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ABSTRACT

In an increasing technologised and cost-constrained healthcare environment, the role of pre-registration nursing education in nurturing and developing the professional caring disposition of students is becoming far more critical than before. In view of this growing demand, the aim of this study was to evaluate the impact of Singapore's pre-registration nursing programmes on students' concept of caring. A descriptive quantitative cross-sectional survey collected data using the Caring Behaviour Inventory from first and final year nursing students, nurse lecturers and nurses in practice. The findings based on student surveys indicated a statistically significant reduction in the overall level of caring behaviour in first to final year students. When compared with the findings of lecturers and nurses, less variance to lecturers than to nurses was found amongst the first years' score, and the lowest variance to nurses was demonstrated amongst the final year. A greater reduction was evidenced amongst Singaporean students, which was exaggerated with exposure to pre-enrolled nursing education and magnified with caring job experience. This study indicates more effort is necessary to harness student caring attributes in students' entire educational journey so that expressive caring is not subsumed in the teaching of students to meet demands of complicated contemporary care.

Key words: Expressive Caring, Instrumental Caring, Nursing Education, Pre-registration, Singapore, Surveys

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INTRODUCTION

Caring as the essence of nursing is the core professional value recognised by many nursing-oriented professional and regulatory bodies (Nurse and Midwifery Council, 2010; Canadian Nurses Association, 2008; American Nurses Association, 2011). There are two co-existing dimensions to caring; 1) the instrumental caring which is the ‘doing’ of care, it is goal-orientated with an aim to achieve efficiency and good evidenced-based treatment, 2) the expressive caring, involving a series of patient centred attitudes based on interactions, all of which are carefully strategised in order to show respect, gentleness, sensitiveness and patience (Sherwood, 1995). In other words, instrumental caring behaviour is about achieving physical health and comfort (Sherwood, 1995) and expressive caring is about meeting psycho-social needs for inspiring a sense of hope and sense of worth in order to encourage healing (Jourard, 1971). However, physical health and mental health are inextricably linked (CMHA, 2008). Individual’s physical well-being is affected by one’s psycho-social/emotional status which has the potential to impact the former. In this regard, expressive and instrumental caring behaviours are equally important factors in determining individuals’ health and well-being.

Nurse caring as a whole has long been regarded a critical core professional value of compassion and an ability to respond with humanity and kindness to others’ pain, distress, anxiety or needs (Department of Health (DH), 2012). It is also, the possession of knowledge of assessed needs and related scientific principles to identify ways in which to give comfort and relieve suffering (DH, 2012). Hence, every professional nurse is expected to have a combination of instrumental and expressive caring attributes portrayed in self image, as well as to care receivers. However, such a dualistic caring concept remains difficult to measure and quantify (Curtis, 2013; Bray et al., 2014), particularly when being caring is about nurses being able to understand the world of a suffering patient (Eriksson, 1997) which not only varies between patients, but could also change from time to time in the same person. Yet any professional nurses were not only expected to display caring attributes but also, to do so skillfully.

While nurses are demanded to have the knowledge and skills to contextualise care to meet the unique needs of individuals, the ability to care as a nurse is expected to develop while individuals were being exposed to nurse education, particularly at early stages in pre-registration and pre-qualifying programmes (Fahrenwald et al., 2005; Willis, 2012). This was because it was believed that any good nursing practices introduced prior to an individual obtaining a professional qualification and gaining entry to the professional nurse register, were more likely to be retained. In this regard, pre-registration nurse education in higher

learning was expected to underpin high quality nursing care in practice (Davies et al., 2000). In North America, the nursing curricula in the late 1990's were underpinned by Watson's caring concept which was supposed to ensure that nurses developed caring behaviours (Hatem et al., 2008; Hughes et al., 1998; Simmons & Cavanaugh, 2000). Similar efforts were evidenced in other countries (Anthony & Landeen, 2009; Baldacchino, 2008; Khouri, 2011; Öhlen & Holm, 2005; Wu et al., 2009). In the United Kingdom (UK), the Nursing and Midwifery Council has also given pre-eminence to compassionate client-centred care; the concept of caring, in line with Watson's 10 carative factors was even emphasised in the new 'all-graduate nursing programmes' which were implemented nation-wide in September 2010. In essence, nursing curricula in many countries were putting increased emphasis on expressive care, based on Watson's (1988) philosophical and ethical perspectives, grounded in humanism. Many of these curricula ended up being based on a human science perspective related to meeting patients' psychological and emotional needs (KaraÖz, 2005; Wolf et al., 1994; Woodward, 1997).

BACKGROUND TO SINGAPORE NURSING EDUCATION

Singapore is highly influenced by developments in other countries and its advancement in nursing education is heavily influenced by the West (Loke, 2012). However, despite the all-graduate programmes being introduced in the UK and well-established in North America, Singapore pre-registration nursing education remain predominated by programmes at diploma level delivered in polytechnics. The diploma nursing programme was established to replace the certificate programme in 2001. Since then, it has continued to be segregated from pre-enrolled nursing education which prepared individuals as enrolled nurses with responsibilities similar to that of healthcare assistants in other countries such as those in the UK.

Similar to pre-registration nursing programmes in other developed countries, a nurse diploma is earned in 3-years alongside achieving a registered nurse qualification. The diploma also allows individuals to continue an academic pursuit for a nursing degree based on two choices: either via direct entry to a second year nursing degree programme at the local University or by

undertaking a 1-year conversion degree programme at selected Australian and English Universities. In terms of its component, the curriculum comprises 50% theory and 50% clinical experience. However, the weekly teaching of clinical knowledge and skills in simulation labs are closely linked to a particular theoretical component, and therefore contributes to the 50% theory component. For example, simulation teaching and learning of endo-tracheal suctioning and ventilated patient care is linked to a critical care module and accounts for the 50% theory.

Due to this practice, more than 50% of the curriculum appears to focus on clinical knowledge and skill competence to achieve efficiency and good evidenced-based treatment giving the impression that the curriculum emphasises the instrumental aspect of caring (KaraÖz, 2005; Wolf et al., 1994; Woodward, 1997). In reality, expressive caring is simultaneously emphasised when nurse lecturers facilitate learning in simulation sessions using high fidelity manikins. To further ensure expressive caring is acquired alongside the learning of instrumental caring, clinical educational approaches which are similar to those seen in Australia and North America were employed; whereby all clinical learning experience in authentic clinical and community settings were supported and summatively assessed by the nurse lecturers. In order to allow students to learn more about caring as expected of a professional nurse, clinical teachings are also supported by clinical instructors who are practicing nurses.

The two aspects of instrumental and expressive caring are not only present in the curriculum, but forms a thread through the entire pre-registration nursing educational experience including the extra-curricular activities; international visits to developing countries and mentorship support programmes. In essence, underpinning the nursing educational experience are the 5 C's concept; caring, compassionate, commitment, competent and challenging; the focus of nursing education at diploma level was about imparting knowledge and skills to

achieve good quality nursing goals and task-orientated interventions based on outstanding patient experiences.

The phenomenon of nursing education can be explained by the local government's requirement during the downturn of the economy in the 1990's, that Singapore's workforce was expected to adapt. In healthcare, nursing practice must keep abreast the advancement in medical technologies; as a result, instrumental caring is an important aspect in pre-registration nurse education, but this was emphasised without compromising expressive caring which is critical to a service-oriented healthcare system. Singapore has not only prospered in the uncertain economy, but has also achieved a good reputation for its healthcare system as a regional hub (Lim, 2005; Lam 2012). Whether the equal emphasis of expressive and instrumental caring in Singapore nursing education was a result of this success is yet to be established. In order to have a good insight to the contribution of nursing education to the Singapore healthcare system, its effect on individuals' caring attributes should be determined. In this regard, it is not only important to establish the caring disposition of individuals, who were receiving nursing education but also, that of individuals who were delivering it. Hence, this study was conducted to determine the caring disposition of the following key stakeholders; 1) existing first year student nurses who had minimal curricula exposure and final year students who were about to complete the programme; 2) nurse lecturers who have direct responsibility for nurturing and developing the caring attributes of student nurses and 3) nurses in practice who were once exposed to the programme and were students' clinical role models for developing and nurturing student caring attributes.

RESEARCH DESIGN

This study employed a quantitative cross sectional survey using a structured questionnaire developed for this study and the Caring Behaviour Inventory tool (CBI) by Wolf et al. (1994); the former was to elicit demographic data and the latter was to establish the caring concepts of the participants. The surveys aimed to obtain structured responses from as many participants as possible within a given time period.

Methods

Between July and August 2012, a purposive sampling method was employed to access nurse students and nurse lecturers from one of Singapore's largest nursing schools, which was responsible for producing more than 50% of the current Singapore nursing workforce (Tan, 2012). The purposive sampling was subsequently repeated at a research seminar which was organised by the Singapore Nurses Association that was opened to all nurses from various care settings in hospitals and communities. At the point of this study, nurses in Singapore were expected to conduct research. However the majority of nurses had not the required educational preparation for this advanced level role (Loke et al., 2014). Many, especially those who have direct involvement in clinical teachings of students attended the seminar, making it a good potential source for obtaining a representative sample.

Participants

The first and final year students in the institution were accessed prior to lectures which required compulsory attendance. At the time of the surveys, first year students had 6 months of theoretical and clinical curricula exposure and final year students had six months of clinical experience remaining before graduation. Any nurse lecturers from the institution who were responsible for delivering the nursing curriculum were accessed at their place of work. Finally, nurses who participated at a research seminar in practice were accessed and those involved in clinical teaching of nurse students were selected for the study.

Instruments

A non-standardised questionnaire which elicited the demographic information was developed for this study, the Caring Behaviour Inventory tool (CBI) by Wolf et al. (1994). This was based on Watson's transpersonal caring theory, in which nurse caring was conceptualised as an interactive and inter-subjective process. This tool was selected because its 42-items were based on 5 correlated subscales: respect deference to others, assurance of human presence, positive connectedness and competent professional knowledge and skills. Thirty items aim at measuring expressive caring, eleven items measure the instrumental aspects of caring and one item measures both (Table 1). Measurement is based on a forced-choice 4-point likert scale and the sum of each item produces a total scale score which could range from 42 to 168.

This tool has a high cronbach's alpha of 0.96 and a test-retest reliability of $r=0.82$ on 42 nurses was reported in a recent study (Wu et al., 2006). The tool is popular because it is simple to understand and it has been used on first year and final year nursing students to evaluate the effects of nursing education (Murphy et al., 2009). However, the study was not in Singapore; hence it was piloted amongst 20 local students from the various years whose scores were not included in the findings of this study. The pilot study indicated no revision of the 42 items was needed. A cronbach's alpha of 0.922 was demonstrated in the current study.

Ethical considerations

The CBI was used with permission. Ethical approval for the study was obtained from the institutions of the researchers. After the purpose of the study was verbally explained to all participants, the CBI was distributed along with the non-standardised questionnaires and the written informed consents. Volunteer participants returned the questionnaire and their signed written informed consent forms by dropping them into two separate collection boxes left outside of the fourth author's office and the reception counter at the seminar. A few of the participants posted their responses and signed written consents to the researchers using separate prepaid envelopes. In line with ethical research practice, numbering was used as

identification to preserve the anonymity of the participants. The contact details of the researchers were also given to the participants for any queries they might have.

Data analysis

All data were entered into the statistical package for social sciences (SPSS) version 19 for descriptive and inferential analyses. The demographic data was summarised based on descriptive statistics. The caring behaviour between student participants and their nationalities, pre-enrolled nursing educational experience and previous caring work experience were analysed based on descriptive statistics and independent samples t-tests. The findings of each student group were then compared with that of the nurse lecturers and clinical instructors to determine which of these two groups student caring attributes resembled.

RESULTS

Demographic data of students

Students who completed and returned the questionnaires were representative of the targeted cohort: 240 of the 320 first year students and 417 of the 500 final year students (Table 2) responded to the invitation giving a response rate of 75.0% and 83.4% respectively. Data showed that nursing continued to attract more females; in both cohorts, less than 20% of students were males. The mean age of the first year students was 19.34 (SD 3.577) and that of the final year was 21.32 (SD 3.691). Students were generally young and were likely to have undertaken this nursing programme immediately upon completion of their secondary and post secondary education without any previous work experience. Evidently, students with previous caring job experience were in low numbers (Table 2); 13 (5.42%) first year students had worked as enrolled nurses and 26 (6.24%) final year students had same job experience.

Almost 50% of the entire sample was non-Singapore citizens from neighbouring countries, which also accounted for the low number of students with previous caring job experience. These international students were recruited directly from schools and were international scholars under the ASEAN Scholarship scheme offered by the Singapore government.

The academic profile of students demonstrated that nursing education at diploma level continued to attract individuals with generally lower academic ability compared to other non-nursing disciplines at the same academic level (Table 2). Less than 2% of students in both cohorts possessed an academic qualification at Advanced Level for General Certificate of Education (GCE 'A' level). Many students [(n_{1a}=215 (89.58%); (n_{1b}=378 (90.65%))] had successfully gained a place in the higher education institution to pursue nursing based on an Ordinary Level for General Certificate of Secondary Education (GCSE 'O' Level) with some [(n_{1a}=19 (7.9%); (n_{1b}=30 (7.21%))] possessing the local enrolled nursing qualifications - the National Institute of Technical Education Certificate. In terms of reasons for undertaking a nursing programme, many students claimed to possess a caring attribute [(n_{1a}=117 (48.8%); (n_{1b}=175 (41.97%))], many also provided "job satisfaction by caring for others" [(n_{1a}=127 (52.9%); (n_{1b}=160 (38.4%))] (Table 3) as a reason for undertaking nursing.

Demographic data of nurse lecturers and nurses in practice

All 75 nurse lecturers at the institution were invited to participate and fifty-five responded giving a response rate of 73.33%. All 202 seminar participants returned the questionnaire giving a response rate of 100% (Table 4). The questionnaires by 33 nurses were analysed. This is because they who had received nursing education from the institution from which the students and nurse teachers were sampled, were also actively involved in clinical teaching of students at the time of this research. The 33 nurses were employees in either secondary care [n=30 (90.9%)] or primary care [n=3 (9.1%)]. The gender profile of qualified nurses was similar to the students' which reflected the profile of nursing in the country. Unlike the

student samples, many registered nurses were Singapore citizens and had many years of experience in their current position as nurse lecturers (13.15 years) and nurses (17.4 years).

Students' caring attributes

A high mean score of CBI was obtained by students in the 2 different years (Table 5). Both had achieved an overall high mean score and also a high mean score for each item. There was a reduction in the mean score from first year to final year; for each item, the final year students scored lower than the first year, except for items 3, 4 and 5 (Figure 1). There was an overall reduction in the mean response and was significant at $p < 0.001$. While that was the case, there was an increase in standard deviation between the different cohorts of students. This suggested increased diversity in the final year responses which implied tendency for opinions to differ as more nursing knowledge was acquired.

When the caring scores were compared with the nurse lecturers and clinical nurses, the first year students attained a mean score with smaller variance to lecturers than to clinical nurses (Table 6). On the contrary, the scoring of the final year demonstrated a low variance to nurses in practice, but a significant high variance ($p < 0.001$) to the nurse lecturers. It was apparent that students' caring attributes in the first year were similar to the nurse lecturers whereas, those in the final year were similar to the clinical nurses.

Students' caring attributes based on nationality

The mean scores of the Singaporeans were generally higher than students of other nationalities in their respective cohorts (Table 7). Nevertheless, the standard deviations of the mean scores of Singaporeans were higher; demonstrating that their perceptions of caring behaviour varied more than the non-Singaporeans. While the reduction of score appeared to be slightly greater amongst the Singapore students (0.14) than their peers (0.13), the independent samples t-tests demonstrated significance in the reductions for both Singaporeans and non-Singaporeans. Albeit the downward trend in reduction, the Singaporean students

appeared to have started with a higher caring attribute than their peers, they were also the ones who also achieved a higher mean score in their final year.

Students' caring attributes based on pre-enrolled nursing education

When the analysis was conducted based on students' previous exposure to pre-enrolled nursing education, other than items 4, 5, 22, 37, 38 which covered both aspects of caring, there was a general reduction in mean response for each item in year 3. There was also a statistically significant overall reduction in the mean response from first year to final year ($p=0.046$) (Table 7). Similarly, for students who had not received pre-enrolled nursing education, there was a reduction in mean response for each item in year 3 except for items 3, 4, and 5 (Figure 1). The reduction was smaller, but significant at $p<0.001$. Regardless of a pre-enrolled nursing qualification, it seemed that there were statistically significant reductions in the mean response between first year and final year students. Nevertheless, the reduction was magnified amongst those who had been exposed to the pre-enrolled nursing education.

Students' caring attributes based on caring work experience

The final analysis was conducted on the basis of previous caring work experience, to investigate the effects of previous job experiences in enrolled nursing or paramedics (Table 7). Students in the first year who had caring work experience achieved a higher mean score ($x_{1a}=3.64$). The standard deviations of mean scores of students with previous caring job experience demonstrated that their perceptions of caring behaviour were similar and less varied. The highest reduction in score was demonstrated between those who had previous caring job experience. Based on the independent samples t-test, the reduction was significant at $p=0.002$. Evidently, students who had the enrolled nursing experience would have started out the pre-registration nursing education with a much higher caring score than their peers. However, these students were leaving the diploma programme with the same level of

behaviour scoring as their peers who did not have the work experience. In essence, regardless of previous caring experience, students in the final year scored similarly ($x_{1b}=3.35$, $x_{1b}=3.34$).

Caring attributes of nurse lecturers and nurses in practice

Nurse lecturers and nurses in practice have scored high for items which were about expressive caring behaviours (Figure 2). In descending order, nurse lecturers have scored high on items 8, 3, 1 and 29, with the highest score of 3.76 for “showing respect for the patient”. Similarly, clinical nurses have scored high on items 3, 1, 8 and 28 with the highest of 3.73 for “Treating the patient as an individual”. Although both groups had achieved an overall high mean score, nurse lecturers appeared to have consistently high scores for all 42 items and have achieved a higher mean score [$x_{2a}=3.50$ (sd=0.39)] than clinical nurses [$x_{2b}=3.37$ (sd=0.32)].

DISCUSSION

Almost half of the student participants demonstrated to have the essential caring disposition in nursing [$n_{1a}=117$ (48.8%); $n_{1b}=175$ (42%)] (Table 3). Based on the findings, both cohorts of students scored a high CBI mean, with the first year resembling more of the nurse lecturers than the final year students, whose score difference from the clinical nurses was less and insignificant ($t=0.36$, $p<0.72$). A more positive response set was obtained among the first year students, especially the Singaporeans. The high scores of the 126 (52.5%) Singapore students were attributed, in part, to their previous care experience; 19 (7.92%) of whom had undertaken an enrolled nursing programme, and 14 (5.83%) had previous caring work experience.

Other than the specific caring experience, Singaporeans were exposed to concepts of caring at a young age. The Singapore government placed a lot of emphasis on the concept of community care where the locals were encouraged to care for each other. The study of

humanities was also reinforced in schools at all levels in developing students' ability to understand and appreciate different perspectives, as well as for nurturing students' cultural sensitivities and civic awareness (Hodge, 2012). In other words, every Singapore citizen learns about the concept of expressive caring as part of their daily living experience.

Higher scoring in CBI was demonstrated amongst first year students who had previous caring experience, as well as students exposed to pre-enrolled nursing education. These findings supported a study by Loke and Lee (2015) which showed a positive effect of pre-enrolled nursing education on individuals' caring attribute. This positive finding could be explained by the contents of the statements in the CBI such as "spending time with a patient", "touching the patient to communicate caring", "making the patient physically and emotionally comfortable", "responding quickly to patient call" with many others describing nursing care which addressed patients' fundamental needs – all are nursing responsibilities which any nurse lecturers would consider important to impart to individuals at the start of a nursing programme. In reality, these behaviours are commonly regarded as fundamental tasks generally executed by junior student nurses and enrolled nurses in the Singapore context.

When further analysis was conducted, these high scores were reduced through the pre-registration nursing educational process. The reduction in the scoring of caring behaviour from the first ($n_{1a}=240$) to final year students ($n_{1b}=417$) was also statistically significant. Based on nationalities, a greater reduction of CBI score was demonstrated amongst the Singapore students. The reduced scores were also exaggerated by students who had previous exposure to pre-enrolled nursing education and magnified by those who had previous caring job experience as either enrolled nurses or paramedics.

As discussed before, CBI comprises more items which describe expressive caring that are desirable, but not always achievable in today's highly demanding healthcare environment. While nurses in practice scored lower than the lecturers, the lower scoring was also amongst

the final year which may be due to students' increased experience of the reality of registered nursing. If this was the case, students could also be considered to lack the ability to balance instrumental with expressive care, when student roles and responsibilities became more complex in the final year.

It is therefore important to note that albeit not scoring as high as that of nurse lecturers, final year students' score resembled that of nurses with years of clinical experience, who in fact had scored a remarkably high mean of 3.37 (sd=0.32) (Table 5). For this reason, although the mean score amongst the final year students might have been the lowest, this would have been a result of them trying to cope with the increasing complex nursing responsibilities related to instrumental caring. Clearly, the overall scoring for items such as 3, 4 and 5 (Figure 1), all of which would require bedside nursing, often not possible by registered nurses, remained highly scored by the final year students. In fact these few expressive caring behaviours were so highly rated that the mean scores were higher than the first year students. This was an important finding to suggest that the important aspect of expressive caring which improved the patients' experience were recognised as important caring behaviour based on the pre-registration nursing educational process.

Another important observation of the reduction in scores by final year students was a result of the international students scoring below the average at 3.30 (sd=0.32). In fact, Singapore students have scored above the mean of 3.34 at 3.38 (sd=0.34). It is important to appreciate that the majority of international students were Chinese nationals whose concept of nursing differs slightly from that of many other parts of the world; in the context of China nursing, many items in the CBI tool were expected actions and interventions by patients' friends or families. Overall, although a lower score was achieved by international students, the attained CBI scoring was still considered high, demonstrating effectiveness in nursing education in Singapore.

In essence, despite the downward trend of scoring in the final year which could be due to increased nursing knowledge, the consistent high scoring obtained among the final year cohort would mean that the caring value was not only instilled amongst those who started the programme with a low baseline, but it had been successfully preserved amongst those who entered nursing with a high baseline.

Implications of nursing education

Nursing education in Singapore had explicit emphasis on instrumental and expressive caring in the pre-registration diploma programme because of the need for productivity and efficiency as well as the humanism aspect of care in healthcare. Yet the observations in this study were similar to previous research (KaraÖz, 2005; Mackintosh, 2006; Murphy et al., 2009) that there was a decline in score by students between the first and final year. Nevertheless, it was clear that many elements of expressive caring requiring bedside nursing were demonstrated in final year students. The findings indicated that harnessing both expressive and instrumental caring attributes is important to ensure that students do not lose sight of it as they progress in their study. Based on the current study, conscious pedagogic strategies specifically focused on transacting caring need to be made more explicit to students and employed in the entire nursing educational experience of the curricula and extra-curricular activities. Concerted educational efforts beyond the curriculum is the way forward in preventing caring especially its expressive element to risk subversion by the reality of today's fast-moving healthcare world.

Limitations and recommendations

The survey was conducted on different cohorts using a cross-sectional survey. The effects of the nurse education cannot be drawn conclusively about its impact on the caring behaviour of nurse students. Also, the sample of nurse teachers might have been representative of the school, but this may not have been the case for nurses in practice with teaching responsibility

who were in a critical position to influence student's caring behaviour. As with all surveys, the responses were based on what individuals perceived as caring rather than what individuals would display in nursing practice. It was therefore important that future studies could triangulate data obtained from direct observation of students' caring behaviour in an authentic nursing care environment.

Last but not least, the CBI by Wolf et al. (1994) incorporates all desirable attributes of caring, mostly focusing on the expressive aspect that the tool and its scoring system tended to mitigate in favour of high scoring returns (Murphy et al., 2009). This might be particularly so amongst first year students who had little nursing or nursing-related experience of a registered nurse, except some ideals of nursing which were more consistent with enrolled nursing.

CONCLUSIONS

While students who received pre-enrolled nursing education and had previous caring job experience appeared to have a higher level of caring attributes, there was a trend of reduction in the overall caring behaviour during pre-registration nurse education. This observation could be interpreted as a shift of students' concept from expressive caring towards instrumental caring by the educational process. In this regard, this study indicated educational success in moving students away from the layperson's ideals of caring at pre-registration level. However, this finding, which indicated a reduction in caring behaviour during pre-registration nursing education was in spite of the consistently heavy emphasis on the expressive caring in students' entire pre-registration nursing educational experience. Albeit the intensity put into teaching expressive caring, still it was silently subsumed by the emphasis on instrumental caring. Given the fact that today's nursing is set in a high technology and cost-constrained environment, nursing education cannot take lightly the need for developing students'

instrumental aspect of caring, but more importantly, it does not do so at the expense of harnessing and nurturing students' expressive caring nature.

Having concluded that there was a reduction of caring behaviour scoring in students' experiencing Singapore pre-registration nursing education, it is important to note that this observation might have been an attribute of a higher number of elements of expressive caring in the CBI, all of which are less able to be delivered by third year students who concentrated more on learning technical professional skills. Until more research is conducted to further evaluate students' concept of caring, the general high scores indicated that both expressive and instrumental caring which were of equal importance were successfully transacted. In view of the changing role function of registered nursing, the study also suggested the need for developing a tool which would have equal emphasis on the two aspects of care as accurate performance indicators of caring behaviour for today's modern nursing environment which faces greater patients' demand for an advanced technological but cost-constrained healthcare.

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Table 1 Caring Behaviours Inventory by Wolf et al. (1994)

Caring Behaviours		Strongly Disagree	Disagree	Agree	Strongly agree
1	Attentively listening to patients				
2	Giving instructions or teaching the patient				
3	Treating the patient as an individual				
4	Spending time with the patient				
5	Touching the patient to communicate caring				
6	Being hopeful for the patient				
7	Giving the patient information so that he or she can make a decision				
8	Showing respect for the patient				
9	Supporting the patient				
10	Calling the patient by his/her preferred name				
11	Being honest with the patient				
12	Trusting the patient				
13	Being empathetic or identifying with the patient				
14	Helping the patient grow				
15	Making the patient physically or emotionally comfortable				
16	Being sensitive to the patient				
17	Being patient or tireless with the patient				
18	Helping the patient				
19	Knowing how to administer intravenous infusions				
20	Being confident with the patient				
21	Using a soft gentle voice with the patient				
22	Demonstrating professional knowledge and skills				
23	Watching over the patient				
24	Managing equipment skillfully				
25	Being cheerful with the patient				
26	Allowing the patient to express feelings about his or her disease and treatment				
27	Including the patient in planning his or her care				
28	Treating patient information confidentially				
29	Providing a reassurance presence				
30	Returning to the patient voluntarily				
31	Talking with the patient				
32	Encouraging the patient to call if there are problems				
33	Meeting the patient's stated and unstated needs				
34	Responding quickly to the patient's call				
35	Appreciating the patient as a human being				
36	Helping to reduce the patient's pain				
37	Showing concern for the patient				
38	Giving the patient's medication on time				
39	Paying special attention to the patient during first times, as hospitalization and treatments				
40	Relieving the patient's symptoms				
41	Putting the patient first (patients are my priority)				
42	Giving good physical care				

Instrumental Caring

Expressive Caring

Table 2 Students' demographic data

Students	First year	Final year
	n _{1a} (%) = 240 (36.53%)	n _{1b} (%) = 417 (63.47%)
Gender		
Female	197 (82.1%)	373 (89.4%)
Male	43 (17.9%)	44(10.6)
Age (mean)	19.34 (SD 3.577)	21.32 (SD 3.691)
Nationality		
China	47 (19.58%)	98 (23.50%)
India	1 (0.42%)	2 (0.48%)
Indonesia	3 (1.25%)	2 (0.48%)
Malaysia	47 (19.58%)	59 (14.15%)
Myanmar	10 (4.2%)	15 (3.60%)
Nepal	2 (0.83%)	5 (1.20%)
Philippines	3 (1.25%)	0
Singapore	127 (52.92%)	236 (56.59%)
Ethnicity		
Chinese	48	130
Eurasians	1	0
Indians/Sikhs	19	25
Malay	58	79
Pakistani	0	1
Pilipino	0	1
Vietnamese	1 (0.42%)	0
Number of years in Singapore		
<1	62 (25.83%)	0 (0%)
1-<5	35 (14.58%)	159 (38.13%)
5-<10	3 (1.25%)	7 (1.68%)
10-<15	2 (0.83%)	4 (0.96%)
15-<20	8 (3.33%)	5 (1.20%)
20 and more	4 (1.67%)	6 (1.44%)
Job experiences		
Enrolled Nursing	13 (5.42%)	26 (6.24%)
Paramedic	1 (0.4%)	4 (0.96 %)
Non-Nursing	7 (2.92%)	19 (4.56%)
Qualifications		
General Certificate of Education Advanced level (GCE 'A' level) – secondary education	4 (1.67%)	8 (1.92%)
General Certificate of Education Ordinary level (GCE 'O' level) – secondary education	215 (89.58%)	378 (90.65%)
National Institute of Technical Education Certificate for Nursing (NITEC-Nursing) – post secondary education + GCE 'O' levels	18 (7.5%)	29 (7.0%)
NITEC (Nursing) + Midwifery	1(0.4%)	0
NITEC (Nursing) + Dip(accounting)	0	1 (0.21%)

Table 3 Students' reasons for undertaking the nurse education programme

Reasons	2012 Cohort (first year students)	2010/11 cohort (final year students)
	n _{1a} = 240 (36.53%)	n _{1b} = 417 (63.47%)
to have possessed the required caring disposition for nursing	117 (48.8%)	175 (41.97%)
to be able to gain job satisfaction by caring for others	127 (52.9%)	160 (38.4%)
to be able to secure good opportunities for career development	79 (32.9%)	95 (22.8%)
to be able to obtain Job security	89 (37.1%)	203 (48.7%)
that they did not meet entry criteria for other courses	25 (10.4%)	66 (15.8%)
that they were rejected by another discipline	12 (5.0%)	50 (12.0%)
they had did not know what else to do, other than nursing	24 (10%)	64 (15.3%)
to have been under family influences	3 (1.3%)	8 (1.9%)
that nursing enable them to travel to Singapore	2 (0.83%)	6 (1.44%)

Table 4 Demographic data of nurse lecturers and nurses in practice

	Nurse Lecturers	Clinical Nurses
	n _{2a} (%) = 55 (100%)	n _{2b} (%) = 33(100%)
Accessed from seminar	21 (38.18)	33 (100%)
Accessed from the institution	34 (61.82)	
Gender		
Female	50 (90.9%)	29 (87.9%)
Male	5 (9.1%)	4 (12.1%)
Age (mean)	43.58	40.27
Nationality		
Singaporean	49 (89.1%)	26 (78.8%)
Years in Singapore (mean)	40.5	38.1 years
Non Singaporean	6(10.9%)	7 (21.2%)
Years in Singapore (mean)	21	13.7
Years of job experience (mean)	13.15	17.41
Speciality		
Secondary		30 (90.9%)
Primary		3 (9.1%)

Table 5 Caring Scores of participants

First year students	Final year students	Nurse lecturers	Clinical Nurses
n _{1a} (%)	n _{1b} (%)	n _{2a} (%)	n _{2b} (%)
240 (36.53%)	417 (63.47%)	55 (62.5%)	33 (37.5%)
CBI score: \bar{x} = mean (sd)			
$\bar{x}_1 = 3.39$ (0.34)		$\bar{x}_2 = 3.45$ (0.37)	
$\bar{x}_{1a} = 3.48$ (0.33)	$\bar{x}_{1b} = 3.34$ (0.33)	$\bar{x}_{2a} = 3.50$ (0.39)	$\bar{x}_{2b} = 3.37$ (0.32)

Table 6 Independent samples t-tests of the participants

Participants n (%)	First year students 240 (36.53%)	Final year students 417 (63.47%)
Nurse lecturers 55 (62.5%)	t = 0.55, df = 293 (p<0.584)	t = 3.26, df = 470 (p<0.001)
Clinical Nurses 33 (37.5%)	t = 1.82, df = 271 (p<0.70)	t = 0.36, df = 448(p<0.720)

Table 7 Independent samples t-tests based on various characteristic features of students

Students	First year	Final year	First year	Final year
Nationalities	Singapore Citizens		Other Nationalities	
n (%)	n _{1a} = 126 (52.5%)	n _{1b} = 236 (56.6%)	n _{1a} = 114 (47.5%)	n _{1b} = 181(43.4%)
CBI scores	x _{1a} = 3.52 (sd = 0.35)	x _{1b} = 3.38 (sd = 0.34)	x _{1a} = 3.43 (sd = 0.29)	x _{1b} = 3.30 (sd = 0.32)
t-test	t = 3.662, df = 360 (p<0.001)		t = 3.526, df = 293 (p<0.001)	
Qualifications	Had enrolled nursing qualifications		No enrolled nursing qualifications	
n (%)	n _{1a} = 19 (7.92%)	n _{1b} = 30 (7.19%)	n _{1a} = 221 (92.08%)	n _{1b} = 387(92.81%)
CBI scores	x _{1a} = 3.61 (sd = 0.30)	x _{1b} = 3.43 (sd = 0.29)	x _{1a} = 3.46 (sd = 0.33)	x _{1b} = 3.33 (sd = 0.34)
t-test	t = 2.049, df = 47 (p = 0.046)		t = 4.531, df = 606 (p<0.001)	
Caring-job experiences	Had previous experience		No previous experience	
n (%)	n _{1a} = 14(5.83%)	n _{1b} = 30(7.19%)	n _{1b} =226 (94.17%)	n _{1b} =387(92.81)
CBI scores	x _{1a} = 3.64 (sd = 0.29)	x _{1b} = 3.35 (sd = 0.27)	x _{1a} = 3.47 (sd = 0.33)	x _{1b} = 3.34 (sd = 0.34)
t-test	t = 3.337, df = 42 (p = 0.002)		t = 4.343, df = 611 (p<0.001)	

Figure 1 Mean CBI scores of each item by first and final year students

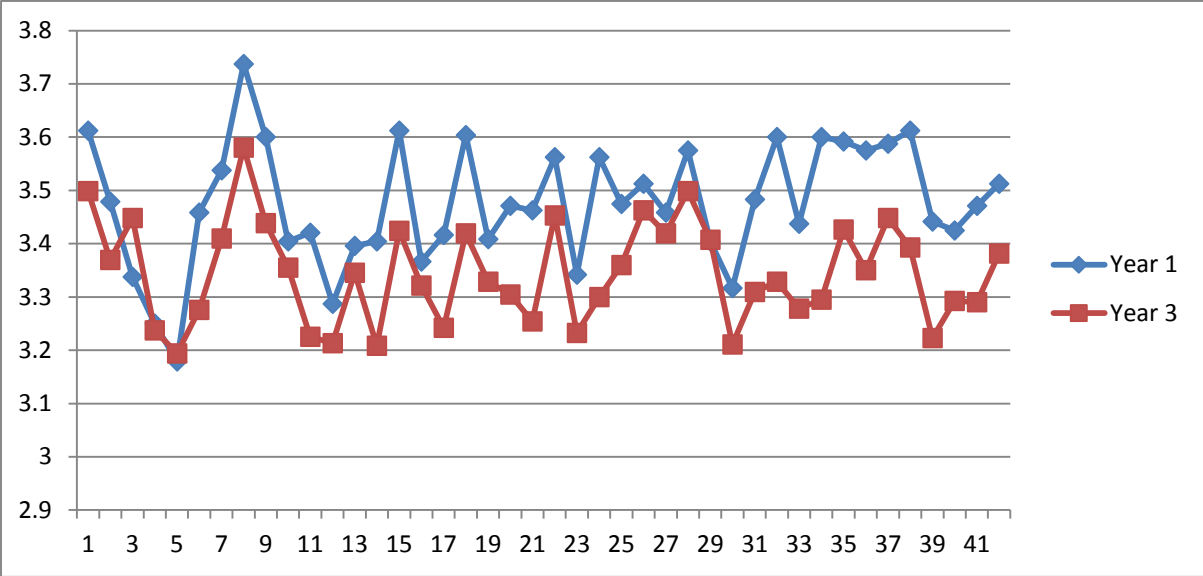


Figure 2 Mean CBI scores of each item by nurse lecturers and nurses in practice

