Review

Predictors of nursing student satisfaction as a key quality indicator of tertiary students' education experience: An integrative review

Robyn Cant [a,*], Swapnali Gazula [b], Colleen Ryan [c]

[a] Health Innovation and Transformation Centre, Federation University Australia, Berwick, Victoria, Australia
[b] Institute of Health and Wellbeing, Federation University Australia, Mt Helen, Victoria, Australia
[c] School of Nursing Midwifery and Social Sciences, Central Queensland University, 160 Ann St, Brisbane, Queensland, Australia

ABSTRACT

Introduction: Student satisfaction is an important quality indicator in higher education, impacting student retention and institutional rankings. Healthcare education literature lacks factors related to student satisfaction. Reporting these elements might assist educators in curriculum design that helps to retain students. This is imperative for nursing education with the current global need for graduates.

Objectives: To explore, synthesize and report available evidence on conceptual elements underlying the formation of higher education students' satisfaction, with a focus on nursing education.

Design: Integrative review.

Data sources: Six databases were searched for learner experiences of satisfaction: MEDLINE, Academic Search Complete, CINAHL Complete, ERIC, APA PsychArticles, PsychInfo. Articles were screened, assessed for quality and 12 nursing student studies and 10 conceptual studies of mixed student cohorts were reviewed.

Review methods: Peer-reviewed literature in English during the period 2012 to 2022 was reviewed using methods documented for an integrative review.

Results: Twenty-two included studies were mostly quasi-experimental, based on statistical analysis of higher education student surveys. Antecedent elements affecting satisfaction in mixed student cohorts were Service Quality, Institutional Image and perceived Value. These studies identified up to seven dimensions underlying student satisfaction. Nursing studies were focused on the quality of service delivery related to teaching and confirmed five elements: Faculty, Learning environment, Curriculum, Social interaction and Development. Conceptual studies also reported 'consequent' elements, high satisfaction resulting in positive student behavioural intent, loyalty and positive word of mouth. The details of antecedent and consequent elements that underlie student satisfaction are described.

Conclusion: Conceptual studies of mixed student cohorts identified nine elements that inform student satisfaction with learning experiences. Nursing student studies tested fewer variables and confirmed up to five elements forming student satisfaction. There is a need to investigate the impact of additional key elements in nursing students - perceptions of value, institutional image and administrative support.

1. Introduction

Student satisfaction is recognized as an important indicator of quality in the tertiary higher education sector (Grebennikov and Shah, 2013; Jereb et al., 2018). Satisfaction commonly refers to students' subjective assessment of the overall educational experience and individual outcomes (Rodić Lukić and Lukić, 2020). An earlier theory-based definition specified that satisfaction is a psychological state based on a consumer experience - one that results from an individual's comparison-related expectations and experience of performance (Oliver and DeSarbo, 1988).

The notion of measuring student satisfaction has been translated from the manufacturing industries where efforts were instituted to improve quality through better understanding of consumer needs (Cruickshank, 2003). Students, as the primary customer of higher education institutions, have participated in similar investigations to explore their attitudes and determine their satisfaction with academic education. Student satisfaction metrics have gained importance because they

are linked with both institutional rankings and student retention (Bell and Brooks, 2018; Maxwell-Stuart et al., 2018). The problem of attrition in healthcare students, which continues to be high in nursing, has been labelled as 'wicked' due to the highly complex, important, and tenacious nature of the problem when students leave early (Hamshire et al., 2019). There is a loss to students, the university and also to broader society.

Although the concept of student satisfaction with education has been thoroughly explored in research over recent decades (Grebennikov and Shah, 2013), it remains poorly understood (Burgess et al., 2018). A multitude of related elements have been identified: learning environments; student motivation to learn; student and teacher accountability; classroom diversity, assessment approaches (Schneider and Preckel, 2017). A lack of consensus around the key elements and also variation in regard to their impact across different conceptual models is evident (Chandra et al., 2019; Hassan and Shamsudin, 2019; Teeroovengadum et al., 2019; Walker et al., 2016).

In early research Alves and Raposo (2006) used structural equation modelling to confirm a conceptual model of satisfaction derived from a survey of 2687 university students in various courses. They reported that the most influential variable in relation to student satisfaction relates to institutional variables: 'Image', 'Value' and 'Quality perceived'. Although the variable 'Expectations' was a negative influence in the conceptual model, a main consequence of satisfaction was student loyalty. Loyal students have a positive effect on teaching through active participation and dedication to study, and word of mouth recommendations about their institution (Rodić Lukić and Lukić, 2020).

In exploring nursing student satisfaction, most reports feature numerical satisfaction metrics derived from student surveys. For example, Cant et al. (2021) reviewed international studies of nursing student clinical education evaluations which revealed an average (mean) student satisfaction rating of 83.2 %. Few contemporary nursing studies have examined the issue more broadly, for example, by investigating the elements underlying satisfaction. Especially lacking is explanation of the factors that may help to form satisfaction in nursing students. Should these be better known, nurse educators in the higher education sector could strive to further improve the curriculum and students' education experiences.

2. The review

It is timely to explore the literature around students' satisfaction with their educational experience given the competitive nature of the international market for students in the tertiary education field (Bell and Brooks, 2018; Petruzzellis and Romanazzi, 2010). Additionally, a focus on nursing students' satisfaction with higher education experiences could benefit nursing education (Cant et al., 2021; Chan et al., 2019).

2.1. Aims

 (i). To describe the concept of student satisfaction derived from research in the higher education sector.
 (ii). To explore undergraduate nursing students' perceptions of elements in the educational experience that influence satisfaction.

3. Methods

3.1. Design

An integrative review method was chosen as this method brings together findings from different methodologies, for example, qualitative and quantitative designs (Souza et al., 2010). Reviews synthesizing findings from various epistemologies have the potential to add depth to an analysis and distil new findings (Soares et al., 2014). Whittemore and Knafl's (2005) five-step methodology of problem identification, literature search, data screening and evaluation, data analysis and results presentation informed this review.

The research questions to be addressed are:

 (i). What are the elements that influence undergraduate baccalaureate/pre-professional nursing students' satisfaction with their educational journey?
 (ii). What are the conceptual elements of higher education students' satisfaction with the education program? (i.e., may be a global student view and not be restricted to nursing students).

3.2. Search strategy

The authors employed a systematic process to inform the review stages: problem identification, identifying and screening literature, evaluating data, data synthesis and presentation of results. In developing the search strategy, search terms were established after reviewing key papers on the topic. Synonyms of key words were identified to capture the related papers globally. For example, undergraduate is termed as baccalaureate in the USA. A second combination stemmed from student satisfaction and different terms used to specify the concept in literature. Since the focus was on the entire educational journey of the undergraduate students rather than on a specific element of learning, exclusion terms were applied (such as assessment and different learning strategies; peer learning, online learning, etc.).

The combination of search filters applied were "undergrad* OR baccalaureate* OR pre*registration OR universit* OR college*OR "higher education" OR "tertiary education" OR pre*professional" AND "learn* N2 journey* OR (learn* N2 experience*) OR (education* N2 experience*) OR(student* N2 satisf*)OR (course* N2 evaluat*)OR (personal N2 satisfac*) OR (student*N2 evaluat*) OR (evaluat* N2 program*) OR "Student* N2 loyalty" OR satisfac* N2 "Higher Education*" OR "satisf* OR "universit* N2 image" NOT (Peer* OR PAL OR simulation, OR "Blended learn*", OR assessment OR "e-learn*" OR "Clinical placement*" OR clinical OR Placement* OR classroom OR "Clinical Skills Laborator* OR patient* OR "online learn*". These search term combinations were applied to six databases: MEDLINE, Academic Search Complete, CINAHL Complete, ERIC, APA PsychArticles and APA PsychInfo. Keyword searches of Google Scholar and the reference lists of included studies were applied as a final check.

3.3. Inclusion and exclusion criteria

Inclusion criteria considered important for this review were peer reviewed journal articles of any design, including reviews of literature. These were required to be in English language and published between 2012 and 2022. A main priority was selection of studies that focused on identifying or describing conceptual elements of student satisfaction with the overall learning journey. Student samples were higher education tertiary level university and/or college students and undergraduate/baccalaureate pre-registration nurses.

Studies were excluded if they reported student satisfaction ratings without descriptors related to satisfaction elements or were studies of student satisfaction with a narrow focus such as specific teaching modalities (simulation, blended learning, e-learning) or teaching processes (assessment, etc.) or sampled graduate nurses and/or professional nurses.

3.4. Search outcome

The search strategy identified 2860 articles after duplicates were removed, which were then screened by title and abstract. A total of 80 articles were acquired in an electronic library, which were then screened independently by two reviewers who applied the inclusion criteria. When student samples were considered, studies fell into two groups: nursing students and other student cohorts. Screening resulted in a final total of 22 studies (12 nursing student studies and 10 conceptual studies of other/mixed student cohorts) that were included in the review. A flow

chart (Fig. 1) outlines the study selection approach and the results.

3.5. Quality appraisal

The included studies were quantitative, qualitative and mixed methods designs. Following the integrative review method for quality analysis of diverse sources given by Whittemore and Knafl (2005), two authors coded the selected studies using a 2-point rating. Ratings of 1 = low, 2 = high, were awarded for (i) methodological rigor and (ii) data relevance. All included studies met these 4-point criteria.

3.6. Data abstraction

A tabulated reporting matrix was pre-arranged in order to present the characteristics of included studies (see Table 1). This described: author/date/country of origin; study aim; research design; sample; methods, and main outcome. A summary of each study was entered into one of two tables: conceptual studies (Table 2) or nursing student studies (Table 3). Data were abstracted by one author (RC) and confirmed by a second author (SG). Conflicts were decided between all three authors.

3.7. Synthesis

Conceptual studies primarily involve building theory through exploration of abstract ideas from existing research (Jaakkola, 2020). While satisfaction concepts were reported across the included studies, the studies tabulated in two groups (nursing students and other students) facilitated examination of both contexts. Thus, we explore 'nursing student studies' and 'conceptual studies' to address the research questions.

The tabulated characteristics of each group of studies presented in Tables 2 and 3 were examined and the main outcome elements for each group were noted to detect any repeated patterns. These data were triangulated in a new table (Table 4) for comparison across groups. The satisfaction elements in nursing student studies were compared with the outcomes of the more comprehensive mixed student conceptual studies. The results are described below.

The checklist Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) (von Elm et al., 2007) informed reporting for this review.

4. Results

This integrative review presents a contemporary overview of the elements that shape higher education students and nursing students' satisfaction with their educational journey. The results are presented in two sections. The first section presents an analysis of conceptual studies of student satisfaction from investigation of higher education student cohorts. The second section focuses on the nursing literature that describes the factors that underlie nursing students' satisfaction.

The review includes a total of 22 studies: ten conceptual studies and 12 nursing student studies. The characteristics of the studies are presented in Tables 2 and 3. There is good representation of international research. Nursing studies recruited student samples in nine countries: Australia, Brazil, Canada, Iran, Italy, Namibia, Mauritius, Spain, and USA. Reviewed studies included seven studies published 2020–2022; eleven published between 2016 and 2019 with the remaining four nursing studies being less than a decade old.

The majority of study designs were quasi-experimental; single group observational studies that used a quantitative survey to explore students' views and generate component factors. Even so, valid outcome data were statistically derived from analyses such as structural equation
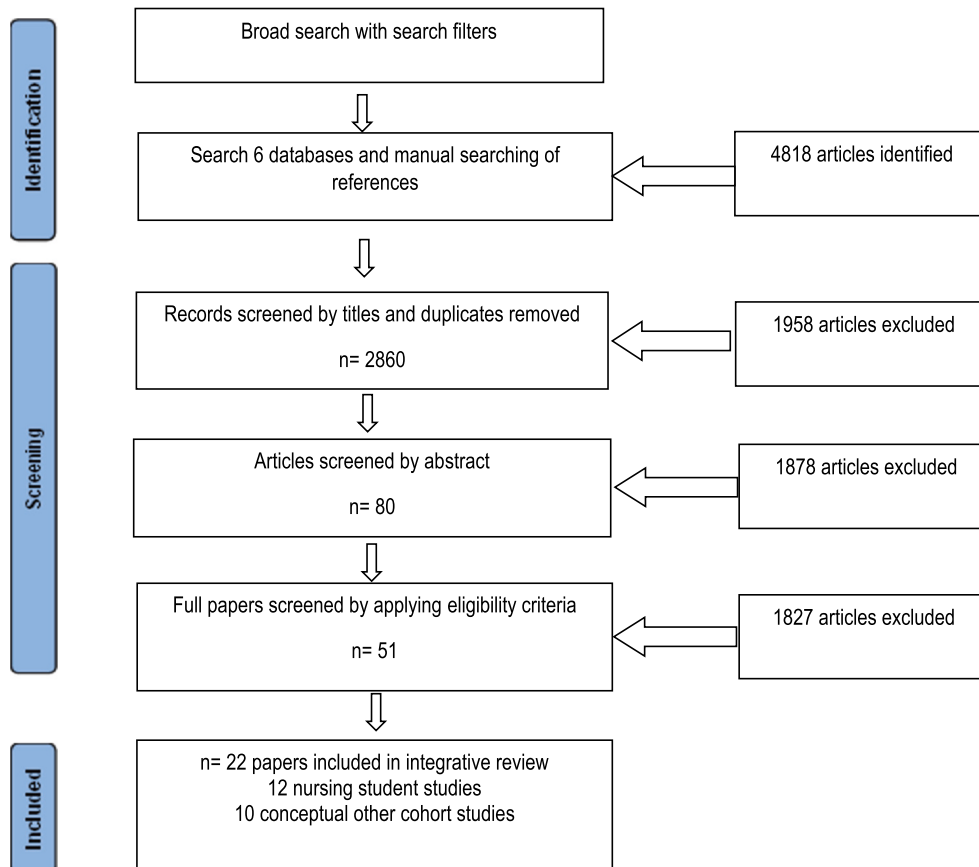

Fig. 1. Flow chart of article selection (Page et al., 2021).

Table 1

Description of elements underlying 'satisfaction' derived from conceptual studies.

Concept	Description
Student Satisfaction	Student satisfaction most commonly refers to subjective assessments related to individual outcomes and educational experience. Satisfaction represents a *short-term attitude* derived from evaluation of educational experiences (Rodić Lukić and Lukić, 2020). Both in-classroom and life on campus experiences affect overall satisfaction.
Perceived Service Quality	The difference between the student's expectation and their perceptions of the actual service delivery – including expectations of peers and faculty (Rodić Lukić and Lukić, 2020). Service quality can relate to functional aspects of service (e.g., administrative functions) as well as the technical aspects of service delivery (teaching).
Image	Image is the general impression about an institution that individual students retain (Teeroovengadum et al., 2019). In other studies image is derived from a perception of the institution's ability to meet students' needs through trusting its capacity to deliver required services and administer assistance in academic and course decisions (Schlesinger et al., 2021).
Value	Value perceptions influence satisfaction. Student expectations and the actual quality of education received impact perceptions of value (Alves and Raposo, 2006).
Student Trust	Trust refers to a student's belief in the integrity and reliability of the people working at the institution (Rodić Lukić and Lukić, 2020).
Student Commitment	Commitment refers to the compliance of students' abilities, skills and value system with the expectations, requirements and values of the institution (Rodić Lukić and Lukić, 2020). Commitment relates to academic (participation in associations and university boards), and social integration with peers.
Student Loyalty	Loyal students actively participate and are motivated and dedicated to study. Student loyalty impacts decisions to recommend their institution and continue studies at a higher level (Rodić Lukić and Lukić, 2020).
Behavioural Intention (BI)	BI involves students' intention to recommend the university, willingness to spread positive 'word-of-mouth', and their assuredness that they made a right decision when they chose the university (Dado et al., 2012 in Rodić Lukić and Lukić, 2020, p 1510). BI is directly related to student loyalty.

modelling, factor analyses, regression, or correlation analyses. The conceptual studies included three experimental designs and two literature reviews, with some primary research sampling large student populations, ranging from 140,000 down to 280. The nursing studies were nearly all quasi-experimental observational studies, together with one qualitative descriptive study and two reviews of literature. Nursing samples ranged from 2020 down to 123. This suggests that overall, most studies were observational and explanatory, with designs at the lower end of levels of research evidence (Joanna Briggs Institute, 2013). One exception was a study that presented a higher level of evidence: a meta-analysed review of tertiary education student satisfaction conceptual research (Santini et al., 2017).

4.1. Conceptual models of student satisfaction

Student satisfaction is a complex, multi-factorial concept. We first explore the empirical research in conceptual studies to describe related terminology (Table 1).

Table 2 presents comprehensive conceptual student satisfaction literature published within the last decade, to 2022. These were studies of higher education mixed student cohorts in various countries where researchers have strived to understand how student satisfaction can be measured and improved, for the benefit of training institutions.

In the United Kingdom (UK), a national survey of over 140,000 third-year university students explored student satisfaction and aspects of the course experience that were associated with satisfaction (Bell and Brooks, 2018). This used a previously developed UK satisfaction with

education quality instrument that examined seven elements. Regression analysis showed that Teaching and Course Organisation were the most important, with Resources, Assessment and Feedback identified as less relevant.

Santini et al. (2017) reported a meta-analysis of 83 studies and the related variables that affected student satisfaction with tertiary education. Their results identified seven antecedent constructs that positively and significantly influenced satisfaction: Perceived value of educational services, Resources provided to the student, Service quality perception, Marketing orientation, Identity of the higher education institution, and University environment. Consequent (outcome) elements were Attitude toward the higher education institution, Intention to recommend, Involvement, Loyalty, Trust, and Word-of-mouth. These were related to a student's level of satisfaction and were significantly positively correlated with satisfaction. Thus, conceptual studies established that satisfaction constructs can involve antecedent elements which lead to consequent elements, i.e., outcomes.

As seen in Table 2, other primary studies have described the concept of student satisfaction derived from student survey analyses. In Italy, Masserini et al. (2019) conducted a survey of over 14,000 university students using a purpose-developed questionnaire and structural equation modelling in the analyses. They found that 'Teaching and Lectures' and 'Teaching and Course Organization' were the main determinants of students' satisfaction and loyalty. Similarly, Hassan and Shamsudin (2019) who investigated higher education service quality using a purpose-developed questionnaire and structural equation modelling sampled 398 Malaysian university students. They reported that 'Service Quality' and 'Corporate Image' affected student satisfaction, which in turn led to student loyalty.

Several studies have explored service quality as a precursor of student satisfaction using the Higher Education Service Quality (HESQUAL) scale. Teeroovengadum et al. (2019) tested this model with 501 diverse higher education students in Mauritius. Results indicated that student satisfaction is influenced by 'Technical Service Quality', institutional 'Image', and 'Perceived Value', but not by 'Functional (administrative) Service Quality'. Both dimensions of service quality were, however, significant predictors of image and perceived value.

A survey based on the SERVQUAL instrument, designed to measure end user expectations and perceptions of service to improve service quality, was administered by Rodic-Lukic and Lukic (2020) to 986 tertiary students In Croatia and Serbia. Items measured were Service Quality, Satisfaction, Commitment, Trust, and Behavioural Intention. A structural equation modelling technique tested the direct and indirect effects to provide further evidence that 'Satisfaction' and 'Trust' play a significant role in the relationship between consumer perceived Service Quality and Behavioural Intentions.

Overall, these models suggest that relationships between Service Quality, Image, Value and Student Expectations are the predictors of satisfaction. As a consequence of satisfaction, we see that there are also second level constructs (consequences) of 'Student Loyalty' and positive 'Word-of-Mouth'.

4.2. Elements forming nursing student satisfaction

Twelve studies explored predictor elements of nursing student satisfaction with the learning journey. Nine studies used a validated nursing survey: The Nursing Student Satisfaction Scale (NSSS) (Chen et al., 2012); the Undergraduate Nursing Student Academic Satisfaction Scale (UNSASS) (Dennison and El-Masri, 2012); or The Clinical Learning Environment, Supervision and Nurse Teacher scale (CLES+T) (Saarikoski et al., 2008) (which was amended to add satisfaction items). Three studies used purposely developed questionnaires (Dinh et al., 2021; Hassan and Shamsudin, 2019; Masserini et al., 2019).

Chen et al. (2012) considered satisfaction elements in the development and psychometric testing of the Nursing Student Satisfaction Scale (NSSS). This comprised 31 items: the curriculum (9 items); faculty (8

Table 2

Characteristics of conceptual studies of higher education students' satisfaction with the overall learning journey [$n = 10$].

Author/year/ country of origin	Aim	Design	Sample	Methods	Main outcome
Bell and Brooks (2018) UK	To analyse data from the UK National Students Survey (NSS), determining which groups of students expressed the greatest levels of satisfaction and investigating the sub-areas that drive overall student satisfaction.	Quasi-experimental: quantitative survey	Convenience sample of > 140,000 UK third-year undergraduates completed survey in 2014.	NSS has 23 questions in seven categories (the teaching on my course; assessment and feedback; academic support; organisation and management; learning resources; personal development; overall satisfaction). Ratings: a Likert scale (1–5) from 'Very dissatisfied' to 'Very satisfied'.	Regression analysis indicated seven criteria significantly associated with student satisfaction: Teaching on my course, Assessment and feedback; Academic support; Organisation and management; Learning resources; Personal development; Satisfaction with the Students' Union.
Chandra et al. (2019) Indonesia	To determine the influence of service quality and university image on student satisfaction and student loyalty.	Quasi-experimental: quantitative survey	1000 completed questionnaires were received from students attending five universities and other colleges in registered colleges in Riau Province, Indonesia (response rate 91 %).	Previous questionnaires were adapted to include conceptual domains: Service quality (12 items), Image (5 items), Satisfaction (6 items), Student loyalty (5 items) using a 7-point Likert scale: 1 'strongly disagree' to 7 'strongly agree'. A range of validity and reliability tests were applied.	University image had a significant influence on both student satisfaction and student loyalty. Service quality had a positive and significant influence on student satisfaction, aligning with other research. Nursing and business students' responses were low which could indicate universities should enhance service to these disciplines and attempt to increase student satisfaction.
Dinh et al. (2021) Vietnam	To confirm a Vietnamese theoretical five-dimension model of student satisfaction with higher education (HE) service and investigate the relationship between student satisfaction with education service quality and student satisfaction with educational outcomes	Experimental: quantitative survey	A cross-sectional survey of a randomized sample of 2933 students from four-member universities of Hue University in Central Vietnam was conducted.	A 22 item scale asked about satisfaction with HE service using a 5-point Likert scale from 1 (very dissatisfied) to 5 (very satisfied). Items reflecting student satisfaction with four dimensions of HE service quality were independent variables.	The model of student satisfaction was consistent with the proposed theoretical model, comprising five dimensions: Access to Education Service, Facilities & Teaching Equipment, Educational Environment, Educational Activities, and Educational Outcomes. The first four dimensions were correlated with HE satisfaction and affected satisfaction. Educational Outcome &. Educational Activities had the highest impact.
Hassan and Shamsudin (2019) Malaysia	To measure the effects of service quality and corporate image on student satisfaction and loyalty and (ii) to integrate the 4 constructs of service quality, corporate image, student's satisfaction and student's loyalty in one framework using PLS-SEM analysis methodology.	Experimental: quantitative survey	Proportional stratified sampling was conducted across 10 campuses of one university ($n = 431$ final year students in technical courses); $n = 398$ completed responses (81 %) were analysed.	A five-part questionnaire was developed from previous studies and used as the instrument for data collection. Data were collected and analysed using PLS-SEM.	The structural model shows a significant and direct effect of service quality and corporate image on student satisfaction and student loyalty. Student satisfaction also had significance with direct effects on student loyalty. Service quality is very dominant construct in determining student satisfaction, student loyalty and corporate image.
Hwang and Choi (2019) South Korea	To propose an integrated model to examine the structural relationships among a higher education institution's service quality, student satisfaction, institutional image, and behavioural intention at a private university located in South Korea.	Quasi-experimental: quantitative survey	Convenience sample of 280 students majoring in business in one university (56 % response rate).	Service quality items were obtained from SERVQUAL (19 items in 5 dimensions: tangibility, reliability, responsiveness, empathy, assurance) to assess perceived service quality. Items were added about image and behavioural intention. CFA was conducted to examine the factor structure of service quality	SEM showed that students were satisfied with various aspects (tangibles, reliabilities, responsiveness, empathy, and assurance) of service quality. Service quality directly affected both student satisfaction and perceived institutional image which in turn affected behavioural intention. Results showed a mediating effect of perceived institutional image and student satisfaction on the relationship between service quality and behavioural intention.
Masserini et al. (2019) Italy	To investigate whether the quality of educational services and the university's institutional image influence students' overall satisfaction	Quasi-experimental: quantitative survey	A web questionnaire was administered to 14,870 students enrolled at the University of Pisa.	A questionnaire was developed concerning assessment of the quality of educational services, perceived image of the university, opinion of overall	'Teaching and lectures' and 'Teaching and course organisation' are the main determinants of students' satisfaction and students'

(continued on next page)

Table 2 (*continued*)

Author/year/country of origin	Aim	Design	Sample	Methods	Main outcome
	with their university experience as well as the possible consequences of these relationships on students' loyalty.			university experience and students' loyalty. Several hypotheses were formulated and tested through a structural equation model.	loyalty among the more academic components of the educational service.
Maxwell-Stuart et al. (2018) Scotland	To examine the relationship between support, co-creation of value and students' satisfaction, as well as moderating factors including mode of study and fee status.	Quasi-experimental: quantitative survey	N = 979 survey responses from undergraduate students in one university.	The 2016 annual student survey responses on four quality components (14 items) data were used; Partial Least Squares was used in analysis, conceptualising co-creation as a higher order measure composed of two first-order variables (mode of study and fee status).	Student satisfaction is positively influenced through students accessing support mechanisms and their active involvement in co-creation of value activities. Fee-paying students were more satisfied.
Rodić Lukić and Lukić (2020) Serbia	To test the proposed model of student satisfaction to determine the existence of the relationship between perceived service quality and student satisfaction, as well their impact on the student behavioural intentions.	Quasi-experimental: quantitative survey	N = 986 respondents who were higher education students from the Western Balkans (Serbia, Croatia).	A questionnaire based on SERVQUAL dimensions (tangibility, reliability, responsibility, assurance and empathy) including SQ expectations and perceptions rated on a 7-point Likert scale. A new questionnaire 'Long-term relationships development' included 'satisfaction' (3 items), 'commitment', 'trust' and 'behavioural intention'. Used Structural Equation Modelling.	The proposed model with minor modification achieved a good model fit, and the results confirmed previous research and provided further evidence that satisfaction and trust play a significant role in the relationship between perceived service quality and behavioural intentions.
Santini et al. (2017)	To identify key antecedent and consequent constructs of satisfaction in higher education.	Systematic review of literature	Meta-analysis of 83 studies, 1986–2016	The review comprised 83 studies published up to the year 2016. A meta-analysis was conducted of 469 reported observations.	Six antecedent dimensions were statistically and positively related to satisfaction: Perceived value of educational services, Resources provided to the student, Service quality perception, Marketing orientation, Identity of the higher education institution, University environment). Consequent satisfaction dimensions (outcome) were: Attitude toward the higher education institution, Intention to recommend, Involvement, Loyalty, Trust, Word-of-mouth.
Teeroovengadum et al. (2019) Mauritius.	To validate the Higher Education Service Quality (HESQUAL) scale using a confirmatory approach and test an improved structural model that predicts student loyalty from image, perceived value, satisfaction, service quality.	Quasi-experimental: quantitative survey	Survey data were collected from 501 students enrolled in different higher education institutions in Mauritius.	The Higher Education Service Quality (HESQUAL) scale was used. A two-stage approach to structural equation modelling was used whereby the measurement model is first tested using confirmatory factor analysis followed by structural model assessment.	Student satisfaction is influenced by Technical service quality, Image and perceived Value, but not by Functional service quality. Both dimensions of service quality are significant predictors of image and perceived value.

items); social interaction (6 items); learning environment (7 items) and overall satisfaction: 1 item. In a survey of 303 USA nursing students three component factors emerged: 'Professional Social Interaction', 'Curriculum' and 'Teaching and Environment'. The NSSS demonstrated adequate psychometric properties. Curriculum and Professional Social Interaction were later confirmed in a larger study of 2020 USA nursing students as strong predictors of overall student satisfaction (Chen and Lo, 2015). Hirsch et al. (2016) adapted the NSSS to the Brazilian context. A factor analysis demonstrated three constructs which mirrored earlier findings: Curriculum and Teaching; Professional Social Interaction and Learning Environment.

Similarly, Dennison and El-Masri (2012) tested the satisfaction of nursing students using the newly developed Undergraduate Nursing Student Academic Satisfaction Scale (UNSASS), surveying 313 Canadian nursing students. Factor analysis revealed four factors: 'In-Class Teaching', 'Clinical Teaching', 'The Program', and 'Support and Resources'. In

another study, Guerra-Martín et al. (2021) reported a translation and validation of the UNSASS into the Spanish context, demonstrating satisfactory validity in a survey of fourth-year nursing students. Confirmatory factor analysis showed four subscales that matched those of Dennison's earlier 2012 study: In-class Teaching, Clinical Teaching, Program Design and Delivery, Support and Resources. Both studies revealed an emphasis on program delivery aspects associated with nursing student satisfaction. A mix of quasi-experimental research in other countries has reported nursing student satisfaction elements derived from student surveys (see Table 3).

Nursing student outcomes were elaborated further in descriptive studies such as an interview study (Smith et al., 2018) and categorical survey responses (Biles et al., 2022) of Australian nursing students' views. Biles et al. (2022) reported that the strongest predictor of student satisfaction with their nursing course was the extent to which students felt supported to navigate the university systems. This included having

Table 3

Characteristics of nursing student studies that describe elements of student satisfaction with the educational journey ($N = 12$).

Author/year/ country of origin	Aim	Design	Sample	Methods	Main outcome
Biles et al. (2022) Australia	To develop a better understanding of gaps that exist between student expectations and student experiences in a nursing program to inform and potentially improve student satisfaction in undergraduate nursing programs.	Quasi-experimental: quantitative survey	$N = 82$ nursing students across course years at a regional Australian university (7 % response rate).	Items included open and closed questions. Categorical variables were analysed to identify themes.	The strongest predictor of students' overall satisfaction with their course was the extent to which they felt supported to navigate university systems. Flexibility in subject requirements, the helpfulness of academic/teaching staff (lecturers and tutors), and clarity of teacher communications correlated strongly with satisfaction.
Chen et al. (2012) USA see application of the scale below	Development and psychometric testing of the Nursing Student Satisfaction Scale (NSSS)	Quasi-experimental: quantitative survey	Instrument surveys were conducted over 3 years; $n = 303$.	NSSS with a six-point Likert scale from I (not satisfied at all) to 6 (very satisfied).	Reliable measures emerged, accounting for 52.8 % of variance and Cronbach's alpha coefficients 0.93 for the total scale, 0.85. 0.87, 0.88. 0.86 for subscales. The first factor was Professional Social Interaction (9 items); then Curriculum and Teaching (14 items); and Environment (7 items). The NSSS demonstrated sound psychometrics.
Chen and Lo (2015) USA	To conduct a national survey to describe the level of ASN or ADN student satisfaction with the nursing program and to identify which areas of curriculum, faculty, social interaction, and environment relate to overall nursing student satisfaction.	Experimental: quantitative survey	Stratified random sampling used to recruit 56 ASN programs from 31 US states (2008–2009). $N = 2020$ students participated.	Hierarchical multiple regression to understand the effect of organizational and demographic variables on overall student satisfaction.	Faculty, Curriculum, and Social Interaction significantly and positively predicted overall student satisfaction with a nursing program. Satisfaction with the nursing program was close to "satisfied" (Mean = 4.95 of 6) and subscale means were: Curriculum, 5.01; Faculty, 4.97; Social Interaction, 4.98; Environment, 4.67. Students were most satisfied with faculty being knowledgeable in their field and were less satisfied with equipment in the nursing lab being up-to-date.
Dennison and El-Masri (2012) Canada	To examine the psychometric properties of a newly developed instrument: the Undergraduate Nursing Student Academic Satisfaction Scale (UNSASS).	Quasi-experimental: quantitative survey	Convenience sample of $n = 313$ (all four levels of a Bachelor of Science in Nursing).	Exploratory factor analysis determined construct validity and reliability.	Four factors (In-class teaching; Clinical teaching; The program; Support and resources) defined undergraduate nursing student satisfaction and accounted for 50 % of variance.
Guerra-Martín et al. (2021) Spain	To translate and culturally adapt the Undergraduate Nursing Student Academic Satisfaction Scale (UNSASS) instrument to the Spanish context.	Quasi-experimental: quantitative survey	Representative sample of $n = 354$ fourth-year nursing students	UNSASS survey had 48 items and 4 subscales: In-class teaching, Clinical teaching, Program design and delivery, Support and Resources. Confirmatory Factor Analysis was applied.	Four valid subscales were confirmed: In-class teaching, Clinical teaching, Program design and delivery, Support and Resources. The Escala de Satisfacción Académica del Estudiante de Enfermería (ESAEE) scale demonstrated satisfactory consistency and validity.
Hirsch et al. (2015) Brazil	To identify predictors and factors associated with the satisfaction of nursing students regarding the curriculum and school activities, social/ professional interaction, and environment of the undergraduate program.	Quasi-experimental: quantitative survey	$N = 123$ nursing students of a public university in Brazil.	The Nursing Student Satisfaction Scale was the research instrument. Descriptive statistics, analysis of variance, and logistic regression were used in data analysis.	The Curriculum and Teaching dimensions presented the highest mean (3.57 of 5), followed by the Environment (3.33), and Social/ professional interactions (3.28). Younger students and those who had children more intensely acknowledged the curriculum and teaching dimension as a factor promoting satisfaction.
Hirsch et al. (2016) Brazil	To cross-culturally adapt and validate the Nursing Student Satisfaction Scale (NSSS) for use with nursing students in the Brazilian context.	Quasi-experimental: quantitative survey	$N = 123$ undergraduate nursing students at a public university in the south of Brazil.	Cross-sectional survey using the Spanish translation of NSSS. Factor analysis and Cronbach's alpha were computed.	Three constructs were confirmed: Curriculum and teaching; Professional social interaction, and Learning environment. This aligned with English version of NSSS previously tested in Brazil

Table 3 (*continued*)

Author/year/ country of origin	Aim	Design	Sample	Methods	Main outcome
					(Hirsch 2015). The scale Cronbach's alpha coefficient was 0.93 and 0.88–0.89 for the constructs, confirming internal consistency. .
Rodríguez-García et al. (2021) Spain	To identify the connection of the clinical learning environment and supervision of nursing students with student satisfaction and future intention to work in clinical placement hospitals.	Quasi-experimental: quantitative survey	$N = 180$ Spanish nursing students (3rd and 4th year) participated in the study (response rate 69 %).	Data were collected in person using The Clinical Learning Environment, Supervision and Nurse Teacher scale with an additional three satisfaction items, measured using a 4-point Likert scale.	Nursing students perceived a favourable clinical learning environment and supervision in the hospitals where they undertook clinical placements, recording high satisfaction ($n = 159$ were satisfied, 21 were not satisfied) and high levels of intention to stay and work. Students' satisfaction increased with increase of CLES+T factors.
Rossini et al. (2021) Italy	To define: 1) nursing students' academic satisfaction, 2) existing theoretical models, 3) academic satisfaction trends during the course, 4) differences in academic satisfaction level by student characteristics, 5) the satisfaction variables.	Literature review	Integrative review of literature.	Nineteen studies were included. Articles were published between 2000 and 2018, either in English or Italian.	Four dimensions that predict satisfaction with the curriculum were identified and confirmed: Faculty, Curriculum, Social, and Development. There is a lack of consensus regarding any shared conceptual framework to guide empirical research in the nursing degree field.
Smith et al. (2018) Australia	To understand undergraduate nursing students' satisfaction with learning, using a constructivist grounded theory approach.	Qualitative descriptive study	$N = 17$ demographically diverse undergraduate nursing students studying different stages of a three year program at one Australian university.	$N = 29$ semi-structured interviews were conducted with 17 students in years 1–3. Students were invited to describe situations where they had been satisfied or dissatisfied with their learning. Interviews were audio-recorded and transcribed verbatim, analysed using constructivist grounded theory.	Three phases. Phase 1 - orienting self to valued learning in the pedagogical landscape; (2) - engaging with valued learning experiences across diverse pedagogical terrain; (3) - recognising valued achievement along the way. Students are satisfied with learning when they shape a valued learning journey that accommodates social contexts of self, university and nursing workplace. When students experience a valued learning journey they are satisfied with their learning.
Tomas and Muronga (2022) Namibia	To identify undergraduate nursing student satisfaction with the nursing program at a university campus in Namibia.	Quasi-experimental: quantitative survey	A quota sampling strategy was used to recruit $n = 147$ undergraduate nursing students for a cross-sectional survey in October 2021.	A pre-existing survey was adapted to include biographical data and Section B: 11 yes/no items on satisfaction with class teaching; (C): 10 items on clinical teaching; (D): 6 items on institutional methods; (E): 11 items on school resources. C to E were rated on a 5-point Likert-based satisfaction scale. All questions were in English. Logistic regression determined factors & academic satisfaction.	Mean satisfaction was 3.27 of 5 (65.4 %); 70.6 % were generally satisfied; 9.4 % were dissatisfied with the nursing programme. Areas of satisfaction were in-class teaching (90.5 %), simulation-based teaching (76.9 %) and staff conduct (62.6 %), whereas dissatisfaction was associated with access to school services (52.4 %). A significant prevalence of satisfaction was found among 2nd and 3rd year students (55.8 %, 60.9 %, $p = 0.00$). Predictors for dissatisfaction were being male vs. female.
Walker et al. (2016)	To uncover the indicators of undergraduate nursing students' satisfaction with their learning journey.	Literature review	Integrative review of literature, studies published between 2008 and 2015	$N = 49$ papers were appraised.	Authentic learning, motivation, resilience, support, and collaborative learning were identified as key to nursing students' satisfaction with their learning journey. Sub themes were identified within each of these themes that assist in explaining nursing students' views of their learning journey. Higher satisfaction levels are attained when nursing students feel included and supported during their learning journey.

Table 4

Triangulation of satisfaction elements; mapping conceptual studies (summary outcomes as table headers) and individual nursing student studies.

Study	Faculty	Curriculum	[Professional] Social interaction	Development	Environment	Service quality	Institutional Image	Value	Trust/ Loyalty WoM [a]
Biles 2022	√	√							
Chen 2012	√	√	√		√				
Chen 2015	√	√	√						
Dennison 2012	√	√			√		√		
Guerra-Martin 2021		√	√		√				
Hirsch 2015		√	√		√				
Hirsch 2016		√	√		√				
Rodriguez- Garcia 2021	√				√				
Rossini 2021	√	√	√	√					
Smith 2018		√	√		√			√	
Tomas 2022	√	√							
Walker 2016		√			√				

[a] Consequent elements, Trust, Loyalty, Word of Mouth.

some flexibility in subject requirements, helpfulness of academic/ teaching staff and clarity of teacher communications, all strongly correlated with student satisfaction. Smith et al. (2018) identified that satisfaction with learning is unique to the individual, it changes over time, varies in intensity and may be transient, or sustained. Further, students were satisfied with learning when they shaped 'a valued learning journey' that included social contexts of self, the university and the nursing workplace (Smith et al., 2018).

4.3. Mapping research: elements underlying student satisfaction

Synthesizing and compiling the constructs (elements) identified in conceptual satisfaction research and in nursing-specific research will help higher education institutions and teachers clarify understanding of how students form an opinion about satisfaction. Mapping the nursing specific research to the common higher education concepts will further assist nursing education (Table 4).

From this matrix visual models of the main satisfaction elements in each field were developed (Figs. 2, 3). Conceptual studies visualized in Fig. 2 derived satisfaction from the factors 'Service Quality', university 'Image' and perceived 'Value'. Although different conceptual studies may present elements in a different statistical hierarchy, many similarities remained. Thus, conceptual study findings revealed antecedent student satisfaction elements that influence the formation of satisfaction through the sum total of these constructs, which generates an individual's perception of satisfaction.

The conceptual studies clearly identified both these antecedent (predictor) elements and also consequential (outcome) elements in play that, in turn, affect a student's future behavior. Antecedent and consequent elements were positively correlated and were shown to influence Behavioural Intention (Hwang and Choi, 2019) through loyalty and positive 'word of mouth' recommendations. High levels of satisfaction relate to positive student behavioural intent and vice versa.

Fig. 3 presents a visual summary of nursing student-specific
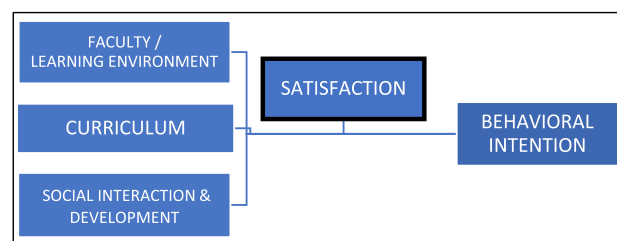
LEGEND:
Satisfaction: a psychological state
Faculty: includes faculty teaching strategies
Curriculum: the content and structure of curriculum, collaborative learning
Social & Development: includes professional social interactions among students and faculty, opportunities for developing further learning.
Behavioral intention: relates to loyalty and positive word of mouth.

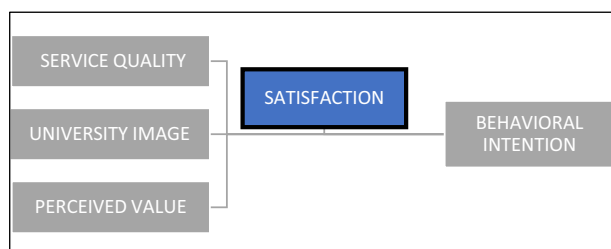**Fig. 3.** Main elements of nursing student satisfaction in nursing studies.

satisfaction elements (described in Tables 3 and 4). Fig. 3 shows that nursing student studies propose main elements that differ from those in other conceptual studies. The elements in nursing studies do suggest that Faculty/Learning/Curriculum and Social Interaction are implicated. Despite not being explicitly named in this collection of nursing studies, when considered together, these elements can be considered as 'Service Quality', which does echo the first factor in the conceptual studies model. In this regard, several reviewed studies reported that nursing students were satisfied with the quality of service delivery when they indirectly referred to this as feeling included and well supported during their learning (Biles et al., 2022; Smith et al., 2018; Walker et al., 2016). Studies of nursing student satisfaction, however, lacked reference to institutional Image, Value and Trust/Loyalty elements related to satisfaction with learning that directly relate to Behavioural Intention.

5. Discussion

Conceptual studies of mixed student cohorts present a model of student satisfaction that includes antecedent elements and consequent elements, the latter outcomes being formed as a direct result of a student's level of satisfaction. Seven satisfaction concepts and two consequent elements were reported and appear to be a strong and valid representation of the constructs that predict satisfaction in higher education student disciplines. A between-group comparison of higher education and nursing student satisfaction elements was conducted because comprehensive conceptual studies of nursing student satisfaction were lacking. Fewer resultant elements were reported.

Satisfaction elements that emerged in nursing research show a limited alignment with more comprehensive conceptual satisfaction research that describes predictors of satisfaction. The reviewed group of

Fig. 2. Main elements of higher education student satisfaction in conceptual studies.

nursing student satisfaction studies present antecedent satisfaction elements that were mainly focused on the quality of service delivery: Faculty (teaching), Learning Environment (resources provided), Curriculum (organisation) and Social Interaction (Fig. 3). Broader conceptual studies, on the other hand, presented a different view of antecedents where service delivery was one of three main constructs; additional factors were university Image and perceived Value. No nursing studies examined the relationship between satisfaction elements and Behavioural Intention, for which statistical evidence was derived and confirmed in primary studies of higher education student cohorts (Hwang and Choi, 2019; Rodić Lukić and Lukić, 2020; Teeroovengadum et al., 2019) and Santini et al.'s (2017) meta-analysis of literature.

Santini et al. (2017) conducted a meta-analysis of 83 studies to produce a landmark study of six antecedent satisfaction elements that could be used to inform nursing research. These elements are:

➢ Service quality perception
➢ Perceived value of educational services
➢ Resources provided to the student
➢ Marketing orientation
➢ Identity of the higher education institution
➢ University environment.

These findings mirror those in most other comprehensive conceptual studies of satisfaction, such as the study by Bell and Brooks (2018).

However, there may be merit in making a comparison between these findings and alternative viewpoints. One example addresses research of students with less positive perceptions who are at risk of university dropout (Kunanusorn and Puttawong, 2015). Such research identifies that students' social, peer and teacher integration are key to intrinsic motivation for students to persist with learning (Lizarte Simón and Gijón Puerta, 2022). Biggs et al. (2022) argued intrinsic motivation enhances student success and can be encouraged when students see value in learning and perceive the importance of engaging with the learning content. Value is derived from student expectations and the actual quality of education received (Alves and Raposo, 2006). 'Value' is noted in this review to be an under-reported quality indicator in nursing studies.

Additionally, only one nursing study examined learner motivation, arguing satisfaction and motivation are reciprocal concepts (Walker et al., 2016). Satisfied and motivated learners are more likely to graduate (Caruth, 2018; Schneider and Preckel, 2017). Faculty support (teacher relationships) and actively including students while on their learning journey have been shown to increase elements of motivation (Walker et al., 2016). Addressing the issue of retention in this way may reduce the impact of student withdrawal with financial, academic and visa status named as concerning issues for both students and institutions (Casanova et al., 2021).

A further antecedent satisfaction element that was absent from nursing student studies was the construct of 'Image' or, more specifically, 'brand image' in relation to students' developing satisfaction. A students' concept of institutional image directly affects supportive behavioural intentions (Masserini et al., 2019; Schlesinger et al., 2021) and was one of three key factors in a concept model (Fig. 2). This factor is derived from perceptions of the institution's ability to meet students' needs by engendering trust in its capacity to deliver required services, and by administratively assisting students to make favourable academic and course decisions (Schlesinger et al., 2021). Consequently, brand Image is a concept related to student satisfaction that needs to be explored and confirmed in relation to its impact on nursing students.

Thus, our review suggests that nursing student studies partially align with conceptual studies, for example, in prioritising Social Interaction, Faculty and the Curriculum as important contributors to satisfaction. Curriculum as a predictor of satisfaction appeared in all except one of the nursing studies. Of note, two elements Social Interaction and Faculty qualities (teacher availability, preparedness for teaching, interest in and

interactions with students) were highly ranked by higher education students for achieving academic success (Schneider and Preckel, 2017). Seven nursing studies evidenced these elements. Students were satisfied with learning when they had opportunity to interact with teachers, peers and colleagues and experience skilled faculty qualities of teachers.

5.1. How can nursing educators enhance student satisfaction?

Student satisfaction with the learning experience is directly associated with academic progress and course completion (Caruth, 2018). A meta-analysis of the variables that influence academic achievement has produced a ranking of the effects of education-related variables (Schneider and Preckel, 2017). These are either teacher-related or student-involvement-related variables. Nurse educators could ensure they apply such actions to assist students, aiming to enhance student satisfaction. We present ten examples of the top ranked teacher and curriculum variables from a list of 105 variables that showed positive statistical effects. Variables influencing students' achievement in learning were:

- Teacher's preparation/ course organisation (stimulating meaningful learning, rank 3 of 105).
- Teacher's clarity and understandableness (presentation, rank 4)
- Teacher's stimulation of interest in the course and its subject matter (presentation, rank 9)
- Teacher's encouragement of questions and discussion (social interaction, rank 11)
- Teacher's availability and helpfulness (social interaction, rank 11).
- Clarity of course objectives and requirements (stimulating meaningful learning, rank 13)
- Open-ended questions (social interaction, rank 16)
- Teacher's sensitivity to and concern with class level and progress (assessment, rank 20)
- Teacher's enthusiasm for subject or teaching (presentation, rank 23)
- Quality and fairness of examinations (assessment, rank 25).

As an outcome from this, we recommend the design, implementation and evaluation of contemporary best practice curricula that targets nursing students' satisfaction with learning concepts. Second, the assessment of students' learning needs early in their studies to involve them in implementing individualised learning support strategies to ensure their success. Third, to include students in all aspects of their learning journey. Student input into designing assessments and marking criteria is an emerging area. Research and scholarship could extend the contributions this review makes.

5.2. Limitations

This study is not without limitations. Few studies were experimental in design. Many have small sample sizes and response rates were not routinely reported; hence researcher and reporting bias cannot be ruled out. Critiques of measurement instruments have questioned whether all the issues underlying student satisfaction are measured (Bell and Brooks, 2018). As satisfaction is a complex concept it is important to present a contemporary review of the available literature. In this review contemporary nursing student views have been collated and reported, showing gaps in the extant literature. With the results of our review in mind we considered how nursing student satisfaction might be improved and offer recommendations to assist nurse educators.

6. Conclusion

Studies in this review reveal that the most important predictor of nursing students' satisfaction with their learning journey is the teacher contribution. Whilst no particular model or approach to teaching was identified as a priority, students were more satisfied when teachers

effectively facilitated learning through discussion, including peer and expert feedback. Teacher qualities such as content knowledge, preparedness for sessions, being present, available, and interested in students contribute to student satisfaction.

These findings align with previously reported predictors of higher education student satisfaction with learning such as faculty qualities, professional social interactions and perceived curriculum quality. Nursing student studies, however, lacked several key quality satisfaction indicators by not exploring student experiences of administrative processes in service delivery, the value of learning experiences, or trust in and loyalty to the institution. Recommendations point to ways nursing education and faculty could incorporate the current findings into course preparations. Satisfaction positively influences student retention and retention remains a concern for higher education, particularly in nursing.

Perhaps a first step could be to design nursing education research to resolve the question of 'What are the elements in nursing students' academic educational experience that influence student satisfaction?' The conceptual elements described in this review could serve to inform such investigations.

CRediT authorship contribution statement

Robyn Cant: Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Swapnali Gazula:** Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing. **Colleen Ryan:** Conceptualization, Writing – review & editing.

Declaration of competing interest

The authors certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.

Acknowledgements

None.

References

Alves, H., Raposo, M., 2006. Conceptual model of student satisfaction in higher education. Total Qual. Manag. 17 (9), 1261–1278, 10.1080=14783360601074315.

Bell, A.R., Brooks, C., 2018. What makes students satisfied? A discussion and analysis of the UK's national student survey. J. Furth. High. Educ. 42 (8), 1118–1142. https://doi.org/10.1080/0309877X.2017.1349886.

Biggs, J., Tang, C., Kennedy, G., 2022. Teaching for Quality Learning at University. McGraw-Hill Education, UK.

Biles, J., Murphy, K., Moyo, P., 2022. Undergraduate nursing students' course expectations, actual experiences, and associated satisfaction levels: a mixed methods survey. Teach. Learn. Nurs. 17 (1), 102–108.

Burgess, A., Senior, C., Moores, E., 2018. A 10-year case study on the changing determinants of university student satisfaction in the UK. PloS One 13 (2), e0192976.

Cant, R., Ryan, C., Cooper, S., 2021. Nursing students' evaluation of clinical practice placements using the clinical learning environment, supervision and nurse teacher scale–a systematic review. Nurse Educ. Today 104, 104983.

Caruth, G.D., 2018. Student engagement, retention, and motivation: assessing academic success in today's college students. Participatory Educ. Res. 5 (1), 17–30.

Casanova, J.R., Gomes, C.M.A., Bernardo, A.B., Núñez, J.C., Almeida, L.S., 2021. Dimensionality and reliability of a screening instrument for students at-risk of dropping out from higher education. Stud. Educ. Eval. 68, 100957.

Chan, Z.C.Y., Cheng, W.Y., Fong, M.K., Fung, Y.S., Ki, Y.M., Li, Y.L., Wong, H.T., Wong, T.L., Tsoi, W.F., 2019. Curriculum design and attrition among undergraduate nursing students: a systematic review. Nurse Educ. Today 74, 41–53. https://doi.org/10.1016/j.nedt.2018.11.024.

Chandra, T., Hafni, L., Chandra, S., Purwati, A.A., Chandra, J., 2019. The influence of service quality, university image on student satisfaction and student loyalty. Benchmarking. Apr 3.

Chen, H.-C., Lo, H.-S., 2015. Nursing student satisfaction with an associate nursing program. Nurs. Educ. Perspect. 36 (1), 27–33.

Chen, H.-C., Farmer, S., Barber, L., Wayman, M., 2012. Development and psychometric testing of the nursing student satisfaction scale. Nurs. Educ. Perspect. 33 (6), 369–373.

Cruickshank, M., 2003. Total quality management in the higher education sector: a literature review from an international and Australian perspective. Total Qual. Manag. Bus. Excell. 14 (10), 1159–1167. https://doi.org/10.1080/1478336032000107717.

Dennison, S., El-Masri, M.M., 2012. Development and psychometric assessment of the undergraduate nursing student academic satisfaction scale (UNSASS). J. Nurs. Meas. 20 (2), 75–89. https://doi.org/10.1891/1061-3749.20.2.75.

Dinh, H.-V.T., Nguyen, Q.A.T., Phan, M.-H.T., Nguyen, T., Nguyen, H.T., 2021. Vietnamese Students' satisfaction toward higher education service: the relationship between education service quality and educational outcomes. Eur. J. Educ. Res. 10 (3), 1397–1410.

von Elm, E., Altman, D.G., Egger, M., Pocock, S.J., Gøtzsche, P.C., Vandenbroucke, J.P., STROBE Initiative, 2007. Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. BMJ (Clinical research ed.) 335 (7624), 806–808. https://doi.org/10.1136/bmj.39335.541782.AD.

Grebennikov, L., Shah, M., 2013. Monitoring trends in student satisfaction. Tert. Educ. Manag. 19 (4), 301–322.

Guerra-Martín, M.D., Cano-Orihuela, A., Martos-García, R., Ponce-Blandón, J.A., 2021. Translation and first pilot validation study of the "Undergraduate nursing student academic satisfaction Scale" questionnaire to the spanish context. Int. J. Environ. Res. Public Health 18 (2). https://doi.org/10.3390/ijerph18020423.

Hamshire, C., Jack, K., Forsyth, R., Langan, A.M., Harris, W.E., 2019. The wicked problem of healthcare student attrition. Nurs. Inq. 26 (3), e12294 https://doi.org/10.1111/nin.12294.

Hassan, S., Shamsudin, M., 2019. Measuring the effect of service quality and corporate image on student satisfaction and loyalty in higher learning institutes of technical and vocational education and training. Int. J. Eng. Adv. Technol. 8 (5), 533–538.

Hirsch, C.D., Barlem, E.L.D., Barlem, J.G.T., Silveira, R.S.D., Mendes, D.P., 2015. Predictive and associated factors with nursing students' satisfaction. Acta Paul. Enfermagem 28, 566–572.

Hirsch, C.D., Barlem, E.L.D., Barlem, J.G.T., Dalmolin, G.D.L., Pereira, L.A., Ferreira, A. G., 2016. Cross-cultural adaptation and validation of the Nursing Student Satisfaction Scale for use with Brazilian nursing students. Rev. Lat. Am. Enfermagem 24.

Hwang, Y.-S., Choi, Y.K., 2019. Higher education service quality and student satisfaction, institutional image, and behavioral intention. Soc. Behav. Pers. 47 (2), 1–12.

Jaakkola, E., 2020. Designing conceptual articles: four approaches. AMS Rev. 10 (1–2), 18–26. https://doi.org/10.1007/s13162-020-00161-0.

Jereb, E., Jerebic, J., Urh, M., 2018. Revising the importance of factors pertaining to student satisfaction in higher education. Organizacija 51 (4), 271–285. https://doi.org/10.2478/orga-2018-0020.

Joanna Briggs Institute, 2013. Levels of evidence and grades of recommendation working party October 2013. https://jbi.global/sites/default/files/2019-05/JBI-Levels-of-evidence_2014_0.pdf.

Kunanusorn, A., Puttawong, D., 2015. The mediating effect of satisfaction on student loyalty to higher education institution. Eur. Sci. J. Oct 1.

Lizarte Simón, E.J., Gijón Puerta, J., 2022. Prediction of early dropout in higher education using the SCPQ. Cogent Psychol. 9 (1), 2123588 https://doi.org/10.1080/23311908.2022.2123588.

Masserini, L., Bini, M., Pratesi, M., 2019. Do quality of services and institutional image impact students' satisfaction and loyalty in higher education? Soc. Indic. Res. 146 (1), 91–115.

Maxwell-Stuart, R., Taheri, B., Paterson, A.S., O'Gorman, K., Jackson, W., 2018. Working together to increase student satisfaction: exploring the effects of mode of study and fee status. Stud. High. Educ. 43 (8), 1392–1404.

Oliver, R.L., DeSarbo, W.S., 1988. Response determinants in satisfaction judgments. J. Consum. Res. 14 (4), 495–507.

Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffmann, T.C., Mulrow, C.D., Shamseer, L., Tetzlaff, J.M., Akl, E.A., Brennan, S.E., Chou, R., Glanville, J., Grimshaw, J.M., Hróbjartsson, A., Lalu, M.M., Li, T., Loder, E.W., Mayo-Wilson, E., McDonald, S., McGuinness, L.A., Stewart, L.A., Thomas, J., Tricco, A.C., Welch, V.A., Whiting, P., Moher, D., 2021. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 372, n71. https://doi.org/10.1136/bmj.n71.

Petruzzellis, L., Romanazzi, S., 2010. Educational value: how students choose university: evidence from an italian university. Int. J. Educ. Manag. 24 (2), 139–158.

Rodić Lukić, V., Lukić, N., 2020. Assessment of student satisfaction model: evidence of Western Balkans. Total Qual. Manag. Bus. Excell. 31 (13–14), 1506–1518.

Rodríguez-García, M.C., Gutiérrez-Puertas, L., Granados-Gámez, G., Aguilera-Manrique, G., Márquez-Hernández, V.V., 2021. The connection of the clinical learning environment and supervision of nursing students with student satisfaction and future intention to work in clinical placement hospitals. J. Clin. Nurs. 30 (7–8), 986–994.

Rossini, S., Bulfone, G., Vellone, E., Alvaro, R., 2021. Nursing students' satisfaction with the curriculum: an integrative review. J. Prof. Nurs. 37 (3), 648–661. https://doi.org/10.1016/j.profnurs.2021.02.003.

Saarikoski, M., Isoaho, H., Warne, T., Leino-Kilpi, H., 2008. The nurse teacher in clinical practice: developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale. Int. J. Nurs. Stud. 45 (8), 1233–1237.

Santini, F.D.O., Ladeira, W.J., Sampaio, C.H., da Silva Costa, G., 2017. Student satisfaction in higher education: a meta-analytic study. J. Mark. High. Educ. 27 (1), 1–18.

Schlesinger, W., Cervera-Taulet, A., Wymer, W., 2021. The influence of university brand image, satisfaction, and university identification on alumni WOM intentions. J. Mark. High. Educ. Jan, 1–19.

Schneider, M., Preckel, F., 2017. Variables associated with achievement in higher education: a systematic review of meta-analyses. Psychol. Bull. 143 (6), 565.

Smith, M.R., Grealish, L., Henderson, S., 2018. Shaping a valued learning journey: student satisfaction with learning in undergraduate nursing programs, a grounded theory study. Nurse Educ. Today 64, 175–179. https://doi.org/10.1016/j.nedt.2018.02.020.

Soares, C.B., Hoga, L.A.K., Peduzzi, M., Sangaleti, C., Yonekura, T., Silva, D.R.A.D., 2014. Integrative review: concepts and methods used in nursing. Rev. Escola Enfermagem USP 48, 335–345.

Souza, M.T.D., Silva, M.D.D., Carvalho, R.D., 2010. Integrative review: what is it? How to do it? Einstein (São Paulo) 8, 102–106.

Teeroovengadum, V., Nunkoo, R., Gronroos, C., Kamalanabhan, T., Seebaluck, A.K., 2019. Higher education service quality, student satisfaction and loyalty: validating the HESQUAL scale and testing an improved structural model. Qual. Assur. Educ. 27 (4), 427–445.

Tomas, N., Muronga, H., 2022. Undergraduate nursing student satisfaction with the nursing program at a university campus in Namibia. Int. J. Afr. Nurs. Sci. 17, 100443.

Walker, S., Rossi, D., Anastasi, J., Gray-Ganter, G., Tennent, R., 2016. Indicators of undergraduate nursing students' satisfaction with their learning journey: an integrative review. Nurse Educ. Today 43, 40–48. https://doi.org/10.1016/j.nedt.2016.04.011.

Whittemore, R., Knafl, K., 2005. The integrative review: updated methodology. J. Adv. Nurs. 52 (5), 546–553.