

An evaluation of a structured learning programme as a component of the clinical practicum in final year bachelor of nursing programme: a pre–post-test analysis

Elizabeth Watt, Maria Murphy, Elizabeth Pascoe, Andrew Scanlon and Sharon Gan

Aim and objective. To evaluate the impact of a structured learning programme as a component of the clinical practicum in final year bachelor of nursing course on the student's report of their anxiety and self-efficacy pre–post programme participation.

Background. Student anxiety and low levels of self-efficacy are known to affect the quality of clinical learning. A three-day structured learning programme at the commencement of an acute care clinical placement was designed to reduce student anxiety and enhance self-efficacy.

Design. A pre–post test design.

Method. Outcome measures: The hospital anxiety and depression scale (The HAD) and the general self-efficacy scale (GSES-12) were administered prior to the commencement of the structured learning programme (time one) and at the end of the programme (time two).

Results. One hundred and twenty final year students undertaking an acute care clinical placement participated in the programme in three cohorts and completed the questionnaires at time one and 118 at time two.

Findings. Students levels of anxiety > 8 with The HAD pre–post programme 53 vs. 30% ($p < 0.001$). Levels of self-efficacy < 40 with the GSES-12 pre–post programme were 7 vs. 4% ($p < 0.001$).

Conclusions. Participation in the structured learning programme resulted in a statistically significant reduction in student anxiety and increase in self-efficacy across the three cohort groups. This effect can be achieved with the development of a relatively low cost/low technology structured learning programme that is part of an acute care clinical placement.

Relevance to clinical practice. Nurse educators should not assume that students are less anxious about their acute care clinical placements as the semester proceeds. There is a typical correlation between increased anxiety and decreased self-efficacy which is likely to impact on student learning in the clinical setting. Significant results can be achieved with a relatively low cost and a low technology enabling intervention.

Key words: anxiety, clinical learning, clinical placement, nursing, quantitative research, self-efficacy

Accepted for publication: 30 September 2010

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Introduction

The Division of Nursing and Midwifery at an internationally renowned university established two clinical schools of nursing, on site in the two largest acute hospitals in their metropolitan city. The Clinical Schools are a collaborative endeavour between the two hospitals and the University which aim to reduce the theory practice gap in the provision of undergraduate and postgraduate nursing education; to increase nursing research; and to develop a range of collaborative endeavours and exchange of ideas. Students in the final year of their Bachelor of Nursing (BN) degree attend a clinical school. The majority of classes and all final year acute nursing clinical placements are undertaken at one of the two clinical schools.

A major aim of establishing the clinical school model has been to develop a sustainable programme which enhances clinical learning opportunities for the students. This has involved close collaboration with hospital staff in the planning of clinical placements; development of an educational programme for the registered nurses (hospital staff) who volunteer to participate in the clinical programme in a preceptor type role with students; and provision of on-going support during the clinical programme for the nurses and nursing students. The students work alongside a registered nurse(s) for the duration of their placement on the same weekly roster. Integral to the clinical programme is the involvement of academic staff in direct support of the registered nurses working with the students. This model of clinical support has enabled close evaluation of student learning by the clinical school academic staff as well as gaining ongoing feedback from clinical staff and nurse unit managers.

While students have satisfactorily progressed through their final year subjects, as a result of the ongoing evaluation of the clinical programme, several issues that reduce the effectiveness of clinical learning have been identified. Feedback from students, the registered nurses working with the students and the nurse unit managers revealed that many students were having difficulty with:

- The collection and management of clinical data in the context of high acuity and short hospital stay;
- The use of complex health assessment data collection tools;
- Documentation, verbal handover and liaison with other health team members in a complex health care environment;
- Lack of confidence with skill techniques including the ability to be flexible with clinical procedures without compromising underlying principles;
- Identifying their clinical learning objectives.

In part these issues were the result of the difficulty some students were having in transferring skills and knowledge learned from the second year of the course into a more complex health care environment while trying to manage multiple competing demands including time pressure and the complexity of the patient situations. For many students this resulted in a significant increase in anxiety and reduced confidence. This can lead to the tendency for the student to focus primarily on the achievement of tasks rather than clinical learning and can also increase stress for the clinical staff they are working with. As a result the student's clinical experience and clinical learning can be compromised.

To address these issues a structured three-day pilot programme was developed to trial the use of alternative ways to assist students to achieve the skills and knowledge they need to progress in the acute and complex clinical environment whilst addressing their apparent anxiety and lack of confidence in the clinical practicum hours. Meetings were held with representatives from both affiliated hospitals and clinical school staff and unanimous agreement was reached about the development of a pilot programme. This paper will describe the development, conduct and evaluation of the structured learning programme.

Background

The stressful nature of undergraduate clinical placements in nursing programmes is well described in the literature (Elliott 2002, Lo 2002, Timmins & Kalizer 2002, Cook 2005, Gibbons *et al.* 2008, 2009, Chan *et al.* 2009, Moscaritolo 2009). Several sources of stress and distress for students' during their clinical placements have been identified including the placement setting, congruence between what has been learned and what is actually practiced in the clinical environment, clinical staff attitudes towards students and time constraints (Gibbons *et al.* 2008, 2009); lack of professional knowledge and skills (Chan *et al.* 2009, Jimenez *et al.* 2009); student interaction with clinical staff and their perceived commitment and interest in working with students (Pearcey & Elliott 2004).

The discussion in the nursing literature primarily focuses on the exploration of sources of stress, the perceived level of stress in nursing students or the measurement of stress in nursing students. It is interesting to note that the terms 'stress' and 'anxiety' are often used interchangeably in the nursing literature. In this study, we were particularly interested in one of the effects of stress identified in the literature: that is anxiety. While there are several studies that explore anxiety in nursing students, few measure the level of anxiety. In an early study, Beck (1993) used a phenomenological method to

explore nursing student's perception of their initial clinical experiences. While the findings of this study are limited because of the method used and the small sample size ($n = 18$), one of the significant themes to emerge was the students perception of 'pervading anxiety' that effected their ability to learn in the clinical environment. Similarly, a cross sectional study by Jimenez *et al.* (2009) of 357 Spanish undergraduate nursing students explored stress and health. Results identified that the stress experienced by students significantly affected their health. In this study, stress was measured by using the perceived stress scale (PSS) and the student's biopsychosocial responses to stress were measured using the biopsychosocial response scale (BPSRS). Both scales have been reported to be reliable (Jimenez 2005). Students were found to perceive clinical placement as 'moderately' stressful and this was the most significant source of stress for students in each year of the course. The most common consequence of stress on student's health as measured by the BPSRS related to psychological symptoms classified as anxiety, cognitive and depressive symptoms. This study found that the degree of psychological symptoms experienced by these students directly related to the perceived degree of clinical placement stress and that these symptoms were significant enough to adversely affect the student's health status and had the potential to affect their learning throughout the course.

For the purposes of this paper, anxiety is defined as 'a vague uncomfortable feeling exacerbated by prolonged stress and the presence of multiple stressors' (Lazarus & Folkman 1984, p. 4). The level anxiety that students' experience is of concern because high levels stress and anxiety can adversely affect student learning and progress in a clinical placement (Elliott 2002, Levett-Jones & Lathlean 2008, Chan *et al.* 2009, Jimenez *et al.* 2009, Manning *et al.* 2009, Moscaritolo 2009).

While reduction of student anxiety is an important goal of nursing academics involved in undergraduate programmes, another goal particularly in the final year is to increase the student's self-efficacy. Self-efficacy has been defined as 'the belief of a person in his or her ability to organise and execute certain behaviours that are necessary to produce given attainments' (Bosscher 1998, p. 339). Terms related to self-efficacy include: self-control, self-actualisation, self-confidence, self-care agency and perceived competence (Berarducci & Lengacher 1998). Bandura (1982, 1997) had suggested that the term self-efficacy should not be confused or substituted with concepts such as self-esteem or, self-image as these are separate constructs concerned with judgements of self-worth. In contrast to self-efficacy, the latter constructs do not reflect self-beliefs. Behaviours associated with high self-

efficacy are persistence and, high perseverance in the face of adverse circumstances (Bandura 1982). Whilst behaviours associated with low self-efficacy are apathy, stress, depression and self-doubt (Bandura 1982). Generalised self-efficacy has been described as a global confidence to cope across a range of situations (Barlow *et al.* 1996). Increased anxiety has the potential to decrease a person's self-efficacy.

The structured learning programme

The primary objectives of the structured programme were to increase student confidence in their clinical knowledge and skills so that they are able to get the most out of their clinical experience and to reduce any anxiety. It was also anticipated that the programme would provide an opportunity for early identification of students who are struggling with their clinical learning. The Nurses Board of Victoria (our nurse registering body) gave formal approval to conduct the pilot structured learning programme as it was part of a clinical placement and used time that was usually spent undertaking traditional 'bedside' clinical activities.

The programme was conducted over the first three days of the four-week clinical placement and used a variety of learning modalities specifically chosen because of their potential to reduce student stress and anxiety such as:

- a mixture of group learning, peer mentorship and reflective activities;
- low fidelity simulation (related to drug calculations, medication administration, interpreting and documenting using patient charts, i.v. fluid administration including using an IV pump, typical clinical scenarios where students are challenged).

These learning modalities were carefully chosen for their proved efficacy in reducing student stress and anxiety and improving self-efficacy in students in the clinical environment (Gibbons *et al.* 2008, Chan *et al.* 2009, Manning *et al.* 2009, Moscaritolo 2009, Prescott & Garside 2009). Activities (supported by academic staff) during the structured learning programme included: orientation to the ward area and patient profile, attendance at patient handovers, health assessment and clinical reasoning activities (on patients in the ward environment), identifying learning issues; care planning, skills development sessions and identifying ward resources.

Aim and purpose of the study

The primary aim of this study was to evaluate the effect of a three-day structured learning programme in the clinical placement on the final year nursing students' report of

anxiety and self-efficacy pre- and postprogramme participation. The secondary aim was to determine whether each of the three cohorts of students required a structured programme in their final year and thirdly, to establish if there was any correlation between self-reported levels of anxiety and self-efficacy.

Methods

A pre–post test design was used for this evaluation. The study sample ($n = 118$) was final year undergraduate nursing students on an acute care clinical placement in the largest acute care public hospital in the metropolitan city. The intervention comprised a three-day structured learning programme on starting the clinical placement. Full details of the three-day programme are available from the corresponding author.

Ethics approval

Prospective ethics approval was obtained for this project from the University's Faculty of Health Sciences, Human Ethics Committee. Students were assured (verbally and in writing) of their anonymity, informed that the participation in the study was voluntary and formed no part of their formal assessment. To enable matching of pre–post data, students were asked to generate their own identification code using a combination of their parents' initials: a method previously reported (Edwards *et al.* 2004).

The participants and setting

All students were invited to participate in the evaluation of the programme ($n = 118$). Prospective participants were drawn from a multicultural pool comprised mostly female students (89%) who were enrolled in the final year of a BN degree in an Australian metropolitan university. At the time of participating, students had commenced semester one of study in their final year and had been exposed to a broad range of clinical placements in the two previous years their degree programme, although none were undertaken in such a complex acute care environment.

Data collection tools

One 30-point questionnaire was developed consisting of asking participants about their previous nursing experience in addition to the anxiety subscale of The hospital anxiety and depression scale (The HAD) and the general self-efficacy scale (GSES-12). The HAD has two separate subscales for anxiety and depression. Each subscale can be reported separately

(Zigmond & Snaith 1983). The HAD is a 14-item questionnaire (Zigmond & Snaith 1983). Seven items are allocated to anxiety and seven to depression. Validity (Zigmond & Snaith 1983, Hermann 1997, Spinhoven *et al.* 1997) and reliability (Quintana *et al.* 2003) have been reported in the non-psychiatric setting. Each question on The HAD can be scored from 0–3. In both subscales, a score < 8 equates to no evidence of anxiety (or depression), < 11 as probable anxiety (or depression) and > 14 indicates severe anxiety (or depression) (Zigmond & Snaith 1983, Hermann 1997, van Ede *et al.* 1999). The seven-item anxiety subscale was employed for this evaluation for its ease of use and reliability when used in the general population (Phillips *et al.* 2009).

The content of GSES-12 has been reported as consistent with assumptions that the assessment of whether a task can be successfully accomplished will affect the outcome of the behaviour and, that mastery experiences are generalisable to new situations (Berarducci & Lengacher 1998). The GSES-12 has been reported to be internally consistent with a Cronbach's alpha 0.69 and within each subscale a Cronbach's alpha > 0.63 . The inter-item correlations varied between 0.16–0.38. Whilst an alpha coefficient of 0.8 is ideal, 0.7 is still acceptable (Courtney 2005). The validity of the instrument for the population being studied had been reported to be as equally important as the alpha coefficient (Strommel & Willis 2004). Initial validation of the instrument was with a broad population in the domains of social skills and vocational competence in university students (Sherer *et al.* 1982). Responses on the GSES-12 are selected from a five-point descriptor scale ranging from strongly disagree to strongly agree. The 12 questions are scored from 1–5 with a maximum score of 60 units (Woodruff & Cashman 1993). Higher scores articulate with greater self-efficacy. Students completed and returned the questionnaire prior to the commencement of day one (time one) and at the end of the three-day programme (time two).

Data analysis

All data were analysed using SPSS Version 17 (SPSS Inc., Chicago, IL, USA). Descriptive statistics was calculated for all results. The data were examined to determine whether the distribution of results was not significantly different to a normal distribution. Normally distributed data are reported as a mean and standard deviation. Statistical significance was set at $\alpha = 0.05$. Paired sample *t*-tests were performed to determine whether participation in a three-day structured learning programme generated a statistically significant reduction in anxiety and improvement in self-efficacy in the programme's participants. ANOVA was performed to

determine if the order of the cohort may have had on the student's baseline levels of anxiety or self-efficacy. The Pearson product moment correlation (r) was used to identify any correlation between the dependent variables. This is a bivariate parametric statistic used when both dependent variables are normally distributed (Morgan *et al.* 2004). The effect size was then compared against guidelines of effect size measures (Cohen 1998).

Results

Questionnaires were collated ($n = 118$). Participants were asked to report on their previous nursing experience and in what capacity and time frame as shown in Table 1. The primary aim of this study was to evaluate the effect of a 3-day structured learning programme in the clinical placement on the final year nursing students' report of anxiety and self-efficacy pre- and postprogramme participation. Preliminary data analysis of the anxiety dataset confirmed that these data were normally distributed as evidenced by the skewness statistic at time one (skewness = 0.33) and at time two (skewness = 0.31). Following participation in the structured learning programme there was a statistically significant reduction in self-report of anxiety $t(117) = 7.68, p < 0.001$ by the students and a reduction by group mean by 1.8 (SD 0.7). The minimal clinically important difference (MCID) in this measure is a reduction in score of two points (Zigmond & Snaith 1983).

Preliminary data analysis of the self-efficacy dataset confirmed that these data were normally distributed as evidenced by the skewness statistic at time one (skewness = -0.74) and at time two (skewness = -0.71). Following participation in the structured learning programme, there was a statistically significant increase in self-report of self-efficacy $t(117) = -4.68, p < 0.001$. The group mean (SD score) increased by 2.3 (0.3) points. The MCID for this measure is unreported.

The secondary evaluation was undertaken to determine whether the baseline level of anxiety and self-efficacy

reported by the students was dependent on whether this was their first, second or third clinical placement as a final year BN student as shown in Fig. 1. An ANOVA identified no statistically significant difference in self-report of anxiety by cohort; $F(2,115) = 1.02, p = 0.360$. All groups reported similar levels of anxiety regardless if this was their first, second or last clinical placement in their final year.

Self-efficacy by cohort was examined to determine whether the baseline level of self-efficacy reported by the students was dependent on whether this was the first, second or third clinical placement as a final year BN student as shown in Fig. 2. An ANOVA identified no statistically significant difference in report of self-efficacy by cohort; $F(2,115) = 0.98, p = 0.380$. All groups reported similar levels of baseline self-efficacy irrespective if this was their first, second or third clinical placement in third year.

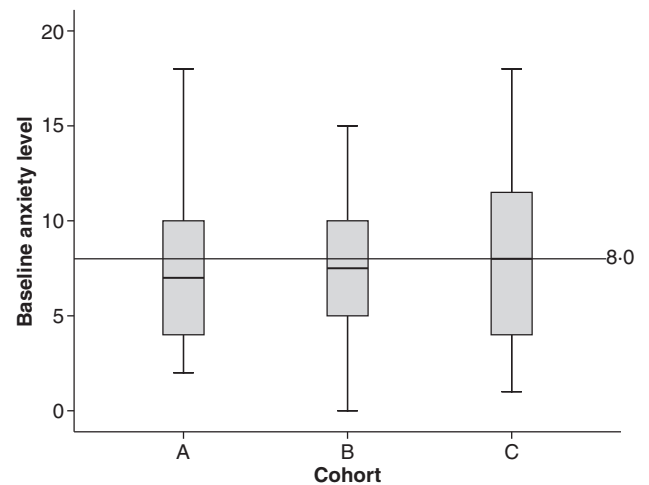


Figure 1 Baseline self-report of anxiety.

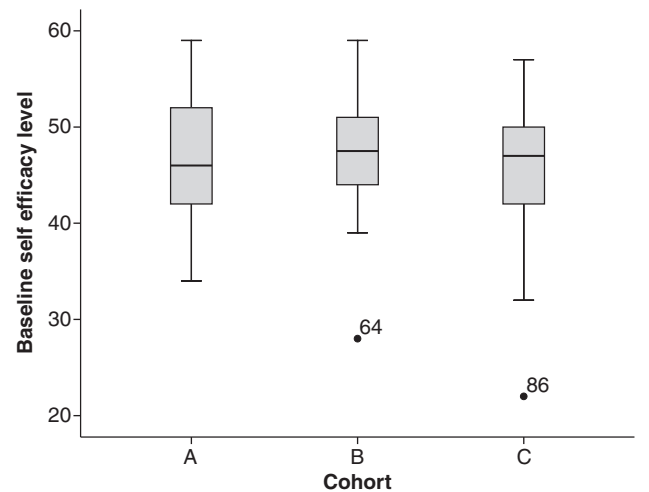


Figure 2 Baseline self-report of self-efficacy.

Table 1 Self-report of nursing experience at baseline

Nursing experience	$n = 118, n (\%)$
Nursing experience prior to BN studies	35 (30)
Capacity of that baseline experience	
Patient carer	13 (37)
Enrolled nurse	21 (60)
Other	1 (3)
Years of experience in that capacity	
< 2	17 (49)
< 5	13 (37)
> 6	5 (14)

To investigate if there was a statistically significant association between baseline self-reports of anxiety and self-efficacy, a correlation was computed. The Pearson correlation was calculated: $r(116) = -0.44$, $p < 0.001$. The direction of the correlation was negative which means that students who had high levels of anxiety tend to have low levels of self-efficacy and vice versa. Using Cohen's (1998) guidelines, the effect size is typical. Further, the r^2 indicates that approximately 30% of the variance in anxiety scores can be predicted by the self-efficacy scores.

Discussion

The acute care sector remains a large component of the clinical practicum for most university Bachelor of Nursing programmes. At the same time there are pressures experienced by the clinical staff who work in this health sector with reduced length of patient stay, increased acuity and complexity of care, staff shortages and rotating shift work. Previous reports have espoused the merit of a preceptor ship model (Mills *et al.* 2005) and a hospital affiliated clinical supervisor per group of eight students (Croxon & Maginnis 2009). Both models are generally well-regarded. However, anecdotal feedback from final year students in previous years at our university identified common reports of psychosomatic symptoms and insomnia in anticipation of their forthcoming clinical placement. This led us to consider the urgent need for adjunct measures. Further, if students are reporting clinical levels of anxiety and low self-efficacy then it was reasoned that learning in the workplace could not optimally occur.

The vast majority of the students in the programme had enrolled in their BN as a direct continuation from their schooling. Only 30% of the cohort reported prior exposure to nursing and largely in the role of an aide. The group mean (M) and standard deviation (SD) measures of anxiety was less than eight yet a wide range in values from 0–18 was reported as shown in Fig. 2. Participation in the structured learning programme resulted in a statistically significant decrease in student anxiety. A reduction in score by two points in this measure had earlier been identified as articulating with the MCID. The group M(SD) was close to this point suggesting that the intervention in addition to producing a statistically significant reduction in the participants' anxiety, also generated a clinically evident outcome as well. These results concur with other evaluations of being mindful of the importance of the nursing students' mental health during their clinical placement (Shikai *et al.* 2009).

Improved self-efficacy was another statistically significant outcome that arose from participation in the three-day intervention. In this instance, a statistically significant corre-

lation was identified between improving the participant's self-efficacy and reducing their anxiety with a typical effect size. This secondary analysis was undertaken as the inverse relationship between these two measures has not previously identified in the BN education literature. Further analysis identified that irrespective of whether the students had one, two or no clinical placements prior to their acute placement there was no statistically significant difference in their level of anxiety reported here. This suggests that all students require access to this enabling intervention regardless of whether they have come from a recent clinical placement or returning from a deferred year from university studies.

Limitations

Limitations to this study are those common to all research using quantitative methods. Maturation with time in study participants and repeated testing with the same questionnaires can compromise the internal validity of a study (Schneider *et al.* 2007). Further, The Hawthorne effect is well recognised (Cormack 1996). The experience of taking a pretest on the score of a post-test had been identified as a threat to internal validity. The post-test was undertaken in this study on completion of the structured clinical programme and is therefore a limitation on the effect. However as Schneider *et al.* (2007) point out 'finding a threat to internal validity in a study does not invalidate the results' (p. 200). The entire cohort elected to voluntarily participate in this study at both time points. Questionnaires were returned whether completed or not to clearly labelled boxes outside of the tutorial rooms rather than to the teaching staff to offset the risk of bias.

Reporting on all those who enrolled in the study reduces bias in reporting results that excludes the non-participants (Heritier *et al.* 2003). Whilst this study was able to report outcomes for the entire cohort, one limitation in the interpretation of results is that it was not a randomised controlled trial. With randomised studies extraneous variables are controlled for (Schneider *et al.* 2007). Extraneous variables can be antecedent or intervening. Examples of antecedent include, but not limited to, variables such as age and gender. Intervening variables may occur during the course of the study and are unrelated to the dependent variables. We could not assess the effect of gender on outcomes as the cohort is overwhelmingly female therefore no secondary analysis by gender was considered.

We contend that the findings are transferable to other final year undergraduate nursing students on clinical placement because the students had been in a variety of clinical settings in first and second year, have a range of work and life skill

experiences which they bring to their clinical placement and this would be consistent with many Schools of Nursing. This intervention had effect irrespective of being the student's first or last clinical placement in their final year of the Bachelor programme.

Conclusion

This is the first report that we are aware of that has quantified final year BN students' reports of both anxiety and self-efficacy at baseline and following participation in a novel structured clinical programme. Based on these findings, it would appear that all students may benefit from a structured learning programme prior to working with their preceptor nurse in a clinical placement. In addition, this evaluation has generated a further query as to the duration of the benefits of this intervention.

Relevance to clinical practice

Final year BN student's report of anxiety and self-efficacy can be optimised with a structured learning programme as a component of the clinical practicum. In this study, large numbers of students reported high levels of anxiety and low levels of self-efficacy before the commencement of the structured learning programme. This is of concern as there are reports in the literature of the adverse effect of anxiety and low levels of self-efficacy on learning in the clinical setting. Participation in this structured learning programme

resulted in a statistically significant reduction in student anxiety and increase in self-efficacy across the three cohort groups. In clinical practice, nurse educators should not assume that students are less anxious about their acute care clinical placements as the semester proceeds. However, this study contends that significant results can be achieved with a relatively low cost and a low technology enabling intervention. It would be worth examining in further studies if these results can be replicated and to examine the duration of the effect over the course of a semester.

Acknowledgement

We would like to acknowledge the work of Dr Helen Forbes into the initial discussions about the development of the structured learning programme. A synopsis of this paper was presented at the International Council of Nurses 24th Quadrennial Congress, 27 June–4 July, 2009, Durban, South Africa: <http://www.icn.ch/congress/2009/presentations.htm>.

Contributions

Study design: EW, MM, EP, AS, SG; data collection and analysis: EW, MM, EP, AS and manuscript preparation: EW, MM, EP, AS, SG.

Conflict of interest

None.

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