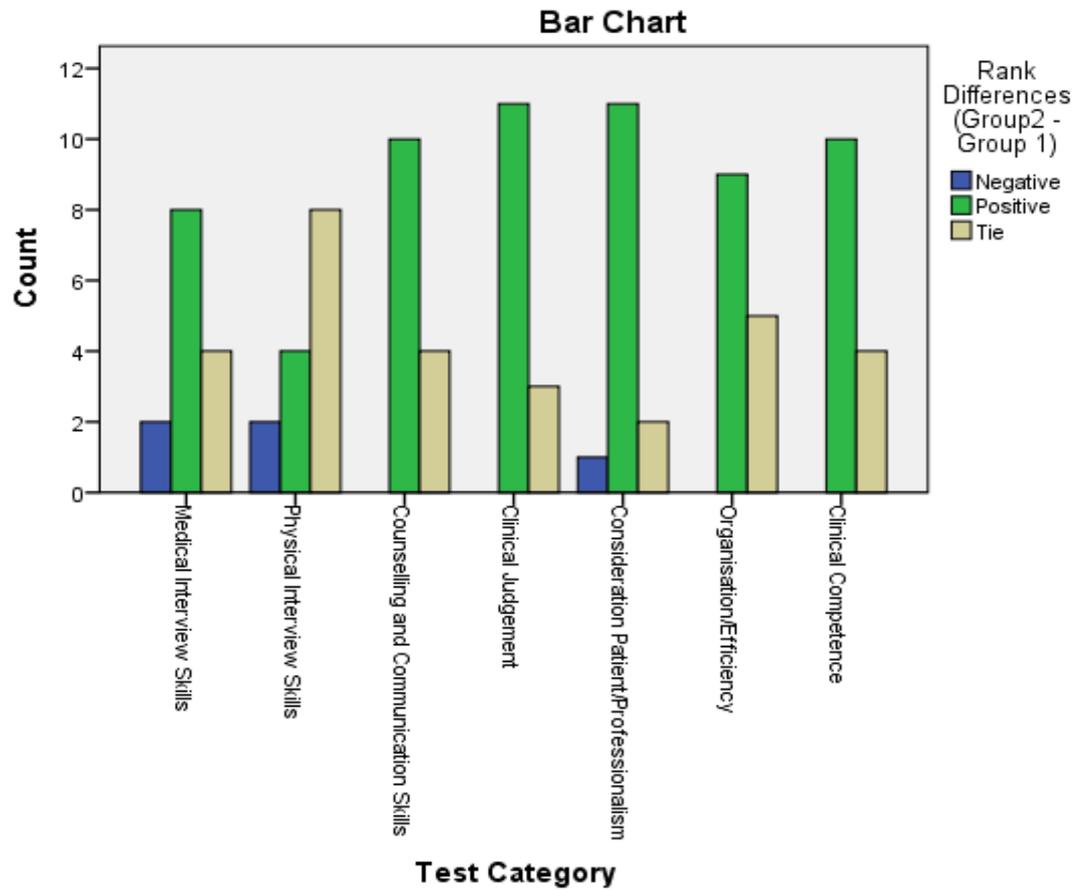
b. Based on negative ranks.

Visual evidence of differences between subject pairs with 10 intervention group scores 1 Likert point score higher than control group and 4 ties.



Test Category * Rank Differences (Group2 - Group 1) Crosstabulation

			Rank Differences (Group2 - Group 1)			Total
			Negative	Positive	Tie	
Test Category	Medical Interview Skills	Count	2	8	4	14
		% within Test Category	14.3%	57.1%	28.6%	100.0%
	Physical Interview Skills	Count	2	4	8	14
		% within Test Category	14.3%	28.6%	57.1%	100.0%
	Counselling and Communication Skills	Count	0	10	4	14
		% within Test Category	0.0%	71.4%	28.6%	100.0%
	Clinical Judgement	Count	0	11	3	14
		% within Test Category	0.0%	78.6%	21.4%	100.0%
	Consideration Patient/Professionalism	Count	1	11	2	14
		% within Test Category	7.1%	78.6%	14.3%	100.0%
	Organisation/Efficiency	Count	0	9	5	14
		% within Test Category	0.0%	64.3%	35.7%	100.0%
	Clinical Competence	Count	0	10	4	14
		% within Test Category	0.0%	71.4%	28.6%	100.0%
Total		Count	5	63	30	98
		% within Test Category	5.1%	64.3%	30.6%	100.0%



Student reflections of working with peers in Vs volunteer patients

1.0 Peer Interaction

1.1 Peer Behaviours	Poor concentration	Go off in tangents	
	Easily distracted	Less pressure	
1.2 Peer Self-awareness	Self conscious	Less confident	More nervous
1.3 Peer Teaching	Peers know what they are doing – not teaching		
	More nervous	Less explanation	
1.4 Peer Feedback	Less feedback from peers		
1.5 Realism	Difficult imagining being a patient	Not as real	



Student Reflections of working with volunteer patients Vs peers

2.0 Volunteer Patient Assessment

2.1 Behaviour and attitudes	Cognitive Thinking		Improved focus	Reduced stress & anxiety
	Physio mode		Professional	
2.2 Volunteer patient feedback	Positive	Accurate	Honesty	Quality
2.3 Assessment	Observation of breathing and patterns		Anatomy teaching and assessment	
2.4 Learning	Preparation		Pressure	Skills into Practice
	Answering questions		Practice	Ease
2.5 Teaching	Clearer explanations		Teaching the VP's	
	Modification		Complex Skills	
2.6 Realism	Different Ages		Different body sizes	
	Clinical Placement		More real	
2.7 Skills and attributes	Enhanced Communication		Increased confidence	
2.8 Client and setting	Exposure to different people	Clinical environment		Safer

Reflective Points

‘Required a more professional approach than with our peers’

‘Increased the need for effective communication’

‘Consolidated my knowledge of ACBT’

‘Increased my engagement with the background reading’

‘Allowed me to use the correct language with the volunteers as its mimics clinical practice’

‘More realistic’

Impact to Learning Experience

‘Feel more confident approaching patients who may be critically ill’

‘It put more pressure on me to perform well, thus, improving preparation for classes and pre-reading’

‘Helped me think about ways to improve my communication’

‘Helped me think quicker on my feet’

‘Beneficial to enhance professionalism’

‘Helped me to reflect on my performance’

‘Able to gain feedback from the volunteers’

‘Assisted me to cement and consolidate my skills’

Conclusions

- Simulation Based Education utilising VP's has beneficial effects on communication skills, self-competence, self-confidence, learner motivation, professionalism and clinical skills acquisition in a cardiorespiratory environment
- Using a VP educational approach may have a positive impact on self-confidence and self-efficacy that affects the student's ability to acquire knowledge and clinical skills



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