Abstract
Nursing student attrition is a significant concern in many countries, including the UK. Higher education institutions (HEIs) are seeking creative ways of improving retention and it is crucial to understand which support strategies encourage students to persist with their studies. This article describes a systematic review of the literature exploring nursing students’ experiences and perceptions of support strategies used by HEIs to reduce attrition and improve retention. Having a sense of belonging, a connection with the university, self-confidence, self-efficacy and motivation appeared to make students more likely to stay on their course. Several support strategies appeared to enhance retention, including an automated text messaging system, an Academic, Personal and Professional Learning (APPL) support mechanism, a pastoral care support adviser service and an extracurricular student support group. Developing a holistic and multifaceted approach to retention involves working collaboratively with students to enhance the understanding of their needs.

Background
Nursing student attrition is a challenge in many countries and it is crucial to understand how to retain students (Collard et al 2020). Student attrition has been recognised as a challenge for more than 50 years, with every student lost equating to one fewer nurse joining the workforce (Merkley 2015). Attrition in nurse education is a complex phenomenon and the literature has identified a range of causative factors (Hamshire et al 2019). Attrition figures vary globally, and in the UK the average rate is 25% (Health Education England 2018). Beech et al (2019) asserted that data on attrition remain inadequate and emphasised the role of universities in investigating and addressing attrition.

In 2006, the Department of Health produced guidance on managing attrition among nursing and midwifery students (Department of Health 2006), then in 2015 it published a refreshed mandate to improve the quality of education and support provided to nursing students (Department of Health 2015). Alongside this, the Reducing Pre-registration Attrition and Improving Retention (RePAIR) project was established (Health Education England 2018). The NHS Long Term Plan (NHS England 2019) set out ambitious goals for the future nursing workforce, improving student retention being one of the proposed strategies for reducing the nurse vacancy rate to 5% by 2028.

There is a growing body of literature on how to retain nursing students, but it remains unclear exactly what higher education institutions (HEIs) can and should do to address this issue (Boyd and McKendry 2012), particularly since there is limited research into the specific support needs of students. HEIs are seeking creative ways of improving retention, and retention programmes that are incorporated into the curriculum and fully embraced by students and academic staff are considered essential (Mooring 2016). Williamson et al (2013) emphasised the need...
to focus on improving the student experience, while Hamshire et al (2019) noted the importance of considering the student trajectory throughout higher education. Smith-Wacholz et al (2019) identified the need for continued research into the development, implementation and evaluation of support strategies. The authors of this article decided to undertake a systematic review to explore this area further.

**Institutional Departure Model**

The development of theoretical models exploring student attrition and retention began in the 1970s (Aljohani 2016). One such model is Tinto’s (1975, 2012) Institutional Departure Model, whereby students’ institutional experience occurs within two systems, each of which encompasses two categories:

- **Academic system:**
  - Academic performance.
  - Interactions with academic staff.
- **Social system:**
  - Extracurricular activities.
  - Interactions with peers.

According to Tinto’s (2012) model, to persist in their studies students need to achieve successful integration in both systems. One idea that is central to this model is commitment – that is, both HEIs’ commitment to students and students’ commitment to their course (Atif et al 2013). In Tinto’s (2012) model, retention results from a successful relationship between the student and the institution (Health Education England 2018). The model has been refined and expanded over the years, and is widely used in the literature on student retention (Urwin et al 2010). It has been extensively tested and has high validity and credibility (Aljohani 2016).

**Aim**

To explore nursing students’ experiences and perceptions of support strategies used by HEIs in the UK to reduce attrition and improve retention.

**Method**

A systematic review was conducted in 2020 using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist (Moher et al 2009). To ensure transparency of the search process, an adapted version of the PRISMA flow diagram was used (Vu-Ngoc et al 2018).

**Inclusion and exclusion criteria**

The systematic review focused on undergraduate students from all fields of nursing. Of interest were any strategies aimed at assisting students throughout their course and reducing attrition and/or improving retention. Only primary research articles written in English and published since 2010 were included. Studies were excluded if they did not focus on undergraduate nursing students, had not been conducted in the UK and did not mention attrition and/or retention. Studies published before 2010 were not considered because nurse education has changed considerably since, with nursing becoming a degree-based profession for all new nurses in 2013 and updated standards for nurse education published in 2018 (Nursing and Midwifery Council (NMC) 2018a).

**Search strategy**

Several scoping searches were conducted, after which five databases were searched: MEDLINE, the Education Resources Information Center (ERIC), Education Research Complete, PsycINFO and the Cumulative Index of Nursing and Allied Health Literature (CINAHL). The search took place in two stages:

- One search using broad search terms determined using the PEO (population, exposure and outcome) tool – see Box 1 – which were combined using Boolean operators and truncation.
- Another search focusing on four themes established from the scoping searches: academic support; peer mentoring or support; social support; and support in clinical practice. The searches produced a total of 1,309 articles. Searching reference lists produced a further two articles. Hand-searching of sources from the grey literature did not identify any further primary studies. The processes of applying limits, removing duplicates, screening articles by title and abstract, and reviewing full-text articles left ten studies for inclusion in the review.

**Quality appraisal**

The 2018 version of the Mixed Methods Appraisal Tool (MMAT) (Hong et al 2018) was used to appraise the quality of the ten studies. All studies met the requirements of the two MMAT screening questions for all types of studies (‘Are there clear research questions?’ and ‘Do collected data allow to address the research questions?’). The four qualitative studies were appraised using section one of the MMAT (questions for qualitative studies) and were found to be of good quality. The six other studies were appraised using sections one, four and five of the MMAT (questions for qualitative, quantitative descriptive and mixed-methods studies, respectively), which identified some suboptimal methodology. Several of these studies were found to lack cohesion between qualitative data and quantitative data, with a lack of clarity on any divergences. Nonetheless, all studies were included in the review, since Hong et al (2018) discouraged excluding studies that are of low methodological quality.

**Data extraction, analysis and synthesis**

Data extraction was undertaken using a template adapted from Bettany-Saltikov and McSherry (2016). Data extraction was completed by each author independently, after which the authors compared outcomes to identify and resolve potential discrepancies. Descriptive characteristics of the studies were presented in a data extraction table. Thematic analysis (Braun and Clarke 2006) was used to identify and explore themes derived from the extracted data. The coding of articles was undertaken by the first author and then reviewed by both authors. Data synthesis followed the four steps of narrative synthesis outlined by Ryan and Cochrane Consumers and Communication Review Group (2013).

**Findings**

The ten studies included in the systematic review featured a range of support strategies and were examined to determine how they
Student attrition has been recognised as a significant challenge, with every student lost equating to one fewer nurse joining the workforce.

Factors that increase the likelihood of nursing students staying on their course include a sense of belonging, a connection with the university, self-confidence, self-efficacy and motivation.

Positive relationships with, and effective support from, academic staff can foster a sense of belonging among students and be an important source of encouragement and motivation.

Higher education institutions and nurse programme leaders need to understand students’ needs and develop a holistic and multifaceted approach to retention.

Relationships with peers

Developing formal and informal relationships with peers was found to be a crucial aspect of students’ experiences. Senior students were seen as role models and a source of emotional support (Christiansen and Bell 2010, McKendry et al 2014), while fellow students were seen as a source of support that was often accessed through social media (Ryan and Davies 2016). Participating in small extracurricular support groups facilitated by academic staff enabled students to develop friendships, learn from other students and enhance their confidence (Fergy et al 2011, Gerrard and Billington 2014). Friendships were identified as an important motivation for staying on the course (Fergy et al 2011, Banks et al 2012). Learning from other students was seen as beneficial and a different experience to learning from academic staff (Christiansen and Bell 2010, Fergy et al 2011).

Relationships with academic staff

Another important source of support was the relationships developed with academic staff, which were considered essential for students’ integration. Nursing students often described academic staff who were most effective at supporting them as approachable, supportive, helpful and knowledgeable (Fergy et al 2011, McKendry et al 2014). In Gratrix and Barrett’s (2017) study, many students found that some staff were unapproachable and reacted ‘aggressively’ when asked for support. This led to dysfunctional relationships, which students perceived as influencing the marking of their academic work (Gratrix and Barrett 2017). Ooms et al. (2013) found that students wanted improvements in communication with lecturers, including prompt responses to emails. Ooms et al. (2013) and Ryan and Davies (2016) found that students often addressed their queries directly to the programme lead. Due to these communication issues with academic staff, there is a need to clarify the role of academic staff in supporting students.

Positive relationships with academic staff influenced the quality of students’ interactions with staff (McKendry et al 2014, Gratrix and Barrett 2017). McKendry et al. (2014) reported that lecturers were seen as role models and as motivating students to succeed. In Fergy et al.’s (2011) study, most students believed their Academic, Personal and Professional Learning (APPL) facilitator wanted them to succeed. Staff with whom it was important to develop positive relationships were personal tutors, academic development tutors, supervisors, mentors in practice and those involved in extracurricular groups. In Gerrard and Billington’s (2014) study, students felt that their relationships with their lecturers were stronger when they were part of an extracurricular group, while students in McKendry et al.’s (2014) study thought their academic development tutors supported them to gain confidence in their abilities. Christiansen and Bell (2010) found that mentors in practice – now referred to as practice supervisors or practice assessors (NMC 2018b) – were seen to have a role in bringing students together.

Connection with the institution

Students experienced a connection with their institution through various support strategies made available to them. Several studies identified that students felt a sense of belonging to their university (Gerrard and Billington 2014, McKendry et al. 2014, Boath et al. 2016). This appeared to have a positive effect on students’ engagement with the support strategies offered by the HEIs. Boath et al. (2016) found that using the FLO automated text messaging system made students feel part of the university’s community. However, students also reported wanting more personalised and interactive information (Boath et al. 2016). Many students using the SignPOSt interactive online tool emphasised the need for a greater connection to the university when they were not on campus (Ryan and Davies 2016).

Gerrard and Billington (2014) explained that students who were part of an extracurricular group felt a sense of worth and belonging. Similarly, Ooms et al. (2013) found that participating in a small support group promoted a sense of belonging and decreased loneliness. However, not all students felt that the support strategies offered by their HEI enhanced their connection with it. In Currie et al.’s (2014) study, a computerised absence monitoring system sent ‘green letters’ to students who attended regularly, encouraging them to continue to do so, and ‘pink letters’ to students who missed classes, reminding them to attend.

Box 1. Broad search terms determined using the PEO [population, exposure and outcome] tool

- Population: ‘undergraduate nursing student,’ ‘nursing student,’ ‘student nurse’
- Exposure:
  - ‘Support,’ ‘strategy,’ ‘intervention’
  - ‘Attrition,’ ‘retention,’ ‘drop out,’ ‘completion,’ ‘persistence’
- Outcome: ‘experience,’ ‘perception,’ ‘attitudes,’ ‘views’
more regularly. Some students who received pink letters felt irritated by them and saw little benefit in that strategy.

Confidence and motivation
Nursing students’ confidence in their ability to succeed and their motivation to continue their studies were recurring themes. Encouragement and support from peers increased students’ self-confidence and self-esteem (Christiansen and Bell 2010) and being part of a group enhanced their self-confidence (Ooms et al 2013, Gerrard and Billington 2014). Enhanced self-confidence led to a motivation to succeed, with Gratrix and Barrett (2017) reporting that students felt encouraged by supportive supervisors to put greater effort into their studies. It also led to students feeling a sense of professional integration and readiness for registration (Christiansen and Bell 2010, Fergy et al 2011). This subsequently enabled students to think about nursing in greater depth and understand how the support strategies contributed to their employability and future role as registered nurses (Fergy et al 2011, Gerrard and Billington 2014). Students’ enhanced self-confidence and motivation led them to take the initiative to seek support. Banks et al (2012) reported that students appreciated being able to choose how they approached pastoral care support advisors, with emails being their preferred option, followed by face-to-face appointments and drop-in sessions. McKendry et al (2014) found that students were able to seek support whenever necessary and spoke of their experiences.

Table 1. Summary of the included studies

<table>
<thead>
<tr>
<th>Study</th>
<th>Aim</th>
<th>Study design</th>
<th>Support strategy</th>
<th>Alignment with the four categories of Tinto’s (2012) Institutional Departure Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks et al (2012)</td>
<td>To explore nursing and midwifery students’ support needs and their experience of, and satisfaction with, the pastoral care support adviser service</td>
<td>Mixed-methods study</td>
<td>Pastoral care support adviser service</td>
<td>Academic system: interactions with academic staff</td>
</tr>
<tr>
<td>Boath et al (2016)</td>
<td>To evaluate how the use of automated text messages, using a system known as FLO, can supplement pastoral support as an intervention to reduce attrition among undergraduate nursing students</td>
<td>Mixed-methods study</td>
<td>FLO automated text messaging system supplementing pastoral support</td>
<td>Academic system: interactions with academic staff</td>
</tr>
<tr>
<td>Christiansen and Bell (2010)</td>
<td>To reduce attrition by maximising the peer support available to first-year nursing students in the clinical setting and facilitate third-year nursing students’ understanding of mentorship principles</td>
<td>Interpretive qualitative study</td>
<td>Peer learning partnerships in clinical practice</td>
<td>Social system: interactions with peers</td>
</tr>
<tr>
<td>Currie et al (2014)</td>
<td>To explore the effects of a computerised absence monitoring system on student attrition and retention in three pilot sites from the perspective of academic staff, administrative staff and students</td>
<td>Mixed-methods study with a responsive evaluation design</td>
<td>Computerised absence monitoring system</td>
<td>Academic system: academic performance</td>
</tr>
<tr>
<td>Fergy et al (2011)</td>
<td>To determine the effects of an Academic, Personal and Professional Learning (APPL) support mechanism on first-year nursing students’ academic and social integration</td>
<td>Descriptive case study using appreciative inquiry</td>
<td>APPL support mechanism</td>
<td>Academic system: Interactions with academic staff</td>
</tr>
<tr>
<td>Gerrard and Billington (2014)</td>
<td>To explore nursing students’ experiences and perceptions of belonging to an extracurricular group within a preregistration nursing course</td>
<td>Qualitative study</td>
<td>Extracurricular groups</td>
<td>Social system: Interactions with peers</td>
</tr>
<tr>
<td>Gratrix and Barrett (2017)</td>
<td>To explore nursing students’ perceptions of academic supervision as a basis for developing an academic supervision framework for undergraduate nursing students</td>
<td>Descriptive qualitative study</td>
<td>Academic supervision</td>
<td>Academic system: Interactions with academic staff</td>
</tr>
<tr>
<td>McKendry et al (2014)</td>
<td>To explore first-year nursing students’ motivations, experience and support requirements and determine the efficacy of institutional retention initiatives</td>
<td>Qualitative study</td>
<td>Various sources of support from academic staff to peers</td>
<td>Academic system: Interactions with academic staff</td>
</tr>
<tr>
<td>Ooms et al (2013)</td>
<td>To measure nursing students’ perceptions of the use and usefulness of support mechanisms provided by their university</td>
<td>Mixed-methods study</td>
<td>Various support mechanisms, ranging from module leaders to the student union</td>
<td>Academic system: Interactions with academic staff</td>
</tr>
<tr>
<td>Ryan and Davies (2016)</td>
<td>To explore the support needs of nursing students and allied health students as a basis for developing and evaluating an interactive online tool for support services, known as SignpOSt</td>
<td>Mixed-methods study with four phases: explore, analyse, develop and evaluate</td>
<td>SignpOSt interactive online tool for support services</td>
<td>Academic system: Interactions with academic staff</td>
</tr>
</tbody>
</table>
passion for nursing when describing their motivation to persist with their studies.

**Persistence with studies**

Various support strategies were found to enhance students’ persistence with their studies. For example, Boath et al (2016) found that using the FLO automated text messaging system to supplement pastoral support had a direct effect on retention, with six students out of 77 reporting that it had supported them to stay on their course. In Fergy et al’s (2011) study, most students reported that the APPL support mechanism, which was designed to foster students’ personal, professional and academic development, had contributed to their success in their first year. Attrition had decreased by 2% since the implementation of the APPL support mechanism – but no causal link could be determined.

In Currie et al’s (2014) study, students who received a green letter felt encouraged to continue attending and some students who received a pink letter viewed it as a welcome ‘wake-up call’. Banks et al (2012) found that a pastoral care support advisor service contributed to students staying on their course, while Gerrard and Billington (2014) identified that participating in an extracurricular group improved retention.

**Discussion**

This systematic review of the literature has revealed several factors that increase the likelihood of nursing students staying on their course – notably a sense of belonging, a connection with the university, self-confidence, self-efficacy and motivation – as well as several support strategies that HEIs can use to improve student retention. The themes identified were consistent with previous literature reviews on nursing student attrition and retention (Cameron et al 2011, Eick et al 2012, Chan et al 2019, Mitchell et al 2021). According to several of the studies reviewed, positive relationships with, and effective support from, academic staff can foster a sense of belonging among students. It appeared that students who felt a sense of belonging were increasingly likely to engage with their studies and stay on their course (Gerrard and Billington 2014, McKendry et al 2014, Boath et al 2016). Positive relationships with peers and academic staff were important sources of encouragement and motivation, while participation in small student support groups enhanced self-confidence (Ooms et al 2013, Gerrard and Billington 2014). However, it also appeared that the role of academic staff in supporting students sometimes needed to be clarified so that students knew who to contact for appropriate and timely support (Ooms et al 2013, Ryan and Davies 2016).

Christiansen and Bell (2010) and Fergy et al (2011) noted the importance of students succeeding by themselves. This reflects Tinto’s (2017) assertion that students must want to persist with their studies and have the motivation to do so. However, students’ self-efficacy and self-confidence cannot be assumed, and HEIs and academic staff have a crucial role in assisting students to believe they can succeed by providing support strategies that lead to positive experiences.

**Implications for education and research**

This systematic review has shown how Tinto’s (2012) Institutional Departure Model can assist in clarifying the complexities of student attrition and retention, reflecting the findings of Urwin et al’s (2010) literature review. According to Tinto (2017), it is crucial to understand how support strategies can assist students in improving their self-efficacy and encourage them to believe in their ability to succeed. This is echoed by this review, which demonstrated the importance of understanding how different support strategies offered by HEIs may or may not promote students’ connection with their university and improve retention.

It appears likely that the optimal response to student attrition is multifaceted. HEIs and nurse programme leaders need to work collaboratively with students, academics and clinical practice areas to enhance the understanding of students’ needs and develop a holistic and multifaceted approach to retention. Further research into how to optimally support nursing students is required. The studies included in this review had all been conducted before the coronavirus disease 2019 (COVID-19) pandemic and some retention factors appear to be more important to understand than before the pandemic, notably how students develop relationships with their peers and academic staff and how they develop a sense of belonging and connection to their university now that many HEIs have moved to hybrid learning (Dewart et al 2020).

**Limitations**

One limitation of this systematic review was a lack of peer-reviewed studies on the topic. In addition, all the included studies had been conducted in the academic setting, except for the study by Christiansen and Bell (2010), which had been conducted in the practice setting. In some of the included studies, limitations such as sample heterogeneity and small sample size were acknowledged as limiting the generalisability of findings (Banks et al 2012, Currie et al 2014, Ryan and Davies 2016). Only English-language studies were included, so any relevant support strategies described in studies published in other languages would have been overlooked.

**Conclusion**

Nursing student attrition is a significant concern in the UK. Several support strategies used by HEIs to improve student retention appear to be beneficial, with a sense of belonging, a connection with the university, self-confidence, self-efficacy and motivation being crucial factors in nursing students staying on their course. Student retention is a complex area and requires strategies that address the needs of a diverse population. Developing a holistic and multifaceted approach to retention involves working collaboratively with students to enhance the understanding of their needs. Further longitudinal studies are required to review support strategies used in academic and clinical practice settings, focusing on why students stay on their course and how they can be supported to do so.