Diversity, attrition and transition into nursing

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Accepted for publication 18 May 2008

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doi: 10.1111/j.1365-2648.2008.04758.x

Abstract

Title. Diversity, attrition and transition into nursing.

Aim. This paper is a report of a study to explore the relationship between selected diversity variables (sex, country of birth, ethnicity, age, educational qualifications, and additionally visa status, application route, absence rates), and nursing students' progression and attrition.

Background. Debates on levels, forms and causation of nursing student attrition have been professional, academic and political concerns for some time on an international level. However, a more systematic approach to studying the topic is needed. We lack commonly operationalized national and international data on the relationship between attrition and diversity variables, and their implications for cost, social justice and demographic representativeness in nursing.

Methods. A longitudinal cohort design was used. Data were collected from 2003 to 2005 from routinely collected data in student records.

Results. Males had lower odds of completing the programme than females, as did younger students. Compared with United Kingdom-born students, those born in Ireland, Zimbabwe, or other English-speaking countries were more likely to complete the programme. Students born overseas in non-English-speaking countries did not differ statistically significantly from United Kingdom-born students. Those at all qualification levels had similar odds of completion, except students already qualified at degree level, who were less likely to complete.

Conclusion. Further national and international research is needed to understand better the causal variables underpinning differential attrition rates, with particular regard to understanding how different groups may experience the relationship between education and their broader circumstances and between the theoretical and the clinical elements of nurse education itself.

Keywords: cultural issues, ethnicity, gender, management, nurse education, nursing workforce, student attrition

Introduction

Student attrition is one of the most important challenges to financial, educational and workforce development targets in the health and social care fields. In the context of nursing internationally, attrition adds substantially to costs and planning uncertainties, undermining the collective pool of workforce talent and experience. Where there is a correlation between attrition and social diversity, two additional implications arise: that there may be mechanisms that
counter the achievement of equality of opportunity and outcome (social justice), and that targets for establishing a demographically representative workforce are more difficult to achieve. However, there remain large uncertainties around the nature, scale, determinants and consequences of attrition, despite a range of international studies (see, for example, Sims & Baldwin 1995, Jallili-Grenier and Chase 1997, Jeffreys 1998, Buchan & Calman 2004, Kennedy et al. 2007).

The fundamental inadequacy of the international data on nursing student attrition has three primary causes: comprehensiveness – the extent of attrition measurement is highly variable; political–philosophical – the legitimacy of categorizing and monitoring ‘diversity groups’ is contested, and methodological – operationalizing the variables of attrition, diversity and their inter-relations is extremely complex, making comparison difficult.

Background

In a historical review, Coakley (1997) reported long-standing concerns about nursing student ‘wastage’. In the United Kingdom, rates as high as 60% in the first year of psychiatric nurse training (34% overall) were being reported in the 1960s, and by 1980 in the region of 15–20%. While the UKCC (1987) had hoped that the modernized Project 2000 curriculum would help to lower wastage by increasing student satisfaction, this was not demonstrated by Jowett et al. (1994) in their study of the first demonstration sites. Twenty-two per cent of students did not complete their studies, although this had dropped to 14% in the second intake.

Glossop (2001) highlighted the complex methodological issues involved in measuring nursing student attrition rates and noted the dearth of ‘student perspective’ studies. The 1999 UKCC Fitness for Practice report identified that attrition statistics for preregistration nursing and midwifery programmes were not presented in any comparable format, noting that across the UK these rates ranged from 5% to 30%. The report recommendation that ‘a common definition of attrition and a required minimum data set for preregistration programmes should be put in place for use across all four countries of the UK (UKCC 1999). Brodie et al. (2004) reported disagreement about dropout rates of up to 40% cited in the simultaneous publications of the UK National Audit Office (2001) and the Audit Commission (2001), a figure that the latter stated was similar to that for all university programmes. Brodie et al.’s (2004) review of research on nursing student attrition demonstrated ‘the complex influence of multiple factors, including the perceived lack of support during placement, travelling difficulties, financial hardship, personal or family problems, disparity in perceptions and wider disillusionment with the health service’ (p. 724).

In a study conducted at two UK universities, the average rate of attrition of student cohorts from 1997 to 2000 was 17.7%. The analysis per year for each university showed a range between 18% and 25% for University A and 12.6–22% for University B (Andrews et al. 2003). The researchers stressed that these rates could only function as a guide as the university databases did not track individuals who might have switched programmes, deferred their studies for a year, converted to part-time programmes or transferred between programmes.

The Royal College of Nursing, in a review of the 2003 UK nursing labour market (Buchan & Seccombe 2004), reported that despite the high tuition costs for each nursing diploma student (about £19,370 over 3 years), consistent and comprehensive information about the number of students entering or completing their education was not available. The average drop-out rate for 1997/1998 preregistration nursing and midwifery student intakes averaged 20%, with a range of 12.45–25.64%. This in a context where ‘the human resources performance framework, published in 2000, set a target of 13% attrition for students entering nurse training in 2000–2001’ (Hansard 2004). However, Buchan and Seccombe (2004, p. 31) commented that ‘Data is (sic) not held before the 1994–95 financial year and has (sic) not been collected since October 2001’.

Some media reports in the UK have claimed that nursing student attrition rates are as high as 50% at some universities (see for example http://www.unison.org.uk: 4/2/2005). In comparison, the ‘latest Department of Health (DH) planning for National Health Services (NHS) workforce demand and supply analysis to 2008/2009 continues to use a wastage from training assumption of 20%, although the Department of Health reported that the ‘latest’ figure is 18%’ (Buchan & Seccombe 2005, p. 33). In 2000, the preregistration curriculum in the UK was again revised (adopting a problem-based learning approach) in the light of the 1999 UK Government strategic initiative, ‘Making a Difference’, which sought to strengthen and modernize the role of nurses, midwives and health visitors within the NHS programme (Department of Health 1999). In Scholes et al.’s (2004) evaluation of this new curriculum across 16 demonstration sites, rates of student-initiated attrition across HEIs ranged from 5 to 23%. These figures were, however, calculated in various ways, and reveal many of the operational complexities associated with such measurement (Andrews et al. 2003).
Scholes et al. (2004, p. 244) proposed introducing a standardized method of recording attrition and that ‘individual student records of age, ethnicity, nationality, academic qualifications be recorded which can be subject to longitudinal analysis’.

In the UK, a new attrition data collection system has now been implemented by the Higher Education Statistics Agency (Buchan & Seccombe 2005). A consistent definition has also been agreed between the NHS and the Higher Education Institutions. Additionally, a new minimum data set started in March 2006 via the Standard National Framework Contract for preregistration education programmes (see http://www.healthcareworkforce.org.uk).

There have also been concerns about nursing student attrition in countries other than the UK. Kennedy et al. (2007) has pointed to the lack of research investigating this in Canada, despite the high public–political profile of the issue. They also found, in the context of the United States of America, no evidence of a definition or calculation of nursing student attrition. Some international studies suggest that the UK may have comparatively high attrition rates. The National Nursing and Nurse Education Taskforce (2005) found nursing student attrition in Australia to be only 7% for those commencing study in 1999. However, given the absence of any international measuring standards, it is difficult to make comparisons.

As for a comprehensive explanation of nursing student attrition, similar uncertainties prevail. Glossop (2001), in a review of the literature, reported the following factors as contributing to attrition in some way:

- Academic failure.
- Personal or family reasons.
- Wrong career choice.
- Financial problems.
- Travel difficulties.
- Poor programme management.
- Ill health.
- Negative staff attitudes.
- Programme pressures.
- Inadequate preprogramme information.
- Lack of tutor support.
- Theory/practice imbalance.
- Variable placements.

However, to date, there remains a dearth of research exploring the relationship between key diversity variables and attrition. In part this may relate to the deeply complex and contested nature of diversity, and the methodological challenges associated with its analysis (Nazroo 2006). For instance, in France measuring ethnicity is essentially illegal as its republican tradition of philosophical universalism makes many form of diversity recognition appear divisive and potentially oppressive. Kandola and Fullerton (1998) defined diversity as resulting from ‘differences in gender, ethnic or national origin, religion, age, physical or mental capability, marital status, sexual preference, social background, organizational role and many other factors which cause people to have different perspectives on the same set of facts or issues’. Brah (1996) pointed to the multidimensional nature of the differences upon which the diversity principle rests. Social diversity is the manifestation of a range of far-reaching social, political and economic developments, operating across a global, national and local terrain, that are set to transform the nature of need and service provision.

The challenge of diversity, and the implications it raises for service providers has become an integral and irreversible feature of contemporary social and political life in many Western countries (Kai 2003, Healy & McKee 2004). These countries are witnessing profound diversification in their demographic composition, across a host of ‘axes of differentiation’. In the UK, of particular salience has been the effect of a complex history of mass labour and family immigration over the last century (from Ireland, South Asia, Africa, the Caribbean and, more recently, Eastern Europe) (Castles & Miller 2003), and particularly their role in shaping the dynamics and characteristics of the populations from which nursing recruits its students and to whom care is delivered. For example, in a London borough near to the study, the Office of National Statistics’ ‘diversity index’ reveals that two randomly selected people would have an 83% likelihood of belonging to different ethnic groups (Office of National Statistics 2008).

Such diversity reflects multiple group identities and has become deeply implicated in a range of social, economic and political inequalities, reflected in systematically different life chances, experiences and needs. It has also become the basis of group mobilization within the political and social spheres, with attendant claims to a range of economic, social, political and cultural rights.

Service providers need to understand the nature of these differences (Parekh 2000) and adapt services accordingly in pursuit of equitable, sensitive and effective provision. The point of departure must be the gathering of base-line information on the impact of diversity on patterns of opportunity, experience and outcome. It is in its contribution to the development of such a baseline, in the context of nurse education, that the DATING project’s (an NHS Positively Diverse-funded project into the impact of social diversity variables on nursing student attrition) account of the impact of diversity variables upon attrition rates may be understood and evaluated.
The study

Aim

The aim of the study was to explore the relationship between selected diversity variables (sex, country of birth, ethnicity, age, educational qualifications, and additionally visa status, application route, absence rates), and nursing students’ progression and attrition.

Design

A longitudinal cohort study was conducted using pre-existing data from student records collected between 2003 and 2005.

Participants

The data were derived from the records of 2530 preregistration students at one university who joined the preregistration nursing programme during 1999, 2000 and 2001. The sample was restricted to students who followed the intended programme of study, excluding those whose recorded start date differed by more than 30 days from the official date of commencement. It excluded 29 students for whom a start date was unavailable and a further 240 who did not follow the intended 3-year programme and whose experiences may therefore have been atypical. In particular, these were students who temporarily withdrew from the programme, subsequently joining a new cohort to complete their studies.

Data collection

All the data used in this study were routinely collected for administrative purposes at recruitment and registration, or as part of the procedures for tracking student attendance and progression. All data were obtained during registration, with the exception of absences, which were monitored using an electronic attendance system and recorded as the total number of days absent and as a ‘Bradford score’ (an indicator of propensity towards short rather than long-term absences) (Incomes Data Services 2007).

Eighty-five countries of birth were recorded, being collapsed down to five categories. Students born in the UK, Ireland and Zimbabwe represented the majority (70%), while other countries were classified according to the level of English language use in their country of origin, taken as a proxy indicator of probable fluency in English (Central Intelligence Agency 2005).

Ethnic origin was initially recorded using 24 categories, which were then collapsed into five, indicating students who were (non-Irish) White, Irish, Black; Asian (Chinese, Indian or Pakistani) or ‘mixed race’. We took the view that, as the aim of the study was to produce a quantitative data set with maximum comparable and transferable value, ethnicity should be operationalized in terms of the categories used in the UK 2001 census (for a discussion of the implications of such an approach, see Nazroo 2006).

The variable highest educational qualification was collapsed from the eight categories recorded in the university student records database to five categories indicating ordinary [General Certificate in Secondary Education (GCSE)], Nursery Nurse and Other, General National Vocational Qualification and National Vocational Qualification, Business and Technician Education Council certificate, Access Course, Advanced Level Certificates (A-Levels – 2-year school certificate normally serving as the criterion for university entrance) and first degree level qualifications (see Table 1 for an explanation of these qualifications).

Route of application via the Nursing and Midwifery Admissions Service or direct to the university, was recorded, as were the intake (April or October in 1999, 2000 or 2001), nursing branch (adult, child, learning disability and mental health) and campus of enrolment.

Final programme outcomes were obtained and collapsed into three outcome categories distinguishing students who: successfully completed their programme of study; voluntarily withdrew from their programme before completion or; withdrew or were withdrawn due to not achieving the required standards.

Table 1 Educational qualifications in England and Wales

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Certificate in Secondary Education (GCSE)</td>
<td>Educational qualifications, in a range of academic subjects, marking the end of compulsory secondary education</td>
</tr>
<tr>
<td>General National Vocational Qualification and National Vocational Qualification</td>
<td>Multi-level vocational awards, based on a combination of training and assessment</td>
</tr>
<tr>
<td>Business and Technician Education Council certificate</td>
<td>Multi-level vocational awards with a particular emphasis on training and coursework assessment</td>
</tr>
<tr>
<td>Access Course</td>
<td>Aimed at adults (minimum age 19 years) seeking access to higher education, but lacking the necessary educational qualifications</td>
</tr>
<tr>
<td>A-Level (advanced level)</td>
<td>A non-compulsory academic qualification, generally taken after completion of GCSEs, and commonly used to gain access to higher education</td>
</tr>
</tbody>
</table>
Validity and reliability

Highest qualification, gender, date of birth, county of birth, and visa status were gathered and verified through the checking of documentary evidence at registration. The validity and reliability of the data are dependent on the effectiveness of these verification systems (the university has found no evidence of fraudulent entry). Ethnic group was recorded in terms of each student’s self-classification, using the 2001 census categories. However, there is strong debate about the reliability and validity of these conceptualizations and operationalization of ethnic categories (Nazroo 2006).

From October 2001, absence was monitored using an electronic attendance system whereby students were required to ‘swipe’ an electronic identification card reader to register their daily presence. There are no available data regarding fraudulent use of this system. Student outcomes were obtained from the national university Higher Education Management Information System.

Ethical considerations

The university research committee approved this project. Student consent was not deemed necessary, given the anonymity and mode of use of the data.

Data analysis

Continuous variables (age, number of days absence due to sickness and Bradford score) were categorized using approximate quartiles to allow the identification of trends without assuming linear effects. Pearson’s chi-squared test was used to examine crude relationships between predictors and outcomes. Binary logistic regression models were then constructed using a components of variance model to control for the varying success rates between cohorts as a random intercept. All analyses were conducted using STATA VERSION 9.2 (Stata Corp., College Station, TX, USA).

Results

Successful completion

After exclusions, there were 1808 sets of student data available for analysis. The participants were 1444 females and 354 males with a median age of 25.1 years (range 17.6–58.8). Of these 1808 students, 377 (20.9%) did not complete their programme of studies. Chi-squared tests were used to examine the crude associations between predictors and a binary variable coded to indicate completion of the programme. Results of these tests are presented in Table 2.

Statistically significant predictors of success were age at programme start date ($\chi^2 = 11.24$, d.f. = 3, $P = 0.011$), country of birth ($\chi^2 = 65.31$, d.f. = 4, $P < 0.001$), ethnic group ($\chi^2 = 35.06$, d.f. = 4, $P < 0.001$), highest entry qualification ($\chi^2 = 13.66$, d.f. = 4, $P = 0.008$), and whether the student required a visa ($\chi^2 = 12.94$, d.f. = 1, $P < 0.001$). A components of variance logistic regression model was constructed to predict successful outcome on the basis of all variables except ethnicity, with cohort effects controlled as a random intercept.

Preliminary analyses showed that ethnic origin and country of birth were closely related, with 77% of students born in the UK and classified as White, 95% of students born in Ireland classified as of Irish ethnic origin, and 97% of those born in Zimbabwe classified as Black. During multivariate analysis, attempts to incorporate ethnic origin into models containing country of birth showed evidence of collinearity with no improvement in fit. Predictive validity was examined and showed that, while country of birth slightly improved models containing ethnic origin, ethnic origin failed to improve models already containing country of birth. As ethnic origin was effectively redundant with country of birth, it does not appear in the multivariate analyses presented below.

Results for this model are also presented in Table 2. Among diversity variables, students born in Ireland (OR = 2.58, 95% CI 1.66–4.02), Zimbabwe (OR = 2.35, 95% CI 1.29–4.28), and other English speaking countries (OR = 2.69, 95% CI 1.54–4.69) had higher odds of success than those born in the UK. A linear effect was observed for age, whereby students had increasingly higher odds of success with increasing age (26–32 years, (OR = 1.65, 95% CI 1.07–2.54); and 33 years or more, (OR = 2.05, 95% CI 1.31–3.21), while males had lower odds of success than females (OR = 0.66, 95% CI 0.48–0.92).

For the control variable of past education, no differences were found between categories of prior educational achievement, with the exception of students qualified to first degree level, who had lower odds of success (OR = 0.49, 95% CI 0.27–0.87).

Reasons for withdrawal

Of the 377 (22%) students who did not complete the programme, 146 (39%) voluntarily withdrew or were withdrawn for not meeting the required standard. Chi-squared tests were used to examine the crude associations between predictors and a binary variable coded to differentiate
between failure and withdrawal for other reasons. Results of these tests are presented in Table 3.

Statistically significant predictors of not meeting the required standard among non-completing students were country of birth ($\chi^2 = 16.37$, d.f. = 4, $P = 0.003$), ethnic group ($\chi^2 = 17.03$, d.f. = 4, $P = 0.002$), highest entry qualification ($\chi^2 = 12.20$, d.f. = 4, $P = 0.016$), visa required ($\chi^2 = 7.69$, d.f. = 1, $P = 0.006$), categorized days of absence ($\chi^2 = 12.86$, d.f. = 3, $P = 0.005$) and categorized Bradford score ($\chi^2 = 24.12$, d.f. = 3, $P < 0.001$).

A components of variance logistic regression model was used to predict failure as opposed to voluntary withdrawal.
using the same modelling approach described above (see Table 3).

The only statistically significant predictor in the multivariate model was absence. Students who fell in the two highest quartiles of the Bradford score were more likely to fail than withdraw for other reasons (respectively OR = 3.98, 95% CI 1.59–9.95 and OR = 6.29, 95% CI 2.27–17.4). Furthermore, examination of the results in Table 3 suggests a trend where odds of failing rather than withdrawing for other reasons increased with Bradford score.

Discussion of results

Study limitations

There are limitations with a study of this kind, not least of which are the problems associated with operationalizing complex social constructs in terms of the categories associated with the recruitment and retention of students. The inability to generate additional data (to those data provided as part of the routine data procedures of the institution) or to supplement the project with a qualitative dimension inevitably limited the depth and explanatory potential of the findings, and in some cases their validity.

More specifically, the data were collected in a context where the majority of ethnic diversity within the cohort was provided by overseas students with bursary entitlements (in particular the Ireland and Zimbabwe), while those born in the UK or having British nationality overwhelmingly identifying themselves as ‘white British’.

Data were also collected and analysed on designated sex, with a consequent inability to explore the social, political and economic dimensions of sexual difference through the more meaningful category of gender. Finally, the small sample size limited the power of analyses of reasons for non-completion.

Discussion of results

However, the project did produce some interesting and productive findings. In terms of sex, male students had lower odds of successfully completing the programme than females, although no differences were observed in reasons for non-completion. These findings confirm those of a study in Israel (Ehrenfeld et al. 1997) that identified male sex as a statistically significant variable for attrition. Interestingly, Kevern et al. (1999) in the UK found that female students over the age of 23 years, who had entered with non-conventional educational qualifications achieved higher scores in the first half of the programme than male students with similar qualifications. These data suggest the need for further research into the causes of these sex outcomes, given their counter-intuitive nature in a context of the ‘surplus burden’ of responsibilities born by working women in the UK (Jenkins 2004).

Regarding age, older students (in the upper two quartiles) were more likely to complete the programme than the youngest students (in the lowest quartile), and the odds of completing the programme appeared to show a consistent linear increase with age. These results are confirmed by Houltram (1996) Kevern et al. (1999). The perception that mature students commencing a nursing programme are more likely to be making an informed and committed career choice than their younger peers, and see themselves as having ‘more to lose’, was confirmed by Kevern and Webb (2004).

Ethnicity and country of birth presented the greatest methodological difficulty in the present project. The use of ‘country of birth’ (rather than ethnicity) in epidemiological research has been the subject of critique, where ‘country of birth’ has been seen as somewhat anachronistic in a context of established ethnic minority settlement, community formation and reproduction. However, during the period of the project, the study university was receiving high levels of applications from overseas students (particularly from Ireland and Zimbabwe) at a time when, reflecting trends in similar establishments, it was receiving low levels of applications from some minority ethnic communities in Britain (principally South Asians). The ethnic homogeneity of our British cohort was striking in its contrast to the substantial ethnic heterogeneity of the university’s catchment area, and the UK generally. Higher education institutions are now heeding calls to recruit more local residents to their preregistration nursing and midwifery programmes (Audit Commission 2002, Mullen 2003).

Compared with students born in the UK, those born in Ireland, Zimbabwe or overseas in other English-speaking countries were more likely to have completed the programme. This challenges anecdotal evidence gathered at in-house staff development workshops, which suggests that some staff see overseas students as having particular difficulties in relation to attainment and being at risk of non-completion. It is also notable that as 97% of the Zimbabwean students were black. If colour-based racism was operating in the learning environment, its effect was not such that it produced absolute disadvantage in completion levels. These data also challenge any residual claims that overseas students represent a poorer return on public investment than home students, given the former’s higher probability of completion.
Students born overseas in non-English speaking countries did not differ statistically significantly from UK-born students. A central question is the role played by language in determining academic performance and completion. Our findings challenge the common assertion that speaking English as a second language directly causes academic failure. To the extent that those who speak English as a second language are disadvantaged, this would appear to be compensated for by attributes operating in the non-English speaking cohort and/or learning environment. However, these findings are in contrast to those of a Canadian study by Jalili-Grenier and Chase (1997) in which English was the

### Table 3 Predictors of reason for non-completion

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Withdrawal</th>
<th>Failure</th>
<th>Individual chi-square tests</th>
<th>Logistic regression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td>$\chi^2$ (d.f.)</td>
<td>P value</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>183 (63)</td>
<td>107 (37)</td>
<td>1.77 (1)</td>
<td>0.183</td>
</tr>
<tr>
<td>Male</td>
<td>48 (55)</td>
<td>39 (45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 21</td>
<td>77 (61)</td>
<td>49 (39)</td>
<td>0.94 (3)</td>
<td>0.816</td>
</tr>
<tr>
<td>21 to &lt; 26</td>
<td>65 (63)</td>
<td>38 (37)</td>
<td></td>
<td>0.89 (0.43–1.83)</td>
</tr>
<tr>
<td>26 to &lt; 33</td>
<td>42 (57)</td>
<td>32 (43)</td>
<td></td>
<td>1.40 (0.60–3.25)</td>
</tr>
<tr>
<td>33 and over</td>
<td>47 (64)</td>
<td>27 (36)</td>
<td></td>
<td>0.70 (0.28–1.76)</td>
</tr>
<tr>
<td>Country of birth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>106 (70)</td>
<td>47 (31)</td>
<td>16.37 (4)</td>
<td>0.003</td>
</tr>
<tr>
<td>Ireland</td>
<td>34 (56)</td>
<td>27 (44)</td>
<td></td>
<td>1.38 (0.61–3.11)</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>35 (58)</td>
<td>26 (43)</td>
<td></td>
<td>1.35 (0.43–4.22)</td>
</tr>
<tr>
<td>Other English-speaking</td>
<td>16 (37)</td>
<td>27 (63)</td>
<td></td>
<td>2.91 (0.98–8.59)</td>
</tr>
<tr>
<td>Other non-English speaking</td>
<td>34 (67)</td>
<td>17 (33)</td>
<td></td>
<td>1.02 (0.35–2.94)</td>
</tr>
<tr>
<td>Ethnic group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>101 (74)</td>
<td>35 (26)</td>
<td>17.03 (4)</td>
<td>0.002</td>
</tr>
<tr>
<td>Irish</td>
<td>36 (54)</td>
<td>31 (46)</td>
<td></td>
<td>1.38 (0.61–3.11)</td>
</tr>
<tr>
<td>Black</td>
<td>73 (53)</td>
<td>65 (47)</td>
<td></td>
<td>1.35 (0.43–4.22)</td>
</tr>
<tr>
<td>Asian</td>
<td>10 (67)</td>
<td>5 (33)</td>
<td></td>
<td>2.91 (0.98–8.59)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (80)</td>
<td>2 (20)</td>
<td></td>
<td>1.02 (0.35–2.94)</td>
</tr>
<tr>
<td>Highest qualification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinary</td>
<td>110 (60)</td>
<td>72 (40)</td>
<td>12.20 (4)</td>
<td>0.016</td>
</tr>
<tr>
<td>Vocational</td>
<td>46 (65)</td>
<td>25 (35)</td>
<td></td>
<td>2.05 (0.98–4.30)</td>
</tr>
<tr>
<td>Access</td>
<td>37 (49)</td>
<td>39 (51)</td>
<td></td>
<td>1.88 (0.92–3.86)</td>
</tr>
<tr>
<td>Advanced</td>
<td>19 (76)</td>
<td>6 (24)</td>
<td></td>
<td>1.27 (0.40–4.06)</td>
</tr>
<tr>
<td>Degree</td>
<td>19 (83)</td>
<td>4 (17)</td>
<td></td>
<td>0.91 (0.32–2.59)</td>
</tr>
<tr>
<td>Visa required</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>171 (66)</td>
<td>89 (34)</td>
<td>7.69 (1)</td>
<td>0.006</td>
</tr>
<tr>
<td>Yes</td>
<td>36 (50)</td>
<td>55 (50)</td>
<td></td>
<td>1.44 (0.55–3.75)</td>
</tr>
<tr>
<td>Application route</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct application</td>
<td>145 (58)</td>
<td>107 (43)</td>
<td>2.94 (1)</td>
<td>0.087</td>
</tr>
<tr>
<td>National admissions system</td>
<td>70 (67)</td>
<td>34 (33)</td>
<td></td>
<td>0.68 (0.37–1.24)</td>
</tr>
<tr>
<td>Absence (days)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None to 2.5</td>
<td>77 (68)</td>
<td>37 (32)</td>
<td>12.86 (3)</td>
<td>0.005</td>
</tr>
<tr>
<td>3–10</td>
<td>66 (70)</td>
<td>28 (30)</td>
<td></td>
<td>1.35 (0.57–3.19)</td>
</tr>
<tr>
<td>11–22</td>
<td>49 (57)</td>
<td>37 (43)</td>
<td></td>
<td>1.05 (0.46–2.40)</td>
</tr>
<tr>
<td>23 or more</td>
<td>39 (47)</td>
<td>44 (53)</td>
<td></td>
<td>0.81 (0.36–1.83)</td>
</tr>
<tr>
<td>Absence (Bradford score)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–150</td>
<td>63 (78)</td>
<td>18 (22)</td>
<td>24.1 (3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>151–1300</td>
<td>59 (65)</td>
<td>32 (35)</td>
<td></td>
<td>1.91 (0.84–4.35)</td>
</tr>
<tr>
<td>1301–8800</td>
<td>47 (53)</td>
<td>42 (47)</td>
<td></td>
<td>3.98 (1.59–9.95)</td>
</tr>
<tr>
<td>8801 or more</td>
<td>39 (43)</td>
<td>52 (57)</td>
<td></td>
<td>6.29 (2.27–17.4)</td>
</tr>
</tbody>
</table>

Percentages calculated within each level of each categorical variable. All tests were two-tailed.
What is already known about this topic

- Attrition represents an important and costly feature of nurse education, leading to loss of talent and investment, and undermining the formation of a representative workforce.
- The evidential base of international understanding of attrition in nurse education is limited by inconsistencies in the comprehensiveness and operationalization of data, producing uncertainties about the nature, scale, determinants and consequences of the problem.
- A link has been suggested between attrition and key social diversity variables.

What this paper adds

- Gender, age, country of birth and educational background were all correlated with progression.
- There were complex, variable and at times ‘counter-intuitive’ relationships between diversity and progression which challenge stereotyped assumptions about the attributes that correlate positively with progression.

second language (ESL) for about 25% of students and statistically significantly more ESL students failed to achieve the required standard in their first year of studies.

It is difficult to compare our findings concerning country of birth and ethnic origin with those of other researchers in the UK or beyond, because of the dearth of evidence reliably linking nursing student attrition to these diversity variables. According to the South East London Workforce Development Confederation study (Mason 2004, p. 4), ‘considerable data is (sic) collected but it is not in a readily useable form and hence provides limited information’.

Students at all qualification levels had similar odds of successful completion, with the exception of those already qualified to degree level, who were less likely to complete the programme than students with any other prior qualifications. No statistically significant differences were found between students who applied via the national admissions system and those who applied directly. Although this did not emerge as statistically significant in multivariate tests, among non-completing students those qualified to degree level had the highest percentage of voluntary withdrawals. This may seem counter-intuitive if we assume that such students are better equipped to face the academic challenges of a nursing programme. Such programmes are, however, primarily vocationally-driven and it is possible that they are experienced by graduates as not academically stimulating. In a review of the literature, Kevern et al. (1999, p. 786) stated that ‘the general conclusion drawn from a rather eclectic group of studies on education and retention is that more academically able students would be less fulfilled on a training programme that lacked academic rigour, and that motivation and general aptitude for the job may be more important in determining success’. An evaluation of the Project 2000 curriculum in Northern Ireland, found a high attrition rate amongst students with good academic qualifications, mainly because of ‘personal reasons’. Certainly, graduates studying to be nurses might be able to access alternative and better paid employment. With regard to other entry qualifications, the data also challenge taken for granted assumptions that attrition is directly caused by educational attainment prior to commencement.

Bradford scores did not statistically significantly predict successful completion of the programme. Among those who did not complete, students with high Bradford scores (the top two quartiles) were more likely to have failed, rather than withdrawn, than those with lower (the bottom quartiles) Bradford scores. Overall, there was a trend towards increasing levels of non-completion because of failure (as opposed to withdrawal) as Bradford scores increased.

Conclusion

Empirical evidence linking social diversity with nursing student attrition must become the basis of an international dialogue and consensus-formation around the need for such forms of diversity monitoring, even where political-philosophical resistance to such forms of group-based categorization is evident. Where systematic differences are evident in the completion rates of particular groups within nurse education, effective strategic responses must be initiated in the pursuit of equality, justice and a representative workforce.

Further research, national and international, is needed to understand better the causal variables underpinning differential attrition rates, with particular regard to understanding how different groups may experience the relationship between education and their broader circumstances and between the theoretical and the clinical elements of nurse education itself. On the basis of improved understanding of attrition, stakeholders will need to adopt a more ‘joined-up’ approach to reviewing all aspects of the education process, including the underlying assumptions informing nurse education per se, recruitment, selection, programme management and delivery, theoretical and clinical assessment and
transition to practice. In addition, the ‘counter-intuitive’
dimensions of the empirical data could form the basis of
awareness-raising initiatives to challenge assumptions that do
not match the ‘realities’ of student progression, and/or the
strategic needs of educational and workforce development.

The data support a particular focus on understanding the
specific educational needs of young students and those
starting nurse education with first degrees. Moreover, they
suggest that there is a marked need to improve the recruit-
ment of members of Britain’s black and minority ethnic
groups, and in particular its South Asian population.

Author contributions

EA, PF, JM, RA and MT were responsible for the study
conception and design. MT performed the data collection.
RA, PF, EA, JM and MT performed the data analysis. EA,
JM, RA, PF and MT were responsible for the drafting of the
manuscript. JM, EA, PF, RA and MT made critical revisions
to the paper for important intellectual content. RA and PF
provided statistical expertise. EA, JM, PF and MT obtained
funding. MT provided administrative, technical or material
support.

Acknowledgement

We would like to thank Positively Diverse – NHS Employers,
Department of Health for funding this study and the many
university staff who gave their support to it.

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