The academic journey of students with specific learning difficulties undertaking pre-registration nursing programmes in the UK: A retrospective cohort study

Title

The academic journey of students with specific learning difficulties undertaking pre-registration nursing programmes in the UK: a retrospective cohort study.

Abstract

Background: The prevalence of nursing students with specific learning difficulties enrolled on pre-registration nursing programmes and the impact that this diagnosis has on their programme outcomes are currently unknown.

Objectives: The aim of this paper is to report on data that explored and compared the academic journey of students with and without learning difficulties on pre-registration nursing degree programmes.

Design: A retrospective cohort design.

Settings: One university in the UK offering BSc Honours Degree programmes in Adult and Mental Health Nursing.

Participants: Pre-registration adult and mental health nursing students (n=1152) enrolled in the programmes between 2012 and 2016.

Methods: Pearson's Correlation, ANOVA and crosstabulation were used to identify the differences and associations between each group of students with the outcome variables grade percent average and programme completion.

Results: A total of 12.5% of the students were identified as having a diagnosed specific learning difficulty and were entitled to reasonable adjustments. The analysis shows that their grade percent average and completion rates are equivalent to students without a specific learning difficulty.

Conclusions: The differences between students with a specific learning difficulty and those without are small across the variables measured. Reasonable adjustments appear to mitigate the learning difficulties that students with specific learning difficulties have. Educators need to continue to promote ways of identifying students with specific learning difficulties as early as possible in the student's academic journey. Responsive adjustments in teaching and assessment in theory and practice components should be implemented to ensure that all students' opportunities to succeed are maximised.

Introduction

There are many reasons why people of all abilities should be encouraged to apply for university courses. Higher education is known to lead to better job security, improved job prospects and a higher salary (Seidman 2012). It is an important vehicle for 'closing the gap' of health and wealth disparities between those with disabilities and those without (Clouder et al. 2020).

A specific learning difficulty (SpLD) is an umbrella term covering a range of neurological conditions that affect the way that information is processed and learned (British Dyslexia Association 2020). SpLDs are considered disabilities and include, but are not limited to, dyslexia (the most common

SpLD), dyspraxia, dyscalculia, dysgraphia, attention deficit hyperactivity disorder (ADHD) and other auditory or processing disorders. It is thought that approximately 10% of the population in the UK have dyslexia, 3—6% have dyscalculia and 1-4% have ADHD (British Dyslexia Association 2019). Every presentation is unique but common traits include problems with reading, writing, concentration, organisation and short-term memory (Lewandowski et al. 2013, Wray et al. 2013, Crouch 2019). SpLDs are not associated with intelligence and have lifelong presentations in which appropriate interventions can positively mitigate the effects that SpLDs have on everyday functioning (Evans 2015).

The number of students with SpLDs in higher education is currently unknown. The Higher Education Statistics Agency (HESA) (2019) stated that approximately 6% of students in higher education had SpLDs, yet one study found an incidence of 12% in their nursing programme (Wray et al. 2012). It is unknown how many students with SpLDs go unassessed and unrecorded through the entirety of their university courses. More rigorous methods of recording the number of students with SpLDs are required (Wray et al. 2012), but there is consensus that the incidence of SpLDs has been increasing in recent years (Olofsson et al. 2015, Harris 2018, L'Ecuyer 2019, Clouder et al. 2020). This has been attributed, in part, to policies aiming to widen and promote access to higher education to applicants from disadvantaged populations, who are generally underrepresented in UK universities (Henderson 2017, Crouch 2019). This includes people with disabilities, both seen and unseen. People with SpLDs have been recognised for their excellent interpersonal, problem solving, creative thinking and observation skills, as well as their high levels of empathy for others (Sanderson-Mann et al. 2012). They are known to enter professions such as nursing that centre around people (Morris and Turnbull 2006, Wray et al. 2012, Crouch 2019).

The Nursing and Midwifery Council (NMC), the nursing and midwifery regulator for the UK, specified that all newly qualified nurses must have completed a bachelor's degree in nursing prior to registration, comprising 2300 clinical practice hours and 2300 hours of theoretical learning in a university setting (NMC 2018a). Universities are required to make reasonable adjustments and offer alternative approaches to teaching and assessment to people with disabilities (Disability Discrimination Act 1995, The Equality Act 2010). Reasonable adjustments are designed to remove any disadvantage students with a disability may face so that they have the same opportunities to succeed as those without a disability. Adjustments can be applied to clinical and classroom learning settings depending on the needs of the individual student, providing that they do not compromise patient safety (L'Ecuyer et al. 2019). While educators are discovering new and creative ways of accommodating different learning styles in teaching and assessment to meet the educational needs of all students, little is known about the effects this has on progress outcomes for students with SpLDs in nursing education (Schabmann et al. 2020).

Background

Requirements and implications of disclosure of SpLDs

To be eligible for an assessment for reasonable adjustments, students must first disclose (fully or in part) the nature of their abilities to their university or clinical placement setting (Schabmann et al. 2020). Reasonable adjustments can include the allocation of additional time in examinations and permission to use equipment to aid reading and communication such as dictaphones or note-takers (Pino and Mortari 2014, Asghar et al. 2018).

Disclosing a disability is a choice, especially in the case of unseen disabilities. Students exercise their right to non-disclosure for many reasons including a fear of stigma, isolation, being considered

intellectually inferior or having their fitness to practise called into question. Some students with disabilities may not feel that they experience any difficulty and therefore do not disclose (Wray et al. 2012, Evans 2015, Harris 2018, Schabmann et al. 2020) and others believe that they do not have a disability (Pino and Mortari 2014, Clouder et al. 2020).

Not all students who have SpLDs will be diagnosed when they commence higher education, and some will experience a delayed diagnosis until they reach the 2nd or 3rd year of their programme (Henderson 2017). This is perhaps due to the excellent compensatory mechanisms that they have had to develop to navigate course materials (Wray et al. 2012, Schabmann et al. 2020). Suspicions about potential SpLDs often emerge when the results of students' assessments do not match their expected performance levels (Henderson 2017).

Educators should promote and embrace the assessment and disclosure of SpLDs in a helpful and meaningful way (Evans 2015). Fear of negative consequences associated with disclosure can lead to a delay in diagnosis or asking for help (Wray et al. 2012), which may put people with SpLDs at risk of poor performance and early university exit (Morina and Orozcol 2020). Prompt access to timely and continuing support is vital to successful educational development and outcomes (Wray et al. 2013).

Reasonable Adjustments in Clinical Placements

Students with SpLDs use a range of measures to adapt in clinical practice, such as using a calculator to work out drug calculations or using pre-prepared handover sheets (Sanderson-Mann et al. 2012). Discrimination has been noted in clinical practice and it is not unique to the field of nursing (Stanley et al. 2007, Shaw and Anderson 2018). Students with SpLDs have reported that they felt they had to work harder than their peers and constantly had to prove themselves (Evans 2015). They can have such a lack of confidence in their ability that they feel that having their fitness to practise questioned is often justified (Crouch 2019). Based on guidance from the NMC (2018b), the presence of a disability should not automatically call nursing students' fitness to practise into question if they are able to practise safely and effectively, and clinical assessments should focus on students' abilities and not their disabilities (Wray et al. 2012, Evans 2014). Medicine calculations are frequently highlighted as a potential problem, although numeracy skills are not solely an issue for nursing students with SpLDs (Sanderson-Mann et al. 2012, Wray et al. 2013). There is no evidence to suggest that patient safety is being compromised by nurses and students with disabilities (Morris and Turnbull 2006, Wray et al. 2012).

Some clinical settings appear to be unaware of their legal obligation to provide reasonable adjustments or alternative forms of assessment, with some nursing lecturers even using the derogatory term 'babysitting' while referring to students with additional needs on placement (Evans 2014). The attitudes of registered nurses are recognised as central in the support of nursing students in assessment as well as in enhancing students' confidence and sense of self-value (Major and Tetley 2019). In Sanderson-Mann et al. (2012) study, some clinical assessors felt that they lacked the knowledge and skills to help students with SpLDs and expected reasonable adjustments to be in place when the student arrived on placement, but the expectation was, regardless of disability, that students would take responsibility for their own learning needs.

Academic achievement

One study conducted in Sweden looked at the academic outcomes of students with dyslexia in social science courses (n=50) (Olofsson et al. 2015). Thirteen of the students were enrolled on the nursing

programme. Students' academic outcomes were measured by the number of completed academic credits, obtaining a degree and the dropout rate. The results showed that students with dyslexia were achieving outcomes consistent with the average performance indicators in Sweden. The authors suggested that this may be due in part to every participant having an upper-secondary level education (the equivalent of a grammar school in the UK) which may have prepared them intentionally for university study. As this study focused only on students with dyslexia and not students with other SpLDs, these findings cannot necessarily be generalised to the wider population of students with SpLDs.

Richardson (2015) looked at the academic attainment (completion rates, pass rates and academic grades) of distance learners in higher education. This study was conducted at one university in the UK (the Open University) with a sample of 175924, which was the entire number of students who had registered for one or more modules in that year. At enrolment, 4961 students stated that they had dyslexia or another type of SpLD. This was self-reported by the student and no evidence was required of diagnosis, although each student was contacted following disclosure to identify what additional learning support they would require with their studies. The results indicate that students with SpLDs were just as likely as students without SpLDs to complete their programme of study. Nevertheless, they had a higher rate of module failure and were less likely to obtain a first or upper-second degree classification (min. 60% grade average in final year) compared with the total population, and the difference was statistically significant. This study is difficult to generalise to other higher education institutions as it focused on distance learning only and the university had no formal or minimum entry requirements. There was no indication of how many students in the sample were enrolled on the university's nursing programme, nor did the study account for students who were diagnosed with SpLDs after enrolment.

Study Rationale

The 50% clinical and 50% academic structure of nursing programmes makes comparisons to non-nursing programmes difficult. The nursing literature is dominated by qualitative research into the journey of nursing students with SpLDs on clinical placements and the perspectives of their clinical assessors and lecturers. As clinical practice learning accounts for only 50% of the total learning experience, there is an obligation on educational researchers to additionally explore the academic journey of students with SpLDs in relation to their academic outcomes.

Methodology

Study Design - A retrospective cohort study.

The aim of this paper is to report on data that explored the academic journey of students with SpLDs on Bachelor of Science (BSc) Honours Nursing (Adult and Mental Health) programmes at one university in the UK. The PICO framework (figure 1) was used to develop the study concept and the following research questions were devised.

1. What is the prevalence of students with SpLDs in the nursing programmes?

2. What are the demographic characteristics of students with SpLDs and how do they compare to students without SpLDs?

3. What are the differences between the academic outcomes of students with SpLDs and those without SpLDs?

<Figure 1 PICO Framework>

Setting – The study was conducted in one university in the UK which is commissioned by the Department of Health, Social Services and Public Safety to deliver the pre-registration BSc Honours Adult and Mental Health Nursing programmes. The fulltime courses consist of nine semesters delivered over three calendar years, with students completing six equally weighted modules per year. Academic outcomes are assessed through a blend of examinations and assignments. Marks are awarded as a percentage for each module and range between 0-100% and the pass mark is set at 40%.

The assessment of SpLDs and subsequent decisions on reasonable adjustments are undertaken by student support services. To qualify for an assessment a student must provide a written diagnostic report as evidence of their diagnosis of a SpLD(s) or undertake an online assessment which, depending on the results, leads to an appointment with an educational psychologist who assesses their individual needs. A full list of reasonable adjustments is presented in table 1.

<Table 1 - Reasonable adjustments>

Ethics - Ethical approval was granted under arrangements for research governance at the university and permission to conduct the research was given by the Head of the School of Nursing.

All nursing students who enrolled on the BSc Honours Nursing Adult and Mental Health programmes between 2012 and 2016 were included in the study. The demographic variables included in the study were age, gender, entry route to university (see figure 2) and socio-economic status (SES) and were obtained from the school admissions department. SES was determined using the students' postcodes to identify their Multiple Deprivation Measure (MDM). The Northern Ireland MDM gives each postal area in the region a rank position between 1 and 890, with 1 being the most deprived and 890 being the least deprived. The rank position is derived from a combination of components including income deprivation, employment deprivation, health deprivation and disability, education and training deprivation, access to services, living environment and levels of crime/disorder (Ijpelaar et al. 2017).

Students with SpLDs were identified from the university Reasonable Adjustments database. Academic outcomes were available from faculty records and were measured by grade percent averages (GPA) at the end of 1st, 2nd and 3rd year and their programme completion rate. Programme completion was defined as passing all module assessments and clinical placements and subsequently being eligible to apply to register with the NMC. Reasons for non-completion included clinical or academic failure or taking leave of absence without returning. Students may leave for multiple reasons and as some are unknown it is difficult to identify all reasons for individuals' non-completion. To enable students to gain academic credit for modules completed, students who completed a minimum number of 120 credits were able to exit with an alternative qualification, such as a Certificate in Health Sciences.

Data were retrospectively extracted from faculty records and no communication between students and researchers was necessary. At the time of data collection (2019), most students had completed the programme.

<Figure 2 – Description of entry routes>

Analytical Strategy

The data were manually entered into Excel spreadsheets, coded, anonymised and transferred into SPSS v 26 for analysis. Ten percent of randomly selected students had data extracted from one variable checked independently by another researcher against faculty records. Data checking was 98.5% accurate and further verification was not considered necessary.

Descriptive statistics were applied to the demographic characteristics of the sample and the prevalence of SpLD within the cohorts was calculated as a percentage. Pearson's correlation was used to measure the strength of the relationship between continuous variables (or one continuous and one dichotomous variable) and ANOVA/cross tabulation used to determine the differences between groups (see table 2 for variable categories). The significance level for the study was set at 5%. Missing values were managed in SPSS on an analysis-by-analysis (pairwise) basis, thus maximising the sample size for all statistical tests (Tabachnick and Fidell 2019, Pallant 2020).

<Table 2 – Variable categories>

Results

Profiles were available for 1152 students from the five year-cohorts in the sample. Student numbers in the sample decreased slightly each year due to attrition. No students were lost to follow up as 'programme completion' was one of the outcome measures for the study. At the end of the programme, 12.5% (n=144) of students had been identified as having one or more SpLDs and were entitled to reasonable adjustments.

Ages were available in 1147 cases. The mean age for all students with SpLDs was 25 and 24 for those without (table 3). A Pearson's correlation shows that the difference was statistically significant, but the effect size was very small (r=.059, p=.047).

<Table 3 - Age>

SES scores were available for 1026 students and ranged from 1 to 890 with students represented across all ranks of the MDM, with a slightly higher representation in the more deprived areas of Northern Ireland (figure 3). The mean SES score for students with SpLDs was 361 and 308 for students without SpLDs indicating a higher incidence of deprivation for the students with SpLDs (table 4). A Pearson's correlation showed that the difference was significant, but the effect size was very small (r=-.078, p=.012).

<Figure 3 - SES histogram>

<Table 4 - SES score>

Gender was available for all 1152 students; 8.9% were male (n=102) and 91.1% were female (n=1050). The incidence of SpLDs among male students was 22.5% (n=23) and 11.5% (121) among female students. This was explored further using a Chi-square test for independence (with Yates' Continuity Correction) which showed that the difference was significant, but the effect size was very small [$\chi 2$ (1, n=1152) =9.349, p=.001, phi=.095].

Entry routes were available in 1140 cases (table 5). The most common entry route for students with SpLDs was the Access Diploma, followed by the BTEC Diploma and A-Level grades. For students without SpLDs the most common entry route was the Access Diploma, followed closely by A-Levels then the BTEC Diploma. A Chi-square test for independence showed that the difference was non-significant [$\chi 2$ (6, n=1140) = 10.958, p=.098].

<Table 5 - Entry routes>

The mean GPA grades for years 1, 2 and 3 for both groups of students are shown in table 6. One-way ANOVA was used to detect significant differences between the mean grades in years 1, 2 and 3 for students with and without SpLDs. The Levene's Test of Homogeneity revealed equal variance between groups. The results indicate that there are significant differences between the scores of students with and without SpLDs at all three timepoints, but the effect sizes are small: GPA 1: [F= (1,1128) =32.605, p=.000, $\eta 2$ =.03], GPA 2: [F= (1,1074) =6.019, p=.014, $\eta 2$ =.01], GPA 3: [F= (1,1051) =10.950, p=.001, $\eta 2$ =.01].

<Table 6 - GPAs>

Out of a total 1152 students who enrolled between 2012 and 2016, 88% completed the programme (n=1015). Three students had taken a leave of absence and had not yet returned at the time of analysis leaving three missing values. A Chi-square test for independence (using Yates' Continuity Correction) showed that there was no difference in programme completion rates between students with or without SpLDs [$\chi 2$ (4, n=1149) =1.13, p=.287].

Discussion

This study aimed to identify and compare the prevalence, demographic profile and programme outcomes of students with and without SpLDs enrolled on the BSc Honours Adult and Mental Health Nursing programmes in one university in the UK.

A 12.5% prevalence of SpLD was found across the entire student population, which is similar to that found by Wray et al. (2012) in their nursing programme, but twice as high as that reported by the HSEA (2019). The difference could be explained by the timing of data collection. Our study aimed to capture every student who had been diagnosed with and disclosed a SpLD at any time point of the programme. The HSEA study captured students who had been diagnosed with and disclosed a SpLD at enrolment in higher education, failing to include students who may have been diagnosed later in their programme of study. Our study and that conducted by Wray et al. (2012) may offer evidence that people with SpLDs do prefer courses that centre around people (like nursing) which could explain the higher prevalence than the national average.

Student demographic profiles identified differences in age, gender and SES, and while these differences were statistically significant, the associations are small which means that they have little practical, or in this case, educational implications (Pallant 2020). In this study, the demographic profile of students with SpLDs appear to be similar to the rest of the student population, and there seems to be no characteristics that would help universities to identify those with undiagnosed SpLDs for targeted intervention or additional support.

The students with SpLDs had lower grade averages in all three years of the programme, but the differences were small; a 5% difference in 1st year and 2% difference in subsequent years. There were no differences in programme completion rates between students with or without SpLDs. These

results corroborate the findings of Olofsson et al. (2015) and Richardson (2015) who report that students with various types of SpLDs seem to have an academic performance equivalent to that of their peers.

The similar academic outcomes may be partly due to the successful effect that reasonable adjustments have had on their educational journey, suggesting that interventions are appropriate and individually designed for student needs. The larger difference in GPA in year one merits further consideration. It offers evidence of the possibility that some students would not have been aware that they had a SpLD in first year and would not have been offered adjustments or other support mechanisms until they were diagnosed later in the programme, reflected in their poorer results in year 1. Typically, students who are unaware that they have a SpLD are identified by academic staff following failures or poor performance in coursework or examinations. Early academic failures can be very disappointing and upsetting for students and lead to additional workloads for students and staff associated with repeat coursework assignments and examinations. This underlines the importance of early screening, referral and identification of people with SpLDs to ensure they receive the support they need to thrive in their academic career (Seidman et al. 2012, Wray et al. 2013).

Without screening every student at enrolment, it can be difficult to distinguish those who need support from those who do not without any type of academic assessment. The alternative could be to encourage students who have previously struggled with academic work (prior to university) and have never been assessed by an educational psychologist, to come forward and request screening. This puts the onus on educators to raise awareness of undiagnosed SpLDs in higher education and create an open culture where diverse learning needs are anticipated, thus creating a supportive environment for students to feel empowered to come forward to get the support they need. Although students do not always avail of the reasonable adjustments and resources available to them (such as utilising the entire extra time given for an examination), having access to such adjustments can be reassuring none the less. Knowing that additional support mechanisms are in place to be used if needed can mitigate the pressure of assessment and make the experience less stressful (Harris 2018, Shaw and Anderson 2018, Clouder et al. 2020).

Limitations

This study considered the important topic of academic outcomes for students with SpLDs enrolled on pre-registration nursing programmes. More information could be obtained by investigating the different outcomes of students with specific types of SpLDs rather than grouping them together (e.g. dyslexia only), but this was beyond the scope of this study. As some students choose not to disclose their diagnosis, it is likely that some students with SpLDs were not captured in this study.

Further Research

This study did not explore the uptake of reasonable adjustments or interventions by students with SpLDs or consider the assessment and decision-making processes of student support services on how these reasonable adjustments are decided. Finally, this study did not consider students' perceptions and experiences of the range of support interventions they received. This are obvious foci for further research.

Conclusion

This study adds a unique perspective from a nursing viewpoint into the academic performance of nursing students with SpLDs, in comparison to students without SpLDs. The differences between students with SpLDs and those without are small across the variables measured, and it can be concluded that reasonable adjustments appear to mitigate the learning difficulties that students with SpLDs have.

Educators need to continue to promote inclusive ways of identifying, teaching and assessing students with all types of abilities. This can be aided by early and rapid identification of students who are struggling and putting in place responsive adjustments in theory and practice to ensure that all students' opportunities to succeed are maximised.

This study was the first of its kind in the field of nursing that considers the academic journey of students with SpLDs in nursing programmes; other studies have mostly focused on clinical experiences. It is hoped that it will stimulate further research into the learning experiences of students with SpLDs in nursing as well as non-nursing programmes.

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Declarations of interest

None.

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Table 1 - Reasonable adjustments for stude

Table 1. Reasonable adjustments for students with SpLDs

Receive lecture resources in advance
Permission to use audio recorder in lectures, seminars and tutorials
Permission to have support workers in lectures and seminars
Sympathetic consideration for spelling or grammatical errors
Alternative assessment
Additional information
Extra time for completion of assignments
Consideration for flexible deadlines
Sympathetic consideration for classes missed due to appointments
Advance notice if required to read out loud in class
Flexibility to leave class for comfort breaks
Extra time in examinations
Smaller venue with other students for examinations
Smaller venue with other students with computer and printer for examinations
Individual room for examinations
Individual room with computer and printer for examinations
Permission to leave exam venue for comfort breaks
Amanuensis
Audio version of exams arranged by module coordinator
Exam papers in bold print
Exam papers printed on coloured paper
Sympathetic consideration for spelling errors
Electronic spellchecker
Exam papers read out loud by invigilator or an allocated examination reader
Viva voce as well as, or instead of, examination
Examination paper modification arranged by student support
Use of a coloured ruler
Enhanced library borrowing entitlements
Access to individual sessions with subject librarian
Dyslexia coach
Proof-reader
Note taker in lecturers or seminars
Access to a scribe

Table 2 - Variable categories.docx

Table 2 – Variable categories

Categorical		Continuous
Dichotomous (2 groups)		
Gender (male, female) SpLD (yes, no) Programme completion (yes, no)	Entry route; -A-levels -Access Diploma -BTEC -HNC -HND -Degree -Other	Age SES GPA 1, 2 & 3

Figure 1 - PICO Framework.docx

Figure 1 - PICO Framework

Participants – All students who enrolled on the BSc Honours Degree programmes in Adult and Mental Health Nursing between 2012 and 2016.

Indication – Students who have:
1. Been professionally diagnosed by an educational psychologist as having a SpLD(s) of any type including dyslexia, dyspraxia, dyscalculia or ADHD.
2. Have disclosed their diagnosis to the university.
3. Have had their educational needs assessed by student support and are entitled to reasonable adjustments.

Comparison – Students who have not been professionally diagnosed by an educational psychologist as having any type of SpLD(s) or have not disclosed that they have a SpLD(s) and are therefore not entitled to an assessment by student support for any reasonable adjustments.

Outcome – Student academic outcomes throughout the programme:

1.The GPA of years 1, 2 and 3 comprising a mixture of sessional examinations and coursework assignments.

2. Completion of the programme. Completion of the programme means that a student has been awarded a BSc Honours Degree in Adult or Mental Health Nursing. Those who are not awarded this qualification are not eligible to apply to join the NMC register and are classed as non-completion.

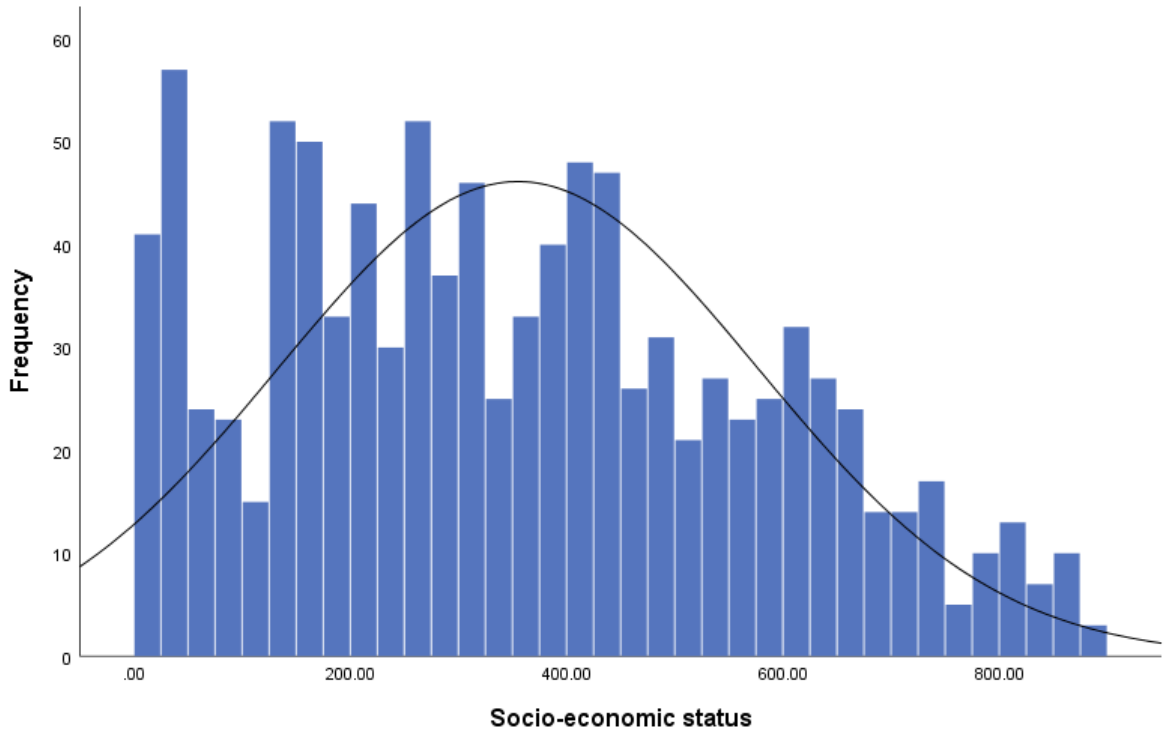
Figure 2 - Description of entry routes.docx

Figure 2 - Description of entry routes

Qualification	Description
Advanced (A) - Level	A level 3 school leaving qualifications which uses examination, coursework or a final piece/performance to test students in one or more subjects chosen by the individual student.
Access to Higher Education (Access) Diploma	A level 3 qualification aimed at adults who wish to pursue study at higher education and is usually studied at a technical college or through distance learning.
BTEC	A level 3 vocational or technical qualification usually studied at a technical college.
Higher National Certificate (HNC)	A level 4 qualification usually studied at a technical college or university.
Higher National Diploma (HND)	A level 5 qualification usually studied at a technical college or university.
Degree	A level 6 academic qualification awarded by a university for study at undergraduate level.
Other	Other qualifications including Irish Leaving Certificate and international qualifications.

Figure 3 - SES histogram.docx

Figure 3 – SES histogram



Socio-economic status is determined by postcode ranking on the Northern Ireland Multiple Deprivation Measure.