



UWS Academic Portal

The relationship between emotional intelligence, previous caring experience, and successful completion of a pre-registration nursing/midwifery degree

Snowden, Austyn; Stenhouse, Rosie; Duers, Lorraine; Marshall, Sarah; Carver, Fiona; Brown, Norrie; Young, Jenny

Published in:
Journal of Advanced Nursing

DOI:
[10.1111/jan.13455](https://doi.org/10.1111/jan.13455)

E-pub ahead of print: 14/09/2017

Document Version
Peer reviewed version

[Link to publication on the UWS Academic Portal](#)

Citation for published version (APA):

Snowden, A., Stenhouse, R., Duers, L., Marshall, S., Carver, F., Brown, N., & Young, J. (2017). The relationship between emotional intelligence, previous caring experience, and successful completion of a pre-registration nursing/midwifery degree. *Journal of Advanced Nursing*. <https://doi.org/10.1111/jan.13455>

General rights

Copyright and moral rights for the publications made accessible in the UWS Academic Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

If you believe that this document breaches copyright please contact pure@uws.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

PROFESSOR AUSTYN SNOWDEN (Orcid ID : 0000-0001-9321-622X)

Article type : Original Research: Empirical research - quantitative

The relationship between emotional intelligence, previous caring experience, and successful completion of a pre-registration nursing/midwifery degree.

Running head: Longitudinal Emotional Intelligence study

Austyn SNOWDEN PhD RMN (Corresponding author)

Chair in Mental Health

School of Health and Social Care

Sighthill Campus

Edinburgh Napier University

Edinburgh

EH11 4BN

a.snowden@napier.ac.uk

Rosie STENHOUSE PhD RMN

Lecturer

Nursing Studies

School of Health in Social Science

University of Edinburgh

Medical School

This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1111/jan.13455

This article is protected by copyright. All rights reserved.

Teviot Place
Edinburgh EH8 9AG

Lorraine DUERS PhD RGN

Senior Lecturer

University of the West of Scotland

Hamilton Campus

Almada Street

Hamilton

ML3 0JB

Sarah MARSHALL MSc

Intern

Sighthill Campus

Edinburgh Napier University

Edinburgh

EH11 4BN

Fiona CARVER MSc RMN

Lecturer

Sighthill Campus

Edinburgh Napier University

Edinburgh

EH11 4BN

Norrie BROWN PhD RMN

Senior Lecturer

Sighthill Campus

Edinburgh Napier University

Edinburgh

EH11 4BN

Jenny YOUNG MSc MA

Research Fellow

Sighthill Campus

Edinburgh Napier University

Edinburgh

EH11 4BN

Conflict of interest:

“No conflict of interest has been declared by the author(s).”

Funding Statement:

The research was funded by NHS Education Scotland

ABSTRACT

Aim. To examine the relationship between baseline emotional intelligence and prior caring experience with completion of pre-registration nurse and midwifery education.

Background. Selection and retention of nursing students is a global challenge. Emotional intelligence is well conceptualised, measurable and an intuitive prerequisite to nursing values and so might be a useful selection criterion. Previous caring experience may also be associated with successful completion of nurse training.

Design. Prospective longitudinal study.

This article is protected by copyright. All rights reserved.

Method. Self-report trait and ability emotional intelligence scores were obtained from 876 student nurses from two Scottish Universities before they began training in 2013. Data on previous caring experience were recorded. Relationships between these metrics and successful completion of the course were calculated in SPSS version 23.

Results. Nurses completing their programme scored significantly higher on trait emotional intelligence than those that did not complete their programme. Nurses completing their programme also scored significantly higher on social connection scores than those that did not. There was no relationship between 'ability' emotional intelligence and completion. Previous caring experience was not statistically significantly related to completion.

Conclusion Students with higher baseline trait emotional intelligence scores were statistically more likely to complete training than those with lower scores. This relationship also held using 'Social connection' scores. At best, previous caring experience made no difference to students' chances of completing training. Caution is urged when interpreting these results because the headline findings mask considerable heterogeneity. Neither previous caring experience or global emotional intelligence measures should be used in isolation to recruit nurses.

Key words: emotional intelligence, student nurse selection, values based selection, student nurse retention, nursing, previous caring experience

Why is this research or review needed?

- Selection and retention of nurses is a global challenge
- Recruiting nurses for a particular set of values begs the question of what those values should be.
- Emotional Intelligence is well conceptualized and has been associated with many desirable nursing values. Emotional intelligence could therefore be selected for.

What are the key findings?

- Student nurses scoring higher on 'Trait' emotional intelligence at baseline using TEIQue-SF were more likely to complete the three-year programme successfully than their lower scoring colleagues
- Social connection, a five-item factor in the TEIQue-SF was even better at differentiating successful students from non-completers. Social connection is probably picking up the interpersonal element of nursing.
- There is a significant gender bias in TEIQue-SF that is accounted for by differential item functioning in the social connection factor.

How should the findings be used to influence policy/practice/research/education?

- With caution. Despite differentiating successful students from non-completers at population level, a large proportion of students succeeded despite scoring low on TEIQue-SF at baseline. It would make no sense to exclude these students.
- Global emotional intelligence measures are likely to be too blunt to be of any use. Much more work needs to go into the exploration of factors underpinning the concept.

Emotional intelligence is further mediated by other personal attributes. This means high EI is not a fundamental good. For example, EI has been associated with psychopathy. Policy makers need to look beyond emotional intelligence per se and fund studies designed to explore how it can be positively applied in practice.

INTRODUCTION

Selection and retention of student nurses is a global challenge (Marvos & Hale, 2015; Merkley, 2016). Attrition from undergraduate programmes contributes to the shortage of qualified staff globally

(Kantek, 2010; Oulton, 2006). Student selection processes vary, but generally aim to identify individuals who are most likely to successfully complete their nurse training programme; reducing attrition and producing competent nurses (Rodgers, Stenhouse, McCreadie and Small, 2013).

In the United Kingdom (UK) the focus of student nurse selection has shifted toward attempting to identify individuals who possess the values to become compassionate and caring nurses. This shift is predicated on criticisms of nursing in the findings of inquiries into care failings (cf Francis, 2013; McLean, 2014) and Francis' (2013: 77) specific recommendation of an '*aptitude test*' for student nurses. The response from the UK government was to recommend that 'values based selection' be implemented by all nursing programmes (Department of Health, 2013, p192). However, there is little evidence on which to base such a strategy and in fact the idea that student nurses should express unique personality characteristics on entry to training doesn't stand up to scrutiny (Nesje, 2016).

Questions of which values are important, how these might be measured and the impact of the educational process on the development of these values remain.

In Scotland, the government had made a co-ordinated effort to develop an evidence based approach to selection and retention of student nurses and midwives (Sabin, 2012). Whilst there remained pressure to undertake values based selection, there was determination to do so from an informed position. This study formed the first step in developing this evidence base in the Scottish context. A thoroughly conceptualised and measureable proxy for the values that might be selected for in student nurses was sought; and emotional intelligence (EI) identified as a possibility.

There is a growing body of evidence suggesting that EI might be a useful attribute in nursing. It has been associated with measures of caring, compassion and clinical performance (Kaur, Sambasivan, & Kumar, 2013; Rankin, 2013; Rego, Godinho, McQueen, & Cunha, 2010) and may be associated with

retention (Marvos & Hale, 2015). EI is also thoroughly conceptualised in the psychology literature and valid measures exist. This study was therefore designed to investigate whether EI might be a useful selection criterion for student nurses by examining associations with student retention and successful completion of their programme.

Values based selection was only one project to emerge from Francis (2013) in the UK. Previous caring experience, in the form of a year-long clinical placement prior to becoming a student nurse, was anticipated to ensure that those entering pre-registration nurse education had the 'right' values (Health Education England, 2014b). The NHS in England and Wales instigated pilot projects to test the idea.

Initial evaluation of the projects indicated that those who had participated experienced greater understanding of what nursing entailed and were better positioned to choose nursing as a career (Health Education England, 2014a). However, there is no evidence to establish the impact of this previous caring experience on student performance, retention and completion of their programmes. Nevertheless, given the policy importance of this pre-application year, 'previous caring experience' was included in this study as an independent variable and its relation to both EI and retention/successful completion of the pre-registration nursing programme tested. In summary, previous caring experience and higher levels of emotional intelligence were considered good attributes to select for when recruiting student nurses and midwives. This study was designed to test those assumptions.

Background

Both 'trait and 'ability' theories of emotional intelligence are represented in this study. The 30-item Trait Emotional Intelligence Questionnaire-short form (TEIQue-SF) is theoretically grounded in the

conceptualisation of EI as trait. and Schutte's 33-item Emotional Intelligence Scale (SEIS) sees EI as ability. Both questionnaires are used here and so the assumptions underpinning them are discussed first. The literature linking EI to nursing performance is then critiqued. 'Social connection' a factor identified in the TEIQue-SF and found to be a better predictor of retention than the global TEIQue-SF score, is then described. Factors in global EI measures often explain empirical findings better than the global measures and so this idea is covered in some depth. This leads to a brief examination of the relationship between EI and other potentially useful nursing attributes such as leadership and teamwork. This richer notion of emotional intelligence envisages it not as a trait or an ability, but as a resource; a resource that can be applied, depleted, facilitated or suppressed depending on the context at any given time. The section finishes by defining the aims and methods of the study.

Conceptualisation

Most definitions of EI include the ability to monitor and evaluate emotions in self and other to act coherently. It is a social construct, evolving from Thorndike's (1920) concept of 'social intelligence'. An important theoretical distinction arises between those who consider EI an aspect of personality, or 'trait' (eg: Petrides & Furnham, 2006); or an 'ability', something one learns (Salovey & Mayer, 1990).

The personality literature views Trait EI as a 'collection of relatively enduring affective personality traits' (Perera & DiGiacomo, 2013, p21). Since the 1980s personality traits are usually conceptualised as primary factors correlating to global factors. The global factors are the 'big five': Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism (Goldberg, 1980); or the 'giant three': Neuroticism, Extraversion, Psychoticism (Eysenck & Eysenck, 1975), depending on theoretical viewpoint. Using structural equation modelling Van der Linden, Tsaousis, & Petrides (2012) showed that trait EI was, as expected, located in the lower strata of personality factors: a primary factor correlating with the giant three and the big five global factors. They found substantial

overlap between what are accepted as General Factors of Personality (GFPs) and trait EI, essentially meaning that trait EI should be conceptualised as a general factor of personality: a trait. It is this conceptualisation that underpins Petrides' Trait Emotional Intelligence questionnaire and its short form (TEIQue-SF) (Petrides, 2009).

By contrast, Salovey (1990) conceptualised emotional intelligence as an ability, claiming in later research that EI was an intelligence akin to general intelligence (IQ) (Mayer & Salovey, 1993). This is an important claim, because if EI is understood as an ability, a form of intelligence, then it follows that it can be influenced by learning and that people should be able to improve their EI. Several measures have been developed starting from this assumption, such as Rankin's (2013) Rankin Scale and Schutte et al's (2009) Emotional Intelligence Scale.

It is not the purpose of this paper to reconcile the differences between these views. Both are internally valid and both have been extensively developed and tested. Our position is that measuring different conceptualisations of EI may be useful. For example, understanding EI as ability in this study would provide an opportunity to consider how students' EI might develop during their education programme (Foster et al., 2017). Interventions could be constructed to facilitate growth. Examining it as a trait is just as useful. If EI is a trait, then it should be reasonably stable over time. It should also be the case that higher scores on trait measures at baseline should be associated with success. In short, both were used in this study.

EI and nursing behaviour and performance

The literature largely supports the idea that EI has an impact on nurses' ability to care (Bulmer Smith, Profetto-McGrath, & Cummings, 2009; Cadman & Brewer, 2001). Rego et al (2010) identified that EI had some predictive value in relation to nurses' caring behaviours. Kaur et al (2015) concluded that

the nurses' ability to handle their own emotions was central to their caring behaviours. Rankin (2013) found a significant relationship between EI and student nurses' clinical performance in year 1 of an undergraduate programme and also found a significant relationship between EI and academic performance.

Codier & Odell (2014) found significant correlations between nursing performance and the 'perceiving' and 'using' emotions subscales of the EI measure. Beauvais, Brady, O'Shea, & Griffin, (2011) found that total EI scores were significantly linked with total nursing performance scores and argued for the inclusion of EI teaching in the nursing curricula. In a systematic review of high quality studies in medical students (Cook, Cook, & Hilton, 2016) found a weak but positive relationship between EI scores and success. In an integrative review of the literature of EI and performance in nursing Bulmer Smith et al (2009) found similar correlations, but like Cook et al (2016) noted poor sample sizes and study designs.

Studies have found associations between EI and interpersonal aspects of nursing such as teamwork and leadership (Quoidbach & Hansenne, 2009; Erkutlu and Chafra, 2016). Aggregate team EI was significantly related to team cohesion and quality of care in a Belgian study of 421 nurses, physiotherapists and auxiliaries working in 23 nursing teams in a single hospital site (Quoidbach & Hansenne, 2009). Additionally, Erkutlu & Chafra, (2016) identified that high team leader EI increased the strength of the interaction between team empowerment and team proactivity, such that team leaders with higher EI can motivate and support teams to perform to the best of their ability.

At a wider level Vandewaa, Turnipseed, & Cain, (2016) showed that EI was strongly linked to conscientiousness and civic virtue behaviours. These behaviours were demonstrated by nurses providing care beyond minimum standards and contributing to activities related to improving services. This function of EI at societal level was investigated in a systematic review finding that people with high EI were less likely to exhibit aggressive or antisocial behavior than those with low EI (García-Sancho, Salguero & Fernández-Berrocal, 2014).

This article is protected by copyright. All rights reserved.

In summary, there appears to be a positive relationship between EI and nursing behaviour towards patients, colleagues and the wider healthcare context. If EI is positively associated with desirable nursing behaviours, then it can be equated with the desired impact of selecting for values. Whilst EI is assumed to be a proxy for values, successful completion of a nurse education programme is understood to indicate academic achievement and the development of non-technical competence (such as identified in the 'care, compassion and communication' domain of competence in the current UK nurse education standards (NMC 2010)) to the level required for registration as a nurse with the Nursing and Midwifery Council (NMC) in the UK. These theoretical assumptions underpin hypotheses 1 and 2.

The Social Connection Factor

The factor structure of the TEIQue-SF (Petrides, 2006) was examined by triangulating results from a Rasch analysis and concurrent confirmatory factor analysis (Snowden, Watson, Stenhouse, & Hale, 2015). A unique factor emerged which was best explained as 'social connection'. 'Social connection' consists of the items in box 1.

The social connection factor proved a stronger predictor of retention than global EI scores (Stenhouse et al., 2016) and so this relationship will be examined again here. Stenhouse et al (2016) suggested that it makes sense that lack of social connection would be associated with attrition from programmes, as those scoring poorly would probably struggle with the interpersonal nature of nursing. The social connection factor is therefore likely to continue to be an important and discrete factor to monitor when using TEIQue-SF.

EI factors and global scores

Emotional intelligence is not inherently good however. Davis & Nichols (2016) point to the 'dark side' of EI, challenging the view that more EI is necessarily better. For example, they point out that too much emotional awareness can lead to psychological distress. Bullies tend to have higher EI scores than their victims (Elpe, Mora-Merch, Ortega-Ruiz, & Casas, 2015), but nobody would claim bullying is desirable behaviour. High EI has been linked with narcissism, personality disorder and psychopathy and can be clearly used for better or worse, depending on other personality factors or dispositions (Hyde & Grieve, 2014). Davis and Nichols (2016) argue for balance across the different factors that make up EI, rather than striving for high global EI per se.

This more nuanced view of EI goes some way to explaining the many studies that found significant correlations at the dimensional/factor level rather than categorical/global level of the measure they used (cf. Augusto Landa et al 2009; Augusto Landa et al 2008). In other words, global EI scores may be too insensitive. Examination at factor or dimensional level is likely to be required to understand the nuances of the relationships being tested.

In summary, emotional intelligence can be conceptualised as an ability or a trait. Measures exist for each and in some cases both (Webb et al., 2013). Regardless of how it has been conceptualised EI has been shown to correlate with performance in nursing, although the evidence is not strong and the correlations weak. Emotional intelligence is not inherently good, in that it can be abused for personal gain and optimal emotional intelligence is not necessarily high emotional intelligence. With all these caveats in mind, this study explores the relationship of trait and ability emotional intelligence with successful completion in a large cohort of student nurses and midwives. For reasons already identified it also examines the relationship between prior caring experience and successful completion in the same cohort.

THE STUDY

Aim

To explore the relationship between baseline measures of emotional intelligence and previous caring experience with successful completion of a three-year bachelor's degree in nursing or midwifery.

Hypotheses

1. There will be a significant difference in mean baseline TEIQUE-SF scores between those students that completed the programme and those that did not.
2. There will be a significant difference in mean baseline SEIS scores between those students that completed the programme and those that did not.
3. There will be a significant difference in mean baseline social connection scores between those students that completed the programme and those that did not.
4. There will be a statistical dependency between student nurses' previous caring experience and completion of the programme.

Further investigation of the data was conducted iteratively to explore interesting findings and generate further hypotheses for the next phase of the study.

Design

Prospective longitudinal study using self-report measures.

Data collection

The EI measures

TEIQue-SF: The Trait Emotional Intelligence Questionnaire (TEIQue) was developed by Petrides & Furnham, (2000) and has been validated in several studies (Cooper & Petrides, 2010; Petrides, 2011).

The 30 item short form TEIQue-SF (Petrides, 2006b) is used in this study.

SEIS: Schutte et al's (1998) Emotional Intelligence Scale (SEIS) is based on Mayer and Salovey's (1990) ability model of EI. It measures four facets, all related to the use of EI, hence the claim it is a measure of ability. The facets are: emotion perception, utilizing emotions, managing self-relevant emotions and managing others' emotions. Studies have validated the SEIS, however, as with TEIQue-SF, it should be noted that most have been carried out by the authors of the tool (Ng, Kim, & Bodenhorn, 2009; Schutte et al., 2001; Schutte et al., 2009).

Social connection: This factor in TEIQue-SF was discussed in the previous section. It consists of the five items in Box 1. These five items are therefore analysed as a discrete factor.

Previous caring experience: participants were asked whether they had any previous caring experience when they started the study in 2013. If they responded 'yes' they were asked where (hospital, home, care home, elsewhere) and for how long.

Process

Student nurses and midwives (n=876) from two Scottish universities completed the TEIQue-SF and SEIS at the beginning of year 1 in September 2013. Demographics included age, gender, previous

caring experience, highest previous qualification and deprivation category. Successful completion of the programme was coded as a binary variable indicating timely completion of the programme (1) or not (0) in July 2016.

Ethical considerations

Ethical approval was granted for the study by the research ethics committee in each of the HEIs. Participation was voluntary and informed consent sought at each point of data collection. The questionnaires were completed on paper and all participants were assured they could withdraw from the study at any point.

Data analysis

Data on completion, previous caring experience, EI measures and social connection scores were input into SPSS version 23. Data were tested for normality and homogeneity of variance and then subject to parametric or non-parametric tests accordingly.

RESULTS

Mean age on entry was 26.3 (SD 8.8) years. The majority were female (N=780). The cohort consisted of 585 adult nursing students, 123 mental health, 90 midwives, 47 learning difficulty students and 23 child health students. The number of students declaring previous caring experience (N=428) were marginally outnumbered by those not having any previous experience (N=435). Median 'highest qualification on entry' was Scottish Credit and Qualifications Framework (SCQF) level six, equivalent to English 'Advanced level' or European Qualifications Framework (EQF) level 3 (Quality and Qualifications Ireland, 2017). The USA equivalent is a high school diploma and for other

countries a range of scores on the international baccalaureate is considered equivalent. See (University and Colleges Admissions Services, 2017).

A total of 589 (68.2%) nurses/midwives successfully completed their three-year programme, with 279 (31.8%) students failing to complete on time. It is unknown what percentage of the 'failing to complete' group subsequently went on to pass. For the full sample mean TEIQue-SF scores were 5.32 (SD 0.6), Social Connection scores were 6.19 (SD 0.82) and SEIS scores were 127.8 (SD 13.8).

1. There will be a significant difference in mean baseline TEIQue-SF scores between those students that completed the programme and those that did not.

As mentioned 589 students completed the programme and 279 did not. Mean TEIQue-SF scores for completers was 5.36 (0.57) and for non-completer 5.23 (0.68). There was one extreme outlier in the data, more than two standard deviations from the mean, as assessed by inspection of boxplots, so this entry was removed from further analysis (Lund and Lund, 2017). TEIQue-SF scores for each group were not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.05$ in both groups) and there was not homogeneity of variances, as assessed by Levene's test for equality of variances ($p < .001$). The data in the completer cohort was both skewed ($z = -3.13$) and kurtosed ($z = 3.31$).

A Mann-Whitney U test was therefore run to determine if there were differences in TEIQue-SF scores between completers and non-completers. TEIQue-SF scores for completers (mean rank = 448.42) were statistically significantly different from non-completers (mean rank = 405.1), $U = 90,367$, $z = 2.38$, $p = .016$.

Although using non parametric test is the rule of thumb when certain assumptions are met, it should be noted that non-parametric tests are also unreliable when variances are not equivalent (Lund & Lund, 2017), as is the case here. To double check the result the parametric equivalent was also run. This is because t-test is fairly robust even when some assumptions are violated, as long as sample sizes are large enough (Howell, 2010). An independent-samples t-test found that nurses completing the programme scored significantly higher on TEIQue-SF (5.36 (0.57)) than those that did not complete the programme (5.23 (0.68)), a difference of 0.13 (95% CI, 0.04 to 0.22), $t(470.63) = 2.73$, $p = .007$.

Using either test, students completing the programme scored significantly higher on TEIQue-SF at baseline than students that did not complete the programme.

2. There will be a significant difference in mean baseline SEIS scores between those students that completed the programme and those that did not.

There were two extreme outliers in the data, as assessed by inspection of boxplots, so these entries were removed from further analysis. SEIS scores for each group were normally distributed, as assessed by Shapiro-Wilk's test ($p > 0.05$) and there was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .881$).

Nurses completing the programme scored higher (128.33 (13.36)) than those that did not complete the programme (127.03 (13.54)), but this difference of 1.3 was not statistically significant (95% CI, -3.22 to 0.69), $t(864) = 1.33$, $p = 0.184$. There was no significant difference in mean baseline SEIS scores between those students completing the programme and those not.

3. There will be a significant difference in mean baseline social connection scores between those students that completed the programme and those that did not.

Mean social connection scores for completers was 6.27 (0.74) and for non-completer 6.03 (0.96).

There were two outliers more than two standard deviations from the mean, as assessed by inspection of boxplots, so these entries were removed from further analysis (Lund and Lund, 2017). Social connection scores for each group were not normally distributed, as assessed by Shapiro-Wilk's test ($p < 0.05$ in both groups) and there was not homogeneity of variances, as assessed by Levene's test for equality of variances ($p < .001$). The data in the both cohorts was both skewed and kurtosed.

A Mann-Whitney U test was therefore run to determine if there were differences in social connection scores between completers and non-completers. Social connection scores for completers (mean rank = 452) were statistically significantly different from non-completers (mean rank = 396), $U = 92, 514.5$, $z = 3.123$, $p = .002$).

As with the TEIQue-SF result, a t test was also run. An independent-samples t-test found that nurses completing the programme scored significantly higher on social connection scores (6.27 (0.57)) than those that did not complete the programme (6.03 (0.68)), a difference of 0.24 (95% CI, 0.12 to 0.37), $t(438.8) = 3.78$, $p < 0.001$.

Using either parametric or non-parametric test, students completing the programme scored significantly higher on social connection at baseline than students that did not complete the programme.

4. There will be a statistical dependency between student nurses' previous caring experience and completion of the programme.

Chi-squared test was used to test dependency between previous caring experience and completion of the programme. The expected and actual count of students declaring previous caring experience or not was cross tabulated with the number of students completing the programme or not in table 1. The proportion graduating from the previous care experience group was 65%, whereas those graduating from the no previous care experience was 72%. However, this was not a statistically significant difference ($\chi^2 (1, N = 862) = 3.48, p = 0.062$).

There was no statistical dependency between student nurses' previous caring experience and completion of the programme.

DISCUSSION

EI and performance

Student nurses who successfully completed their programme had a higher average 'trait' EI than those that did not successfully complete the programme on time. Consistent with much of the literature (Perera & DiGiacomo 2013; Sanchez-Ruiz et al 2013; Codier & Odell 2014) the effect was small, but significant nonetheless. This positive result was even more significant using the social connection factor. This finding might on the face of it draw the conclusion that the TEIQue-SF and in particular the social connection factor should be deployed as part of a selection process in pre-registration nursing and midwifery programmes. We would urge the strongest caution in that conclusion for the following three reasons.

Accepted Article

First, considerable work would be required to identify whether there is a useful range of scores that could identify a candidate who may be more likely than not to successfully complete their pre-registration programme. As discussed earlier, optimal values may not necessarily be high values (Davis & Nichols, 2016). A cursory exploration of our dataset showed many nurses who scored at least one standard deviation below the mean nevertheless went on to be very successful, with many gaining distinctions at graduations. Excluding them on the basis of low scores on TEIQue-SF at baseline would have been wholly inappropriate. Relatedly, this is just a UK sample and so the transferability of any potential parameters needs international investigation.

Secondly, further exploration would also have to take account of the gender difference in global EI scores for the TEIQue-SF. There appears to be a gender bias in TEIQue-SF. Males scored significantly lower than females at baseline (Snowden, Stenhouse, et al., 2015). This could infer that females should be more successful than males in our cohort. This was not true. A chi squared test showed almost complete equity between the sexes. Males were just as likely to complete the programme successfully as females. This means there is a problem with the test and interestingly this gender bias can be explained by closer examination of the social connection factor. There was a significant jump in social connection scores for both males and females. However, the males just started from a lower baseline (figure 1). When the scores for the 5 questions which constituted the social connection factor were removed from the global EI score this gender bias disappeared almost entirely. Given that only one in ten nurses is male in UK and the drive is to recruit *more* males, recruiters would need to be very mindful of the differential item functioning (Teresi & Fleishman, 2007) in the TEIQue-SF.

Thirdly, it is increasingly apparent that a range of factors in emotional intelligence measures may be more useful than global measures (Augusto-Landa & Montes-Berges, 2009; Davis & Nichols, 2016; Montes-Berges & Augusto-Landa, 2014). Again, the 'social connection' factor proved a more robust

indicator of withdrawal than the global EI measure. Given the social connection factor only consists of five items as opposed to thirty this could be an important practical finding. We would still urge considerable caution as these items have never been tested as a standalone brief measure.

Nevertheless, it is worth exploring whether the five items may be useful, for example, as way of identifying people in need of certain kinds of support during their training.

Measurement of EI using the Schutte EI Scale did not lead to the identification of associations with any of the other dependant variables. Space prevents a detailed analysis of this finding but Rankin (2013) for example, would argue that ability EI cannot be measured using self-report methods. Future papers will explore this measure in more detail.

Previous caring experience

Previous research on this cohort had revealed that students with previous caring experience were more likely to leave the programme than those without previous caring experience after first year of training (Stenhouse et al., 2016). This finding was very much at odds with the aims of the previous care experience pilot (HEE, 2014) and came under considerable scrutiny as a consequence. It was hypothesised at the time that students with previous caring experience leaving registered nurse training could be compared to experienced drivers having to relearn to drive to pass their driving test again. They would have to ‘unlearn’ some engrained habits to go back to basics. Once the initial shock had worn off the balance would swing back the other way and the previous caring experience would once again become an asset rather than a hindrance.

However, this can’t be said to be the case in this study. Whilst the result was not significant, the more successful nurses continued to be the students *without* previous nursing experience, even when the test was rerun *excluding* those who had left at the end of the first year. If the pendulum is to swing

back to favour those with previous caring experience, it can't be said to have done so by programme completion. The cohort is being followed up into practice as trained nurses however, so it remains to be seen if previous caring experience may yet have a positive impact on career progression. These findings suggest that there is no basis for implementing a mandatory pre-application nursing experience in relation to these outcomes.

Limitations

The main limitation was resource. The study required considerable organisation and time for data collection and entry and this left no resources to conduct deeper investigation into student emotional intelligence, such as observation or interview. The self-report measures rely on self-awareness, which of course is a factor of emotional intelligence. We cannot therefore be sure that scores are entirely accurate. However, this is an issue with all self-report measures and our large sample minimises this risk as far as practicable. Further, we plan to follow the cohort into their professional lives as registered nurses and have obtained further funding to conduct in depth interviews as part of this follow up.

CONCLUSION

Nursing requires aesthetic knowledge and empirical knowledge as well as academic knowledge (Carper 1978). It is therefore intuitive to think that emotional intelligence should be a useful attribute to recruit for given its relationship with compassionate caring, competence and resilience (Rankin 2013; Rego et al 2010; Kaur et al 2015), attributes highly valued in nurse education in UK and around the world. This study found that students who scored higher on TEIQue-SF at baseline were more likely to complete their three-year programmes of study than those scoring lower on TEIQue-SF. Social connection, a factor made up from five items in the TEIQue-SF was even better at differentiating between those successfully completing the programme and those who did not.

Schutte's emotional intelligence scale did not differentiate completers from non-completers however and neither did students having previous care experience prior to starting their nursing degrees. Whilst the TEIQue-SF results are encouraging for nurse recruiters, it can't yet be recommended for use as a selection tool. The concept of EI appears to be too broad and there is no range of scores that would have identified only successful or unsuccessful students.

To be fair, it is unlikely that such an instrument exists and so it may be more realistic and useful to explore some of the factors these measures entail. Social connection consists of five items in the TEIQue-SF and seems to pick up something of the social interactive element of nursing. Various authors are suggesting elements of these global EI measures to be useful whilst questioning the use of the global EI concept. It will be interesting to see how the literature evolves. Meanwhile the cohort studied here have now gone on to practice as trained nurses and will be followed up by the research team to see how the relationships discovered in earlier findings evolve.

Author Contributions:

All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE*):

- 1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- 2) drafting the article or revising it critically for important intellectual content.

* <http://www.icmje.org/recommendations/>

REFERENCES

- Augusto-Landa, J. M., & Montes-Berges, B. (2009). Perceived emotional intelligence, health and somatic symptomatology in nursing students. *Individual Differences Research*.
- Beauvais, A. M., Brady, N., O'Shea, E. R., & Griffin, M. T. Q. (2011). Emotional intelligence and nursing performance among nursing students. *Nurse Education Today*, *31*(4), 396–401.
- Bulmer Smith, K., Profetto-McGrath, J., & Cummings, G. G. (2009). Emotional intelligence and nursing: An integrative literature review. *International Journal of Nursing Studies*.
- Cadman, C., & Brewer, J. (2001). Emotional intelligence: A vital prerequisite for recruitment in nursing. *Journal of Nursing Management*. <http://doi.org/10.1046/j.0966-0429.2001.00261.x>
- Chan, J. C. Y., Sit, E. N. M., & Lau, W. M. (2014). Conflict management styles, emotional intelligence and implicit theories of personality of nursing students: A cross-sectional study. *Nurse Education Today*, *34*(6), 934–939. <http://doi.org/10.1016/j.nedt.2013.10.012>
- Codier, E., & Odell, E. (2014). Measured emotional intelligence ability and grade point average in nursing students. *Nurse Education Today*, *34*(4), 608–612.
- Cook, C. J., Cook, C. E., & Hilton, T. N. (2016). Does emotional intelligence influence success during medical school admissions and program matriculation?: a systematic review. *Journal of Educational Evaluation for Health Professions*, *13*, 40. <http://doi.org/10.3352/jeehp.2016.13.40>
- Cooper, A., & Petrides, K. V. (2010). A psychometric analysis of the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) using item response theory. *Journal of Personality Assessment*, *92*(5), 449–57. <http://doi.org/10.1080/00223891.2010.497426>
- Davis, S. K., & Nichols, R. (2016). Does emotional intelligence have a “dark” side? A review of the literature. *Frontiers in Psychology*, *7*(AUG). <http://doi.org/10.3389/fpsyg.2016.01316>
- Elipe, P., Mora-Merch, Ortega-Ruiz, R., & Casas, J. A. (2015). Perceived emotional intelligence as a moderator variable between cybervictimization and its emotional impact. *Frontiers in*

Psychology, 6(APR). <http://doi.org/10.3389/fpsyg.2015.00486>

Erkutlu, H., & Chafra, J. (2016). Benevolent leadership and psychological well-being. *Leadership & Organization Development Journal*, 37(3), 369–386. <http://doi.org/10.1108/LODJ-07-2014-0129>

Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire*. London: Hodder & Stoughton.

Francis, R. (2013). *Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry Executive summary*. London.

García-Sancho E., Salguero, M. and Fernández-Berrocal, P. (2014). Relationship between emotional intelligence and aggression: A systematic review. *Agression and Violent Behaviors*.

Goldberg, L. R. (1980). Some ruminations about the structure of individual differences: Developing a common lexicon for the major characteristics of human personality. Symposium presentation at the meeting of the Western Psychological Association, Honolulu.

Grant, L., & Kinman, G. (2013). The importance of emotional resilience for staff and students in the “helping” professions: developing an emotional curriculum. *The Higher Education Academy*, (December).

Health Education England. (2014a). *Pre-Nursing Experience Pilot*. Retrieved from <http://hee.nhs.uk/wp-content/uploads/sites/321/2013/09/Interactive-Pre-nursing-experience-pilot-booklet.pdf>

Health Education England. (2014b). *Values Based Recruitment Framework*. Retrieved from <http://hee.nhs.uk/wp-content/blogs.dir/321/files/2014/10/VBR-Framework.pdf>

Health Education England. (2015). *Raising the Bar. Shape of Caring: A Review of the Future Education and Training of Registered Nurses and Care Assistants Lord. Raising the Bar*. London. Retrieved from <http://www.redi->

bw.de/db/ebSCO.php/search.ebscohost.com/login.aspx%3Fdirect%3Dtrue%26db%3Dbth%26AN
%3D17601869%26site%3Dehost-live

Howell, D. C. (2010). *Statistical methods for psychology* (7th ed.). Belmont, CA: Wadsworth.

Hyde, J., & Grieve, R. (2014). Able and willing: Refining the measurement of emotional manipulation. *Personality and Individual Differences*, 64, 131–134.

<http://doi.org/10.1016/j.paid.2014.02.036>

Kantek, F. (2010). Why do student nurses leave? In *Procedia - Social and Behavioral Sciences*.

<http://doi.org/10.1016/j.sbspro.2010.12.425>

Kaur, D., Sambasivan, M., & Kumar, N. (2013). Effect of spiritual intelligence, emotional intelligence, psychological ownership and burnout on caring behaviour of nurses: A cross-sectional study. *Journal of Clinical Nursing*, 22(21–22), 3192–3202.

Li, Y., Cao, F., Cao, D., & Liu, J. (2015). Nursing students' post-traumatic growth, emotional intelligence and psychological resilience. *Journal of Psychiatric and Mental Health Nursing*, 22(5), 326–332. <http://doi.org/10.1111/jpm.12192>

Lund, M., Lund, A. (2017). Dealing with Outliers. Retrieved from

<https://statistics.laerd.com/premium/spss/istt/independent-t-test-in-spss-10.php>

Lund, M., & Lund, A. (2017). Dealing with violations of normality. Retrieved from

<https://statistics.laerd.com/premium/spss/istt/independent-t-test-in-spss-12.php>

Marvos, C., & Hale, F. (2015). Emotional intelligence and clinical performance/retention of nursing students. *Asia-Pacific Journal of Oncology Nursing*. <http://doi.org/10.4103/2347-5625.157569>

Mayer, J. D., & Salovey, P. (1993). The intelligence of emotional intelligence. *Intelligence*, 17(4), 433–442. [http://doi.org/10.1016/0160-2896\(93\)90010-3](http://doi.org/10.1016/0160-2896(93)90010-3)

McLean Rt.Hon (2014) *Vale of Leven Inquiry Report* APS Group: Edinburgh

[Accessed from www.valeoflevenhospitalinquiry.org/report.aspx]

- Merkley, B. R. (2016). Student nurse attrition: A half century of research. *Journal of Nursing Education and Practice*, 6(3), 71–75.
- Montes-Berges, B., & Augusto-Landa, J. M. (2014). Emotional Intelligence and Affective Intensity as Life Satisfaction and Psychological Well-Being Predictors on Nursing Professionals. *Journal of Professional Nursing*. <http://doi.org/10.1016/j.profnurs.2012.12.012>
- Nesje, K. (2016). Personality and professional commitment of students in nursing, social work and teaching: A comparative survey. *International Journal of Nursing Studies*.
<http://doi.org/10.1016/j.ijnurstu.2015.08.001>
- Ng, K.-M., Kim, D.-H., & Bodenhorn, N. (2009). Factor Structure Analysis of the Schutte Self-Report Emotional Intelligence Scale on International Students. *Educational and Psychological Measurement*, 70(4), 695–709. <http://doi.org/10.1177/0013164409355691>
- Oulton, J. a. (2006). The Global Nursing Shortage: An Overview of Issues and Actions. *Policy, Politics, & Nursing Practice*. <http://doi.org/10.1177/1527154406293968>
- Perera, H. N., & DiGiacomo, M. (2013). The relationship of trait emotional intelligence with academic performance: A meta-analytic review. *Learning and Individual Differences*, 28, 20–33. <http://doi.org/10.1016/j.lindif.2013.08.002>
- Petrides, K. V. (2006a). Deriving Factor Scores from the TEIQue-SF. Webnote #2. Retrieved from http://www.psychometriclab.com/Webnote_2.pdf
- Petrides, K. V. (2006b). Deriving Factor Scores from the TEIQue-SF. Webnote #2. Retrieved from http://www.psychometriclab.com/Webnote_2.pdf
- Petrides, K. V. (2009). Technical manual for the trait emotional intelligence questionnaires (TEIQue). London: London Psychometric Laboratory. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Technical+manual+for+the+T>

rait+Emotional+Intelligence+Questionnaires#0

Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence.

Personality and Individual Differences, 29(2), 313–320. [http://doi.org/10.1016/S0191-8869\(99\)00195-6](http://doi.org/10.1016/S0191-8869(99)00195-6)

Petrides, K. V., & Furnham, A. (2006). The role of trait emotional intelligence in a gender-specific model of organizational variables. *Journal of Applied Social Psychology*, 36(2), 552–569.

Petrides, K. V. (2011). Ability and Trait Emotional Intelligence. *The Wiley-Blackwell Handbook of Individual ...*. Retrieved from

<http://onlinelibrary.wiley.com/doi/10.1002/9781444343120.ch25/summary>

Quality and Qualifications Ireland. (2017). *Qualifications can cross boundaries: A guide to comparing quali cations in the UK and Ireland*. Retrieved from

<http://www.qaa.ac.uk/en/Publications/Documents/qualifications-can-cross-boundaries.pdf>

Quoidbach, J., & Hansenne, M. (2009). The Impact of Trait Emotional Intelligence on Nursing Team Performance and Cohesiveness. *Journal of Professional Nursing*.

<http://doi.org/10.1016/j.profnurs.2007.12.002>

Rankin, B. (2013). Emotional intelligence: Enhancing values-based practice and compassionate care in nursing. *Journal of Advanced Nursing*. <http://doi.org/10.1111/jan.12161>

Rego, A., Godinho, L., McQueen, A., & Cunha, M. P. (2010). Emotional intelligence and caring behaviour in nursing. *The Service Industries Journal*.

Rodgers, S., Stenhouse, R., McCreadie, M. and Small, P. (2013) Recruitment, selection and retention of nursing and midwifery students in Scottish Universities *Nurse Education Today* 33: 1301-1310

Sabin, M. (2012) Student attrition and retention: untangling the gordian knot *Nurse Education Today* 32: 337-338

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality*, 9, 185–211.

Schutte, N. S., Malouff, J. M., & Bhullar, N. (2009). The Assessing Emotions Scale. In J. D. A. Parker, D. H. Saklofske, & C. Stough (Eds.), *The Springer Series on Human Exceptionality*. Boston, MA: Springer US. <http://doi.org/10.1007/978-0-387-88370-0>

Schutte, N. S., Malouff, J. M., Bobik, C., Coston, T. D., Greeson, C., Jedlicka, C., ... Wendorf, G. (2001). Emotional intelligence and interpersonal relations. *The Journal of Social Psychology*, 141(4), 523–536. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/11577850>

Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194–200. <http://doi.org/10.1080/10705500802222972>

Snowden, A., Stenhouse, R., Young, J., Carver, F., Carver, H., & Brown, N. (2015). The relationship between emotional intelligence, previous caring experience and mindfulness in student nurses and midwives: a cross sectional analysis. *Nurse Education Today*, 35(1), 152–8. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0260691714003025>

Snowden, A., Watson, R., Stenhouse, R., & Hale, C. (2015). Factor and Rasch Analysis of the Trait Emotional Intelligence Questionnaire Short Form. *Journal of Advanced Nursing*, 71(12), 2936–2949. <http://doi.org/10.1111/jan.12746>

Stenhouse, R., Snowden, A., Young, J., Carver, F., Carver, H., & Brown, N. (2016). Do emotional intelligence and previous caring experience influence student nurse performance? A comparative analysis. *Nurse Education Today*, 43, 1–9. <http://doi.org/10.1016/j.nedt.2016.04.015>

Teresi, J. A., & Fleishman, J. A. (2007). Differential item functioning and health assessment. *Quality of Life Research : An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation*, 16 Suppl 1, 33–42. <http://doi.org/10.1007/s11136-007-9184-6>

Thorndike, E. L. (1920). Intelligence and its use. *Harper's Magazine*, (140), 227–235.

University and Colleges Admissions Services. (2017). Tariff 2017. Retrieved from

<https://www.ucas.com/advisers/guides-and-resources/tariff-2017>

Urwin, S., Stanley, R., Jones, M., Gallagher, A., Wainwright, P., & Perkins, A. (2010). Understanding student nurse attrition: Learning from the literature. *Nurse Education Today*.

<http://doi.org/10.1016/j.nedt.2009.07.014>

Van der Linden, D., Tsaousis, I., & Petrides, K. V. (2012). Overlap between General Factors of Personality in the Big Five, Giant Three and trait emotional intelligence. *Personality and Individual Differences*, 53(3), 175–179. <http://doi.org/10.1016/j.paid.2012.03.001>

Vandewaa, E. A., Turnipseed, D. L., & Cain, G. (2016). PANACEA OR PLACEBO? AN EVALUATION OF THE VALUE OF EMOTIONAL INTELLIGENCE IN HEALTHCARE WORKERS. *Journal of Health and Human Services Administration*, 38(4), 438–477.

Vernon, P. A., Villani, V. C., Schermer, J. A., & Petrides, K. V. (2008). Phenotypic and genetic associations between the Big Five and trait emotional intelligence. *Twin Research and Human Genetics*, 11(5), 524–530. <http://doi.org/10.1375/twin.11.5.524>

Webb, C. A., Schwab, Z. J., Weber, M., DelDonno, S., Kipman, M., Weiner, M. R., & Killgore, W. D. S. (2013). Convergent and divergent validity of integrative versus mixed model measures of emotional intelligence. *Intelligence*, 41(3), 149–156. <http://doi.org/10.1016/j.intell.2013.01.004>

1. I generally don't find life enjoyable.
2. On the whole I have a gloomy perspective on most things.
3. Those close to me often complain I don't treat them right.
4. I often find it difficult to show my affection to those close to me.
5. I find it difficult to bond well even with those close to me.

Box 1. Items in Social Connection factor.

Table 1. Graduates * Previous care experience Crosstabulation

			Prev care experience		Total
			Yes	No	
Graduates	not completed	Count	150	127	277
		Expected Count	137.2	139.8	277.0
	completed	Count	277	308	585
		Expected Count	289.8	295.2	585.0
Total	Count		427	435	862
	Expected Count		427.0	435.0	862.0

Table 1. Crosstabulation of expected and actual counts of students graduating or not by previous care experience.

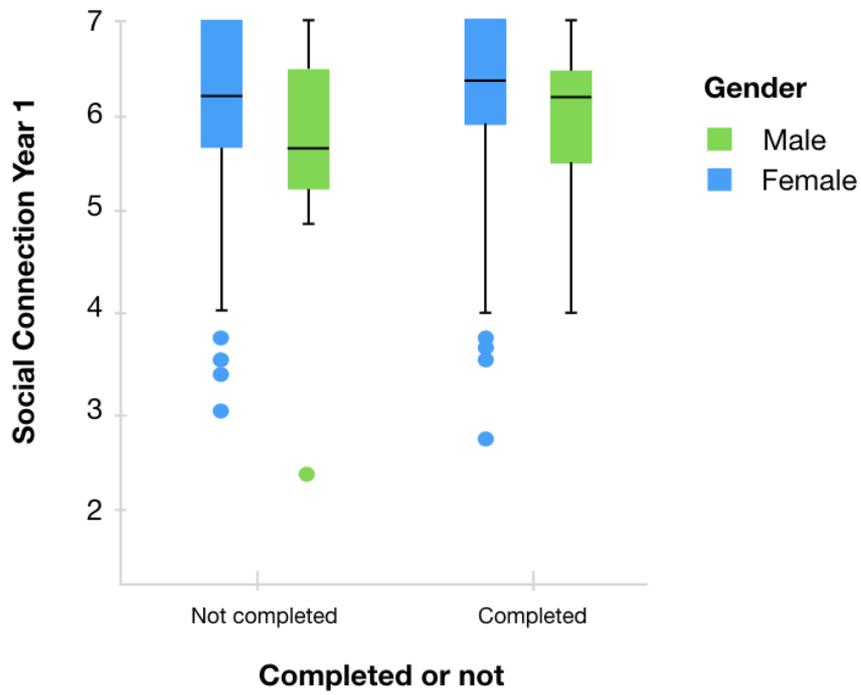


Fig 1