

Review

Challenging the status quo through nursing entrepreneurship education: A scoping review

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ABSTRACT

Background: Entrepreneurship education is commonly incorporated into areas beyond nursing. However, advocating for curricular changes is necessary in a generation that seeks new learning styles and has different preferences and needs. Entrepreneurship has been identified as a valuable subject to be incorporated into nursing education, as it aligns with the foundational principles of Nursing as a science.

Aim: To examine the state of knowledge regarding the entrepreneurship education of undergraduate nursing students.

Design: A scoping review was conducted following JBI and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines.

Methods: The searches were performed on July 19th, 2023, in MEDLINE via PubMed; ISI Web of Science; EBS-COhost CINAHL; Embase; Scopus; BVShost LILACS; and ProQuest. Grey literature was searched on Google Scholar. Records examining the entrepreneurship education of nursing students were included.

Results: The searches resulted in 17 records, 15 of which were from databases and two of which were identified via other methods. Although entrepreneurship education has increased over the years, the incorporation of diverse teaching modalities as a transformative and innovative educational strategy is still not a reality for many undergraduate nursing students worldwide. The findings highlight that entrepreneurship education is incorporated theoretically into mandatory courses with curricular components related to administration and health services management.

Conclusions: Entrepreneurship education can pivot nursing education and drive change in educational strategy while maintaining the fundamentals of nursing education. With entrepreneurship education, nursing students envision professional identity values, such as leadership, critical thinking, and political development. When understanding their political role, nursing students can exercise leadership to think critically outside the box and challenge the status quo.

1. Introduction

Over time, students' learning styles, preferences, and needs are changing significantly, especially for the pragmatic Generation Z (Chicca and Shellenbarger, 2018; Chunta et al., 2021; Shorey et al., 2021). This generation not only accepts differences open-mindedly (Chicca and Shellenbarger, 2018; Chunta et al., 2021; Shatto and

Erwin, 2016; Eckleberry-Hunt et al., 2018; Hampton and Keys, 2017) but also strongly affirms the importance of diversity and inclusion (Pichler et al., 2021), advocating for societal justices (Eckleberry-Hunt et al., 2018; Hampton and Keys, 2017). Meanwhile, as Generation Z yearns to solve social problems, entrepreneurship has been identified as a valuable subject to be incorporated into nursing education, as it aligns with the foundational principles of Nursing as a science.

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Historically, Florence Nightingale consolidated Nursing as modern with significant contributions as an entrepreneur through her visionary approach (Backes et al., 2020). Over time, entrepreneurship has significantly gained attention from researchers across different fields (Afeli and Adunlin, 2022; Fashami et al., 2021; Holdford et al., 2022), including nursing (Elango et al., 2007; Freitas et al., 2018; Ispir et al., 2019). This growing interest in entrepreneurship has led to a better understanding of its prospective contributions to nursing professional development beyond business sciences.

In the 21st century, entrepreneurship is an emerging subject for nursing, especially considering the growth and changes in the health-care industry. Given the demand for nurse entrepreneurs, it is imperative to promote entrepreneurship's incorporation into the nursing curriculum to prepare nursing students to recognize themselves as entrepreneurs (Thepna et al., 2023). Although the Handbook on Entrepreneurial Practice proposed by the International Council of Nurses (ICN) guides the nursing entrepreneurial practice, the approach does not address how entrepreneurship can be incorporated into the nursing curriculum (International Council of Nurses, 2012).

Given the significant nursing workforce issues affecting health systems worldwide, investing in education and strengthening nursing leadership is urgent (World Health Organization, 2020). For this reason, nursing curricula must congregate neglected competencies to prepare future nurses to address challenges in diverse contexts, such as entrepreneurship. When understanding their value to society, students can advocate for changes to advance the profession, contributing to nursing visibility and overcoming crises related to the nursing workforce. Thus, it is essential to understand how entrepreneurship is being incorporated into nursing education. This scoping review study aimed to examine the state of knowledge regarding the entrepreneurship education of undergraduate nursing students.

2. Methods

This scoping review was conducted following JBI (Peters et al., 2020) and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) (Tricco et al., 2018) guidelines.

2.1. Study protocol

Preliminary searches were carried out in the literature to identify protocols or reviews related to the entrepreneurship education of undergraduate nursing students. Although some reviews were identified (Copelli et al., 2019; Colichi et al., 2019), the studies are not related to entrepreneurship education, showing that there is still a need to examine the nursing entrepreneurship education. After searches, the protocol was registered in the Open Science Framework (OSF) (Gardim et al., 2023), following JBI recommendations (Peters et al., 2020).

2.2. Search strategy

The PCC mnemonic (Population, Concept, and Context) (Peters et al., 2020) was used to guide the establishment of the research question, with "P" related to undergraduate nursing students; "C" entrepreneurship; and "C" education. Thus, the following research question was outlined: "What is the state of knowledge regarding the entrepreneurship education of undergraduate nursing students?". Specifically, the sub-questions included:

- 1) What are the modalities in which entrepreneurship education is applied to undergraduate nursing students?
- 2) What contents are incorporated into the entrepreneurship education of undergraduate nursing students?
- 3) What professional identity values are achieved by undergraduate nursing students through entrepreneurship education?

Meetings between the research team and an experienced librarian were conducted to establish the search strategy and increase search sensitivity in determining the most recurrent descriptors applied by the scientific community concerning the entrepreneurship education of undergraduate nursing students. Searches were performed on July 19th, 2023, in the following bibliographic databases: MEDLINE via PubMed; ISI Web of Science; EBSCOhost CINAHL; Embase; Scopus; BVShost LILACS; and ProQuest. Additionally, a search was conducted in Google Scholar in English and Portuguese to seek grey literature, and the first 100 records for each language were included. Databases were searched using a combination of descriptors and keywords according to MeSH, CINAHL Titles, Emtree, and Health Sciences Descriptors (DeCS). The supplementary file can be consulted for the detailed search strategy.

2.3. Inclusion and exclusion criteria

Literature examining the nursing entrepreneurship education written in English and Portuguese (languages the authors speak) in any timeframe was included. However, literature focusing on the entrepreneurship education of graduate nursing students and entrepreneurial intention/motivation, tendencies, and/or competencies of undergraduate and graduate nursing students were excluded.

2.4. Screening procedures

The records included were uploaded in Endnote™ and duplicates were removed. Two independent reviewers (LG, MSA) screened all titles and abstracts on Rayyan (Ouzzani et al., 2016) based on the pre-determined inclusion and exclusion criteria. A third reviewer (AACA) was required to resolve discrepancies. Next, full texts were screened independently by two reviews (LG, AACA), and a consensus of included papers was reached. A hand search was performed, and records were included in the final sample.

2.5. Data extraction and analysis

Data from included papers were extracted identifying: (1) Study characteristics: author(s), year of publication, and country; (2) Publication: type, and research design/methods (if applicable); (3) Modalities in which entrepreneurship education is applied; (4) Contents incorporated into the entrepreneurship education; and (5) Professional identity values achieved. Data from the included records was independently extracted by one reviewer (LG) and validated by a second reviewer (AACA). Data was analyzed using basic descriptive and content analysis (Peters et al., 2020), which includes descriptions of modalities in which entrepreneurship education is applied, contents incorporated into entrepreneurship education, and professional identity values achieved by undergraduate nursing students.

3. Results

The searches in the literature yielded 975 records for screening. After conducting a full-text review of 37 records data was extracted from 17 sources, 15 of which were from databases and two of which were identified via other methods, as shown in Fig. 1. The included records ranged from 1981 to 2023. Of the research papers included, five were from Brazil (Souza, 2019; Silva, 2021; Annechini, 2022; Backes et al., 2022; Colichi et al., 2023), two were from South Korea (Lim et al., 2021a; Lim et al., 2021b) and one were from Egypt (El-Kharashy et al., 2023).

Findings are presented in three main categories: (1) Modalities in which entrepreneurship education is applied; (2) Contents incorporated into entrepreneurship education; and (3) Professional identity values achieved. The records' characteristics are presented in Table 1.

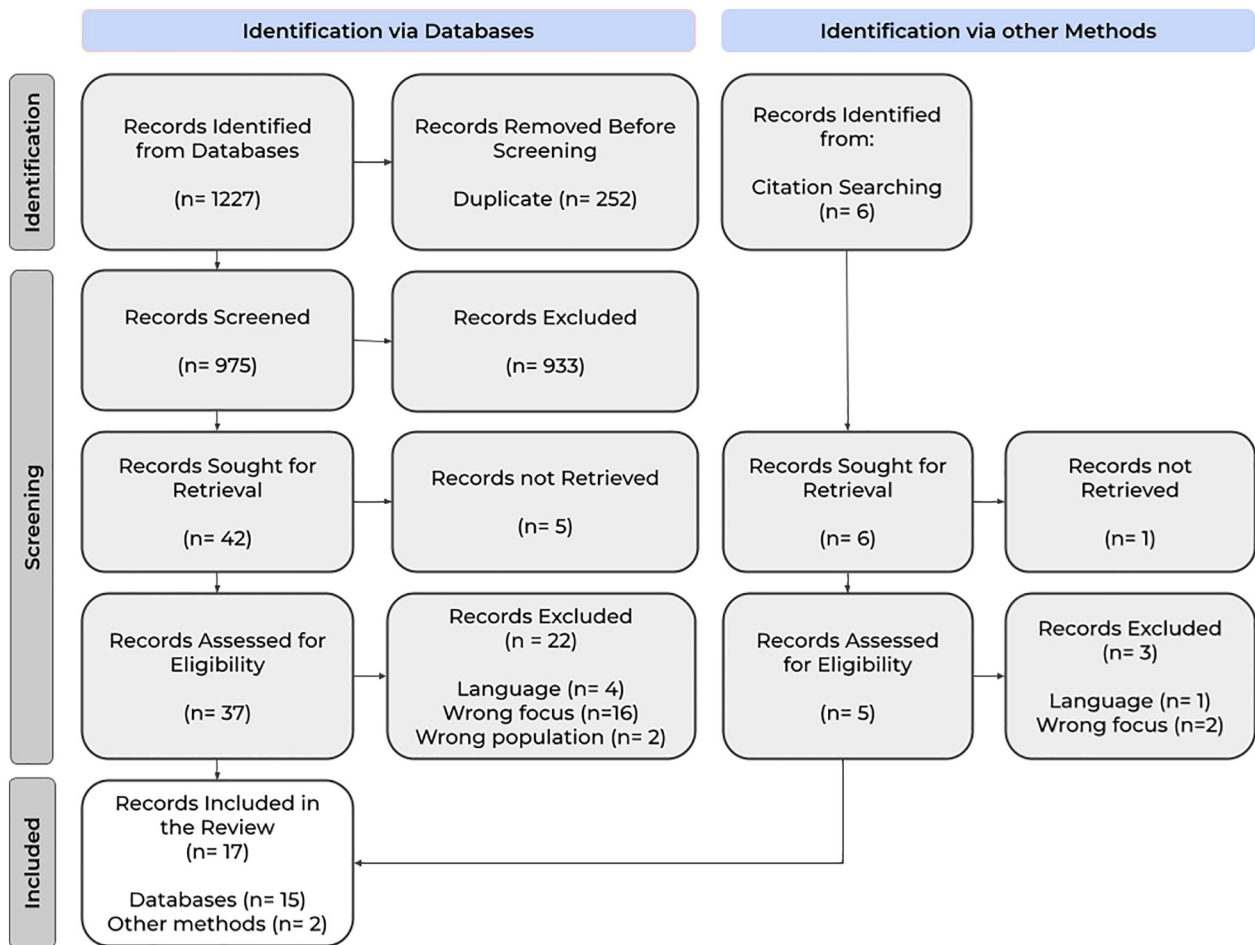


Fig. 1. PRISMA-ScR (Tricco et al., 2018).

3.1. Modalities in which entrepreneurship education is applied

Undergraduate nursing programs incorporate entrepreneurship education in mandatory (Silva, 2021; Backes et al., 2022; Colichi et al., 2023) and optional (Souza, 2019; Silva, 2021) courses. However, this topic is not a focus of nursing education, as it is often associated with curricular components related to administration and health services management (Souza, 2019; Silva, 2021; Colichi et al., 2023). In Brazil, a documental study conducted in 130 undergraduate nursing programs showed that only 14 (~%10) mentioned entrepreneurship education courses (Silva, 2021). Thus, considering the gaps within the curriculum, several activities were identified as possible alternatives to foster entrepreneurship education, such as extracurricular courses not foreseen in the curriculum (Wolman, 1981; Annechini, 2022; Yuan et al., 2022; El-Kharashy et al., 2023), certificate programs (Giuliano et al., 2022), teaching and educational models (Boore and Porter, 2011; El-Kharashy et al., 2023) related to the entrepreneurship education of nursing students. Although different modalities are applied with diverse approaches and contents, all presented satisfactory effects, demonstrating the viability of teaching entrepreneurship in nursing education.

Educators must recognize students' particularities to offer activities that meet their needs. It is important to recognize the students' role as the protagonists of their teaching-learning process since they can explore opportunities beyond the curricular and extracurricular activities when considering their motivation. In this context, some sources reported the development of startups by students supported by the educator (Spagnof and Bastos, 2013; Lim et al., 2021b), which are not strictly related to the business sciences but rather the construction of their nursing entrepreneurial career through leadership (Spagnof and

Bastos, 2013). Furthermore, another modality in which entrepreneurship education is being applied to nursing students is the MyCity Activities Course, which, despite initially being developed for people aged 12 to 13, proved effective (Rankinen and Ryhänen, 2014). It is notorious that these strategies are fundamental not only to encourage the replication of experiences in other realities but also to motivate the development of other activities that enable the entrepreneurship approach in nursing education.

3.2. Contents incorporated into entrepreneurship education

Most of the records included in this review reveal that nursing entrepreneurship education is mainly theoretical (Wolman, 1981; Boore and Porter, 2011; Lim et al., 2021b; Silva, 2021; Giuliano et al., 2022; Colichi et al., 2023). In addition, it is noticeable the common tendency to associate entrepreneurship exclusively with business sciences, which is also attested by some records that mention content on business planning and management in nursing courses (Wolman, 1981; Whitehead, 2003; Silva, 2021; Backes et al., 2022; Giuliano et al., 2022; Colichi et al., 2023).

Therefore, some strategies are performed to support the incorporation of entrepreneurship education. In addition to the traditional exam as a standardized process, educators applied other evaluation methodologies (Rankinen and Ryhänen, 2014; Lim et al., 2021b; Backes et al., 2022; Giuliano et al., 2022), such as focus groups (Giuliano et al., 2022) and seminars (Giuliano et al., 2022), besides proposing the development of innovative projects (Lim et al., 2021a, 2021b; Backes et al., 2022) to evaluate students' performance. Specifically, one of the records shows that students were encouraged to develop an entrepreneurial idea to be

Table 1
Characteristics of included records.

Author(s), Year of Publication, Country	Publication Type	Research Design/ Methods	Modalities in which entrepreneurship education is applied	Contents incorporated into the entrepreneurship education	Professional identity values achieved
Silva, 2021 Brazil	Research paper	Documental	Specific entrepreneurship courses: Eight mandatory, six optional, 11 theoretical, and three theoretical-practical.	The contents were classified into three categories: 1) Structural elements of entrepreneurship (historical and conceptual aspects, innovation, regulation, entrepreneurial profile – cognitive and attitudinal competencies); 2) Procedural elements of entrepreneurship (a. project management: situational diagnosis, networking, marketing and resources; b. tools: health and nursing technologies, creativity, and planning); 3) Elements of entrepreneurship results (social responsibility, innovative, assistance and management solutions, teaching and research).	Not described
Souza, 2019 Brazil	Research paper	Documental	Incorporation of an optional course: “Health Entrepreneurship and Innovation”.	Not described	Development of students' protagonism.
Boore and Porter, 2011 United Kingdom	Discussion Paper	Theoretical	Highlights the importance of developing and integrating entrepreneurial education into pre-registration nursing courses program.	The Ulster Integration Model: (1) Awareness and understanding; (2) Interpretation; (3) Contextualisation; (4) Integration (theoretical content and assessment); (5) Validation/revalidation; (6) Implementation; (7) Review and reflection.	Enhances the development of skills and attributes necessary to contribute to this effort in hospital and community environments, with a focus on the well-being of the population.
El-Kharashy et al., 2023 Egypt	Research paper	Quasi-Experimental	Educational program on entrepreneurship (lecture, group discussion, brainstorming).	Not described	Immediately and after three months, the educational program had a positive impact on nursing students' knowledge, attitude, and skills.
Annechini, 2022 Brazil	Research paper	Review	Highlights the importance of implementing entrepreneurship courses in nursing faculties, holding lectures, developing internships in clinics and with independent professionals, and complementary courses.	Not described	Development of personal characteristics necessary for successful entrepreneurs, in addition to stimulating leadership, creativity, initiative and socio-political aptitude.
Spagnof and Bastos, 2013 Brazil	Discussion paper	Experience report	Creation of a startup titled: “Arterial UFMG-Consultoria e Assessoria Júnior em Enfermagem”	Holding scientific and academic events on entrepreneurship and health, hospital accreditation and insertion of health professionals in the labour market.	Through the activities developed at the startup, the students can achieve visibility in the labour market (even as academics), besides establishing networking with experienced professionals and developing leadership, a sense of teamwork, self-confidence and control.
Colichi et al., 2023 Brazil	Research paper	Interventional study	Entrepreneurship is covered in two courses: (1) Introduction to Nursing Administration; and (2) Nursing Administration. The courses have practical activities, such as interviews that served as a basis for discussion groups.	Introduction to basic notions of entrepreneurship, provides reflection on the profile of the entrepreneurial nurse and awakens future nurses to diversified labour markets.	Expand the career possibilities of future nursing professionals.
Culha et al., 2017 Turkey	Discussion paper	Review	Not described	Not described	Can contribute to better planning and critical thinking, decision making, time management, self-management, discipline and communication.
Wolman, 1981 United States of America (USA)	Book chapter	Not applicable	Module Getting Down to Business: Nursing Service [Student Guide] Entrepreneurship Training	Contents: 1) Planning a Nursing Service; 2) Choosing a Location; 3) Getting Money to Start; 4) Being in Charge; 5) Organizing the Work; 6) Setting Prices; 7) Advertising and Selling; 8) Keeping Financial Records; 9) Keeping Your Business Successful.	Not described

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Table 1 (continued)

Author(s), Year of Publication, Country	Publication Type	Research Design/ Methods	Modalities in which entrepreneurship education is applied	Contents incorporated into the entrepreneurship education	Professional identity values achieved
Shao, 2019 China	Discussion paper	Theoretical (Proceedings - 9th International Conference on Education and Social Science (ICESS 2019))	Mentions about Trinity education, based on theory, practice and “real combat” based on the internet.	Not described	Emphasizes that, by presenting new nursing concepts, as well as entrepreneurship, improving the quality of training of nursing professionals is a driving force.
Giuliano et al., 2022 United States of America (USA)	Discussion paper	Theoretical	Implementing a certificate program (“INNOVATE”) designed to enhance traditional undergraduate nursing education with a curriculum focused on innovation and entrepreneurship.	The INNOVATE focuses on three core interdisciplinary courses, complemented by elective courses. In the first year, students undertake “INNOVATE-1: Inclusive Innovation and Entrepreneurial Mindset” to foster interprofessional collaboration and establish inclusivity and justice in design. In the third year, they engage in a two-semester seminar, “INNOVATE-3 and INNOVATE-4,” focusing on the design, development, and marketing of nurse-led medical products. This hands-on experience involves collaboration among nursing, administration, and engineering students to create, test, and bring a product to market, emphasizing interdisciplinary teamwork, innovation, leadership, and communication. Elective options, such as “Enhancing inclusion in innovation and entrepreneurship through disability understanding,” further enhance innovation, entrepreneurship, and leadership skills, breaking down traditional silos and promoting program engagement and retention.	Provides connection, engages students in learning, and exposes them to experiential opportunities that go beyond the traditional nursing undergraduate curriculum.
Yuan et al., 2022 China	Discussion paper	Theoretical	Suggests that universities create a favorable environment for teaching entrepreneurship, in addition to curricular reforms that can implement the topic. National innovation-driven development strategy.	Not described	Not described
Backes et al., 2022 Brazil	Research paper	Qualitative study	Entrepreneurship is covered in a course called “Leadership and Entrepreneurship in Nursing” through discussions in a research group that focuses on Nursing/Health Social Entrepreneurship.	“Projeto Enfermeiro Empreendedor”, where students develop an idea and present it to a committee of experts at an event - as an activity developed in the course.	Development of critical-reflective and autonomous skills by nursing students.
Lim et al., 2021b South Korea	Research paper	Randomized Controlled Trial (RCT)	Educational program “Start-Up NurseS (SUNS)” to strengthen the entrepreneurial capabilities of nursing students through simulation.	SUNS has three stages, namely: 1) e-learning – Stage comprising six modules related to animation-style web video clips on nursing entrepreneurship theories and knowledge. Each module is presented by introduction, objectives, learning part 1, quiz, learning part 2, summary, and evaluative test; 2) e-simulation – Stage that comprises two scenarios. The first corresponds to the development of a startup, while in the second the student must apply a management strategy, financial plan and marketing analysis to face a crisis situation for the company. 3) E-executive: The student must apply a business plan for their startup, detailing the organization's mission, vision, objectives and key projects.	SUNS had a significant effect on improving the entrepreneurial competence of nursing students.

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Table 1 (continued)

Author(s), Year of Publication, Country	Publication Type	Research Design/ Methods	Modalities in which entrepreneurship education is applied	Contents incorporated into the entrepreneurship education	Professional identity values achieved
Whitehead, 2003 United Kingdom	Discussion paper	Theoretical study	Suggests the proposition of an educational environment that enables the political positions of nursing students.	Proposes a nursing curriculum focusing on political, fiscal and social forces that are appropriate for health services.	Socialize the student based on the true value of health policy, besides political development.
Rankinen and Ryhänen, 2014 Finland	Discussion paper	Review	MyCity Activity Course offers exclusive resources for entrepreneurship, detailing learning from society and professional life.	Panels, teamwork, training and learning by doing as a teaching method strategy.	Not described
Lim et al., 2021a South Korea	Research Paper	Cross-sectional	Approaching entrepreneurship in the nursing curriculum programs and extracurricular activities based on entrepreneurial projects, business idea competitions, technological research and development.	Not described	Not described

judged by a committee of experts, motivating them in entrepreneurship and stimulating their critical thinking (Backes et al., 2022).

In addition to the mandatory and optional courses provided in the nursing curriculum, other programs and courses were identified focusing on entrepreneurship education for nursing students (Wolman, 1981; Rankinen and Ryhänen, 2014; Shao, 2019; Giuliano et al., 2022). This theoretical and occasionally practical deepening arouses the interest of curious students who want to build their careers in an entrepreneurial context. The contents covered are complementary to their nursing program curriculum; they are all fundamental to achieving entrepreneurship education. Although there are courses with programmatic content intended exclusively for nursing entrepreneurship education (Rankinen and Ryhänen, 2014; Wolman, 1981; Giuliano et al., 2022), only one is based on the assumptions of an organization of nursing education (Giuliano et al., 2022).

The Integrated Innovation & Entrepreneurship Certificate in Nursing Program (INNOVATE) was developed based on the competencies recommended by the American Association of Colleges of Nursing (AACN) for nursing education (Giuliano et al., 2022). Even though this scoping review did not propose a quality analysis of the modalities and contents of entrepreneurship education in undergraduate nursing courses, in comparison with the others, INNOVATE can serve as a guide for structuring new courses on entrepreneurship in nursing.

3.3. Professional identity values achieved

Indeed, entrepreneurship is still lightly explored in nursing education. Nevertheless, the majority of the records converge when addressing entrepreneurship education highlighting its importance and indispensability for undergraduate nursing students' education (Whitehead, 2003; Spagnof and Bastos, 2013; Shao, 2019; Souza, 2019; Lim et al., 2021b; Annechini, 2022; Backes et al., 2022; Boore and Porter, 2011; Rankinen and Ryhänen, 2014; Culha et al., 2017; Giuliano et al., 2022; Yuan et al., 2022; Colichi et al., 2023; El-Kharashy et al., 2023). Entrepreneurship education enables the achievement and development of fundamental values and competencies for the student's personal and professional development while qualifying their educational process.

Moreover, some records reported that leadership emerges from entrepreneurship education (Spagnof and Bastos, 2013; Lim et al., 2021b; Annechini, 2022; Backes et al., 2022; Giuliano et al., 2022; Yuan et al., 2022). It can not only enhance nursing student's critical thinking and reflective skills through engagement (Whitehead, 2003; Backes et al., 2022; Giuliano et al., 2022; Yuan et al., 2022), communication (Boore and Porter, 2011; Spagnof and Bastos, 2013; Culha et al., 2017; Giuliano et al., 2022) and time management (Culha et al., 2017) but also their political development (Whitehead, 2003; Annechini, 2022), which

reiterates their professional identity as a transformative agent that adds value to the ecosystem they are involved.

4. Discussion

This scoping review examines the state of knowledge regarding entrepreneurship education of undergraduate nursing students. The findings highlight that entrepreneurship education is incorporated theoretically into mandatory courses with curricular components related to administration and health services management, enhancing leadership, critical thinking, and political development. However, as an emerging topic, key gaps in the nursing curriculum have not been fully explored in the literature.

As can be seen in the Global Advisory Panel on the Future of Nursing & Midwifery (GAPFON®), a global report from the Sigma Theta Tau International (STTI) synthesizing data on healthcare challenges and priority professional issues in each of seven regions worldwide, education is one of the main strategies presented with a focus on transforming the educational programs to support transformative, innovative and interprofessional education (Sigma Theta Tau International, 2017). Although the teaching of entrepreneurship education to undergraduate nursing students has increased over the years as a transformative, innovative, and interprofessional education strategy, the findings of this scoping review indicate insufficient advocacy for curriculum changes.

Among all the modalities in which entrepreneurship is applied to education, this study states the importance of the complementarity of different learning styles to qualify nursing entrepreneurship education. The research papers included come from only three countries, highlighting the lack of entrepreneurship education in the countries where it is already being applied and that entrepreneurship education is not a reality for many undergraduate nursing students worldwide. Even so, in a little-explored scenario, implementing just one modality represents an advance in nursing education. In addition, regarding the nursing curricula, another important finding is related to implementing entrepreneurship at different moments during the undergraduate program. When incorporating entrepreneurship into nursing education, the diversity of its contributions to the student's development is clear. However, new evidence must examine the ideal time during the undergraduate program that it should be incorporated to enhance its effectiveness.

Notably, the content applied to education identified in this review is broad and does not follow a theoretical or methodological teaching standard, ranging from structured programs proposing the development of innovative projects (Spagnof and Bastos, 2013; Lim et al., 2021b; Backes et al., 2022) to limited programs based only on the historical aspects of entrepreneurship (Silva, 2021). To be effective, the contents addressed in entrepreneurship education need to enhance the

development of students' entrepreneurial competencies for achieving professional identity values and, for that, educational proposals need to meet the standards for a qualified education.

Although there is common sense relating entrepreneurship exclusively to business sciences, it is just one of the endless ways to be an entrepreneur. In 2016, The European Commission developed the EntreComp (The Entrepreneurship Competence Framework) identifying entrepreneurship as one of the eight competencies necessary for a knowledge-based society (Bacigalupo et al., 2016). While entrepreneurial competencies are essential for a knowledge-based society, this is no different for nursing. Scholars must undertake efforts to advance knowledge related to nursing entrepreneurship education and to create standards applicable to undergraduate nursing curricula. It is also important to explore the entrepreneurial competencies of nursing students to support an entrepreneurship education proposal.

The findings of this study demonstrate a shared understanding of the essentiality of entrepreneurship education given its capability to enhance the achievement of professional identity values. Leadership is the most common professional identity value developed through entrepreneurship education (Boore and Porter, 2011; Spagnof and Bastos, 2013; Lim et al., 2021a, 2021b; Backes et al., 2022; Giuliano et al., 2022; Yuan et al., 2022). In a digital era where students seek to lead their teaching-learning process, leadership is a highly valuable competency. Understanding the contemporary needs, preferences, and learning styles required by the pragmatic Generation Z, as well as their attributes, this generation expresses a high level of social awareness (Eckleberry-Hunt et al., 2018; Hampton and Keys, 2017), one of the domains of emotional intelligence: the basis of leadership styles (Cummings, 2011). At the same time, professional needs are continually diversifying, requiring qualified nurses with entry-to-practice competencies. Thus, with nursing entrepreneurship education, students begin to envision professional identity values and the professional needs required.

5. Limitations

The limitation of this study is related to the inclusion of only literature in English and Portuguese. Although this scoping review study identified records in Chinese and Turkish, the research team could not access them due to the language barrier. Possible records in other languages may provide information about the nursing entrepreneurship education of undergraduate nursing students, especially regarding the modalities, contents and professional identity values achieved.

6. Conclusions

As students' learning styles change, teaching modalities and content must be proposed according to their preferences and needs. Entrepreneurship education can pivot nursing education and drive change in educational strategy while maintaining the fundamentals of nursing education. With entrepreneurship education, nursing students envision professional identity values, such as leadership, critical thinking, and political development. When understanding their political role, nursing students can exercise leadership to think critically outside the box and challenge the status quo.

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CRediT authorship contribution statement

Lucas Gardim: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Isabel Amélia Costa Mendes:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization. **Andrea Bernardes:** Writing – review & editing, Writing – original draft, Visualization,

Validation, Methodology, Investigation, Formal analysis. **Mellory dos Santos Almeida:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Nico Gennaro Sciasci:** Writing – review & editing, Writing – original draft, Validation, Formal analysis, Conceptualization. **Marta Cristiane Alves Pereira:** Writing – review & editing, Writing – original draft, Validation, Formal analysis, Conceptualization. **Agostinho A.C. Araújo:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors have no conflicts of interest.

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Scoping review protocol

The protocol of this scoping review study was registered in Open Science Framework (OSF) under Digital Object Identifier (DOI): [doi:10.17605/OSF.IO/48MS5](https://doi.org/10.17605/OSF.IO/48MS5)

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