

A Mixed Methods Review of Male Nursing Students' Challenges during Nursing Education and Strategies to Tackle these Challenges



Ahtisham Younas^{a,b,*}, Amara Sundus^{c,d}, Hussan Zeb^e, Jacoline Sommer^f

^a Memorial University of Newfoundland, Canada

^b Shifa College of Nursing in Islamabad, Pakistan

^c Al-Shifa Eye Trust Hospital in Islamabad, Pakistan

^d RIPAH University, Islamabad, Pakistan

^e Saidu Group of Teaching Hospital, Swat, Pakistan

^f College of Nursing and Midwifery, Holy Family Hospital, RMU, Rawalpindi, Pakistan

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ABSTRACT

Background: Calls to action have been placed for recruitment of more men to address nursing shortage and to achieve a better balance and diversity in workforce. Studies also indicated patients' demand for male nurses. Despite this, male nursing students experience challenges during their education resulting in their attrition. No reviews have explored this research area. This review explored the challenges of male nursing students during their education and identified strategies used to tackle these challenges.

Methods: Literature was searched within three databases using indexed search phrases and 1 mixed-methods, six quantitative, and 36 qualitative studies ($n = 43$), published from December 1990 to May 2018, were reviewed. The qualitative and quantitative data were separately extracted and analyzed using thematic synthesis and narrative summaries, and then compared using joint displays.

Findings: “Call me a nurse” and “Male nurses understand us better: Need more men in nursing” were the prominent themes. An array of educational and clinical challenges was identified. Students used appraisal-focused, problem-focused, and social support strategies to tackle these challenges.

Conclusion: Considering the identified challenges, the lack of support and efforts from educators and institutions, we reiterate calls to action for strategic policies to help male nursing students adapt to educational and clinical learning environments and to increase their recruitment and retention in nursing.

Introduction

Historically, men cared for patients in mental health and military institutions (Mackintosh, 1997). However, in the 1800s, Florence Nightingale recruited more women in nursing and inadvertently diminished the role of men in nursing (Mackintosh, 1997; Younas & Sundus, 2018a). Since then, female dominance has prevailed in nursing and there is a shortage of male nurses (Landivar, 2013). Regan (2012) analyzed five years' data (2005 to 2010) from the websites of multiple nursing councils and organizations and reported the percentages of male nurses worldwide. The approximate percentage of male nurses was reported to be 10.6% in the UK, 5–10% in European countries (i.e., Austria, Denmark, Iceland, Estonia, Hungary, Norway, Poland, and Spain), 5–8% in the US and Canada, and 1% in China. The highest percentage of male nurses was reported in Saudi Arabia (32%) and Italy (21%). Over the last decade, there has been a steady increase in the

number (Auerbach, Buerhaus, Staiger, & Skinner, 2017) and demand for male nurses (United States Census Bureau, 2013; Younas & Sundus, 2018b). A multisite survey in the US indicated that the percentage of male nurses increased from 8.8% (2004–2005) to 13.6% (2014–2015) (Kovner et al., 2018). The demand for male nurses is evident from the studies demonstrating that patients are satisfied with the care provided by male nurses (Landry & Tillman, 2013; Younas & Sundus, 2018a, 2018b) and they demand for male nurses to care for them (Landry & Tillman, 2013).

Despite this increase in number and demand, reviews indicated that gender discrimination still exists in nursing (Kouta & Kaite, 2011; Zhang & Liu, 2016) which could result in male nurses' attrition, leading to further nursing shortage. Authors argued that nursing institutions should recruit more men in order to address the shortage of nurses, to advance the nursing profession in the 21st century, and to achieve a greater balance and diversity in nursing workforce (Barrett-Landau &

* Corresponding author at: 174 Patrick Street, A1C 5C4, St. John's, NL, Canada.
E-mail address: ay6133@mun.ca (A. Younas).

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Henle, 2014; McKenna, Vanderheide, & Brooks, 2016). The American Association of Colleges of Nursing (2015) called for an increase of men in nursing to promote diversity. Although, the literature remains limited on the benefits of men in nursing, arguably increasing the number of male nurses would help in meeting the demands of patients and healthcare, shortage of nurses, (Sherrod, Sherrod, & Rasch, 2006), creating a diverse nursing workforce (Twomey & Meadus, 2016), providing more mentors and role models for limited male nursing students (Wang et al., 2011), creating sensitive and holistic environments to improve the care for female and male patients (Prideaux, 2010), and improving working conditions (Barrett-Landau & Henle, 2014). Despite the listed benefits of men in nursing and an increased demand for male nurses, research indicated that male nursing students experience challenges during their nursing education (Buthelezi, Fakude, Martin, & Daniels, 2015; Dyck, Olliffe, Phinney, & Garrett, 2009) which results in their attrition (Zamanzadeh, Valizadeh, Negarandeh, Monadi, & Azadi, 2013). Being a minority, male nurses are vulnerable to be perceived as rude, non-caring, unprofessional, and disrespectful and are “likely to be remembered by a patient and therefore more likely to be exposed to complaints (Prideaux, 2010, p. 43). A systematic review of 34 studies reported that male nurses experienced more challenges in educational and clinical settings. It was also evident that these challenges vary from culture to culture (Zamanzadeh et al., 2013). Therefore, it is essential to comprehensively understand the experiences and challenges of male nursing students during their education worldwide as well as across different regions. This understanding would help develop strategies and policies to resolve issues of male nursing students and retaining more men in nursing.

Aim

The aim of this review was to explore the experiences and challenges of male nursing students during their nursing education and to identify strategies used to tackle these challenges.

Methods

A segregated mixed methods review of literature was conducted to develop a comprehensive understanding of experiences and challenges of male nursing students and propose strategies from students' perspective. This review approach is based on the assumption that quantitative and qualitative studies are different, therefore should be analyzed and synthesized differently (Sandelowski, Voils, & Barroso, 2006). We followed the process: a) formulation of research questions, b) development of inclusion and exclusion criteria for studies, c) development and application of a search strategy, d) search, screening, and selection of relevant studies, e), data extraction, and f) separate data collation from qualitative and quantitative studies, and g) data merging to make inferences (Heyvaert, Hannes, & Onghena, 2017) (Fig. 1).

Literature Search

Literature search (December 1990 to May 2018) was performed within PubMed, CINAHL, and Science Direct using three search phrases: “experiences and challenges of male nursing students”, “experiences of male nursing students”, and “challenges of male nursing students”. These terms were identified after an initial search in CINAHL and PubMed. Literature search retrieved 24,440 results in all databases. The duplicates, dissertations, reviews, opinion pieces, book results, and editorials were removed, and 2073 articles were screened by reading the titles. Five papers were retrieved through the search in Open Grey and reference lists of initially screened papers. This screening resulted in 52 eligible full-text articles published from December 1990 to May 2018. Of these, articles focusing on faculty perceptions of male students ($n = 03$), nursing students experiences of nursing profession ($n = 2$),

nurses perceptions, experiences of female nursing students ($n = 3$), and perceived satisfaction of students about nursing ($n = 1$), were excluded. Finally, 43 articles were selected using purposive sampling based on the following criteria (Fig. 2).

Population and Context

We included those studies which recruited male nursing students' sample. The studies that determined experiences and challenges of male nurses were excluded because male nurses' challenges would differ from those of students owing to the differences in experience and maturity levels. The context chosen was studies that explored students' experiences and challenges in educational settings, clinical learning environments, and classroom teaching.

Literature Sources

Articles including qualitative, quantitative, and mixed methods studies published in the English language in peer-reviewed journals were included. Dissertations and non-English language sources were excluded because of feasibility issues (i.e., limited number of reviewers and inability to comprehensively understand other languages). Books, book chapters, editorials, and letters were also excluded because such sources would not help determine the actual experiences and challenges of students from their own perspective.

Data Extraction and Assessment

The data extraction included quality assessment of the studies using three criteria: Checklist for assessing the quality of quantitative studies (Kmet, Lee, & Cook, 2004), VAKS tool for qualitative studies (Schou, Høstrup, Lyngsø, Larsen, & Poulsen, 2012), and mixed methods appraisal tool (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009). The checklist for assessing the quality of quantitative studies is a 14-item tool that allowed assessment of quality in terms of sampling, measurement, and data analysis. The summary score was calculated by summing the total score across relevant items and dividing by the total possible score. The cut off for the quality score (i.e., weak ≤ 0.50 , moderate–weak = 0.51–0.65, moderate–strong 0.66–0.79, and strong ≥ 0.80) was adopted from another study which used the same tool for quality assessment (Estabrooks et al., 2009). The VAKS tool allowed quality assessment in terms of general requirements (6 items), credibility (7 items), transferability (5 items), dependability (6 items), and confirmability (6 items) on a 4-point Likert scale from totally disagree = 1 to totally agree = 4. The total score under each domain was calculated by adding the points for each criterion and dividing the number by the number of criteria. The cutoff values were strong > 15 , moderate = 10 to 15, weak < 10 (Schou et al., 2012). The mixed-methods appraisal tool allowed quality assessment in terms of methodological quality of qualitative phase (4 criterion), quantitative phase (4 criterion), and the mixed-methods (3 criterion). The overall quality score was assessed on the scale: 100**** = 4 criterion met, 75*** = 3 criterion met, and 50** = 2 criterion met (Pluye et al., 2009). Two reviewers independently extracted the data, performed the analysis, and generated the themes. The other two reviewers reviewed the extracted data and the generated themes and compared the results with the reviewed studies. After resolving the discrepancies consensus was reached among all the reviewers. For data compilation and reporting, the findings from strong and moderate studies were given more weightage the findings from the weak studies were used to support the conclusions drawn from strong and moderate studies.

Data Analysis

Thematic synthesis was conducted using the following steps: a) line by line reading of the results and findings section of the qualitative studies. Each study was read at least three times to develop a comprehensive understanding of the findings, b) organization and analysis

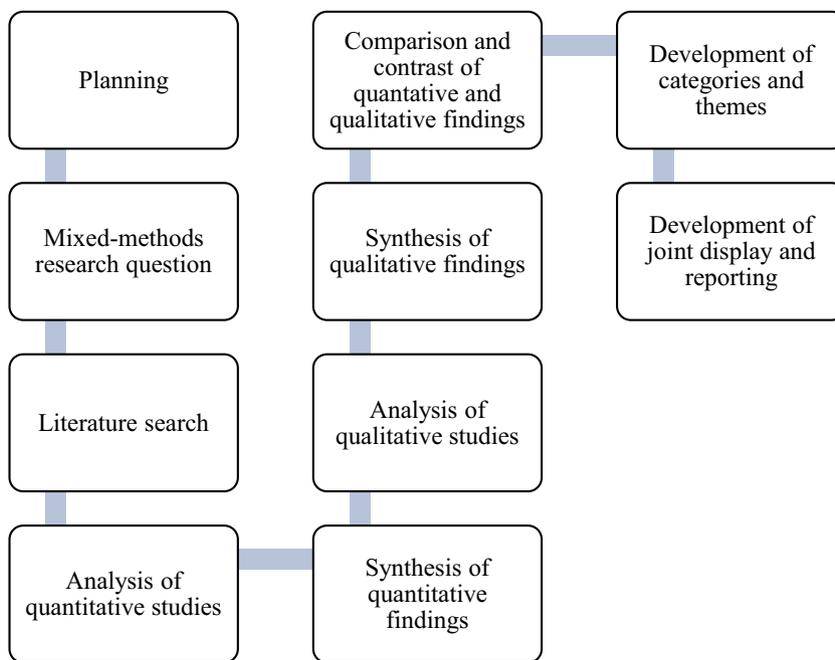


Fig. 1. Segregated mixed methods review process.

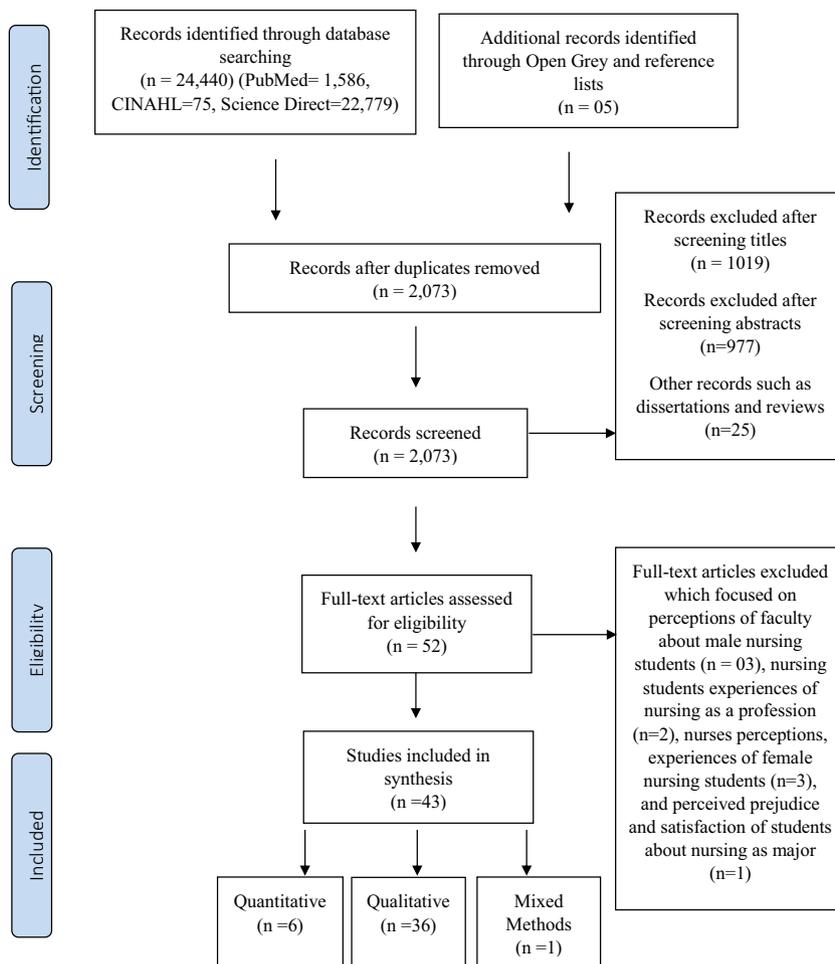


Fig. 2. Literature search strategy.

of first order themes to develop descriptive themes. During this phase, we moved back and forth between the codes and studies and revised any discordant themes, and c) development of analytical themes based on our personal judgement and interpretation of the findings (Thomas & Harden, 2008). The line by line codes were kept close to the findings of the studies, but, compared to Thomas and Harden (2008), personal judgments were incorporated during the development of descriptive and analytical themes. This was done to make our analysis more interpretative than descriptive.

For quantitative analysis, narrative summary was used instead of the commonly used advanced analyses methods such as meta-analysis and vote counting. The advanced methods were undesirable because of the smaller number, cross-sectional nature of studies, and various variables examined in each of the studies (Heyvaert et al., 2017). The data from the sole mixed methods study was divided and analyzed with qualitative and quantitative studies.

Findings

The included studies comprised descriptive quantitative (i.e., cross-sectional and correlational studies) ($n = 6$), qualitative studies (i.e., case studies, phenomenology, ethnography, and qualitative description) ($n = 36$), and mixed-methods studies (i.e., convergent mixed-methods) ($n = 1$). Most of the studies were conducted in US ($n = 14$) and Canada ($n = 6$) followed by four in Taiwan, three in China, two each in Hong Kong and South Africa, and one each in Australia, New Zealand, Turkey, Chile, Pakistan, Iran, Egypt, Saudi Arabia, Korea, and Jordan. The quality scores of quantitative studies ranged from 0.64 to 0.90 (moderate to strong = 2 studies, moderate to weak = 2 studies, and strong = 2 studies), 9.80 to 19.0 for qualitative studies indicating weak ($n = 3$), moderate ($n = 6$), strong studies ($n = 27$), and 50% for mixed methods study (Table 1). For data extraction, an extraction sheet was developed, and pilot tested which included information about authors, countries, study design, population and sample, methods of data collection, major findings, and potential themes (Table 1).

Qualitative Synthesis

The thematic synthesis generated 88 first order themes which were collated to form 20 descriptive themes. The descriptive themes were compiled into meaningful categories and then collated to develop abstract analytical themes. The analytical themes were categorized under two pre-defined principal themes based on the research questions (Table 2). To contextualize the findings, the cultural context has been highlighted by describing the origin of these studies. The description of the analytical themes under each principal theme is as follows (Table 3).

Principal Theme I: Challenges During Nursing Education

Respect My Learning Needs Too

This analytical theme included two descriptive themes: “Female students-centered teaching strategies” and “feminine culture in nursing education”. The students indicated that feminism in nursing education was evident from the start of their nursing program. The feminist culture was highlighted in terms of admission policies preferring female over male students and the hospital policies that accepted more female nurses in clinical settings. Such policies affected the clinical learning of male students as they were not able to complete their required clinical hours. The male students indicated that the nursing curricula were laden with language that was more suited for female nursing students. They indicated that due to female dominance of the profession, they were expected to be caring like female students and become emotional like them. It was also indicated that the educators designed teaching and learning strategies more suitable to help female students improve

their learning. For example, during skills demonstration the female students were explained about the anatomy and physiology of the female urinary system using mannequins and were encouraged to practice perineal care. However, for the male students the educators would often say that you are already aware of the anatomy and physiology and can practice the skill later. Therefore, the learning needs of male students were often neglected, and courses were taught without taking into consideration that there were male students in the class. These findings were reported from Jordan, Saudi Arabia, Canada, Chile, China, Iran and New Zealand. For example, Wang et al. (2011) shared the following excerpt.

“Because the number of male students is small, when learning practice skills such as fundamental skills, physical assessment skills, and cupping skill of Chinese medicine, teachers let us (male students) go out, or they let us practice these skills alone. Teachers walk through us. I feel we learn differently from our female classmates. So, I lack confidence in learning and also do not want to learn.”

(Wang et al., 2011, p.39)

Which Work Settings Are Appropriate: Confusion Prevails

This theme was generated by collating three descriptive themes: “working in maternal and obstetrics settings”, “working in mental health settings”, and “expected to work in fast pace settings where heavy lifting is required”. It was found that the students experienced several challenges in maternal, child health, and obstetrics settings. They experienced patients' lack of trust in their caring, their skills, and even straight forward rejection. They were expected to lift heavy loads and work in some specialized units such as intensive care and emergency. The future goals of nursing students were also aligned towards working in specialized settings and administrative positions. For example,

“Before I graduated, everyone told me that male nurses go to special departments like the ICU, ER and psychiatric ward because currently there are more male nurses in departments like the ICU and ER, and they said these departments tend to need more male nurses.”

(Chang et al., 2018, p. 49)

The synthesized finding indicated that students were in a continuous state of confusion as to which work settings are better suited to them. In some studies, it was indicated that students wanted to work in maternal settings and enjoyed learning about their care, but they felt stressed and feared as if their care would be considered a sexual advances. Sometimes they were prevented from working in these settings because of the administrative policies, educators' pressure, and rejection by female patients. This finding is also aligned with the findings that educational and clinical policies preferred female over male nurses. These findings were reported from Canada, China, Pakistan, US, Taiwan, Jordan, South Africa, and Norway. The following excerpt supports this finding.

“I just wanted to provide professional advice to the primigravida, but she thought that something sexually inappropriate might take place. Yeah... They often do that, it is quite common to be rejected by a primigravida.”

(Yang et al., 2017, p. 335)

Call Me a Nurse

This theme was consistent across many studies and was generated from two descriptive themes: “identity conflict” and “feminine discourse”. The students were unhappy for being called medical students, doctors, and male nurse. The patients assumed that the males in the

Table 1
Overview of the studies and quality assessment.

Authors	Country	Explored area	Design	Setting	Sample	Sampling	Data collection	Quality score	Main limitations
Streubert (1994)	USA	Students' perceptions of clinical experiences	Phenomenology	Clinical environment	9 male students	Purposive	In-depth interviews	17.1	No triangulation, lack of description of the context the relationship of context and researcher, and no description about bracketing.
Kelly, Shoemaker, and Steele (1996)	USA	Experiences of students	Qualitative description	Educational environment	18 male students	Purposive	Focus groups	14.6	Use of pre-determined themes for data analysis, incomplete description of data analysis procedure, lack of description of the context and the relationship of context and researcher, no description about bracketing.
Paterson et al. (1996)	Canada	Gender issues of male nursing students	Interpretive Phenomenology	Educational & clinical environment	20 male students	Purposive	Interviews	18.2	Lack of description of the context and the relationship of context and researcher
Patterson and Morin (2002)	USA	Experiences in maternal and child clinicals	Qualitative Description	Clinical environment	08 male students	Purposive	In-depth interviews	17.6	No triangulation, lack of description of the context, and the relationship of context and researcher
Cudé (2004)	USA	Students' experiences of maternal newborn course	Case study	Maternal newborn nursing	3 male students	Purposive	Narratives	9.80	Small sample, weak design, no triangulation, lack of description of the context, and the relationship of context and researcher, no bracketing, lack of description of data collection and analysis.
Ellis, Meeker, and Hyde (2006)	USA	Students' perceptions of nursing program	Qualitative	Educational environment	13 male students	Purposive	In-depth interviews	10.2	No triangulation, lack of description of the context, the relationship of context and researcher, and incomplete description about data collection process.
Chou and Lee (2007)	Taiwan	Students' perceptions of their nursing philosophies	Qualitative description	Fundamental nursing course	10 male students	Purposive	In-depth interviews	17.7	No triangulation and lack of description of the context and the relationship of context researcher.
Stott (2007)	Australia	Factors affecting attrition of male nursing students	Qualitative description	Educational setting	10 male students	Purposive	In-depth interviews	18.3	Lack of description of the context and the relationship of context researcher.
Dyck et al. (2009)	Canada	Nurse educators and students' perceptions of nursing education	Interpretive ethnographic study	Educational environment	6 male students and 6 female educators	Purposive	Participant observations and in-depth interviews	16.7	Small sample of male students, lack of description of the context and the relationship of context researcher, and no description about bracketing.
Ierardi, Fitzgerald, and Holland (2010)	USA	Students' educational experiences	Qualitative description	Educational environment	9 male students	Purposive	Interviews	16.6	No triangulation, lack of description of the context the relationship of context and researcher, and no description about bracketing.
Vaismoradi, Salsali, and Ahmadi (2011)	Iran	Students' perceptions of role of nursing education in developing personal identity	Qualitative	Educational & clinical environment	14 male students	Purposive	Semi-structured interviews	13.8	No triangulation, lack of description of the context the relationship of context and researcher, incomplete description of data analysis procedure, and no description about bracketing.
Wang et al. (2011)	China	Students' perceptions about nursing and experiences of nursing program	Qualitative	Educational & clinical environment	14 male students	Purposive	In-depth interviews	14.2	No triangulation, lack of description of the context the relationship of context and researcher, incomplete description of data collection, and no description about bracketing.

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Table 1 (continued)

Authors	Country	Explored area	Design	Setting	Sample	Sampling	Data collection	Quality score	Main limitations
Meadus and Twomey (2011)	Canada	Male students educational experiences	Phenomenology	Educational & clinical environment	27 male students	Purposive	Focus groups	17.6	No triangulation, lack of description of the relationship of context and researcher, and no description about bracketing.
Chan et al. (2013)	Hong Kong	Experiences of male nursing students in practice	Ethnography	Clinical environment	18 male students	Purposive and snowball	Semi-structured interviews	17.2	Lack of description of the relationship of context and researcher and no description about bracketing.
Chan, Lo, Tse, and Wong (2014a)	Hong Kong	Self-image of male nursing students	Qualitative description	Educational & clinical environment	18 male students	Snowball	Focus groups	17.2	Lack of description of the relationship of context and researcher and no description about bracketing.
Chan et al. (2014b)	China	Academic experiences of male nursing students	Ethnography	Educational environment	18 male students	Purposive and snowball	Semi-structured interviews	17.2	Lack of description of the relationship of context and researcher and no description about bracketing.
Abushaikha, Mahadeen, Abdelkader, and Nabolsi (2014)	Jordan	Academic challenges of male nursing students	Qualitative description	Educational and clinical environment	20 male students	Purposive	Focus groups	15.6	No triangulation, lack of description of the context the relationship of context and researcher, incomplete description of data collection procedure, and no description about bracketing.
Ayala, Holmqvist, Messing, and Browne (2014)	Chile	Extent of nursing gender relations and socialization of male nursing students	Qualitative description	Educational and clinical environment	22 male students	Purposive	In-depth and group interviews	15.1	No triangulation, lack of description of the context the relationship of context and researcher, incomplete description of data collection and analysis procedure, and no description about bracketing.
Christensen and Knight (2014)	New Zealand	Students' experiences of undergraduate nursing education	Narrative Analysis	Educational environment	5 male students	convenient	Semi-structured interviews	16.9	No triangulation and lack of description the relationship of context and researcher, and lack of attention to data analysis.
Buthelezi et al. (2015)	South Africa	Students' learning experiences and its impact on their self esteem	Qualitative	Clinical environment	18 male students	Purposive	Focus groups	16.2	Lack of description the relationship of context and researcher
Jordal and Heggen (2015)	Norway	Nursing students' experiences in first year of nursing	Case study	Clinical environment	3 students	Purposive	Narratives	9.8	Small sample, weak design, no triangulation, lack of description of the context, and the relationship of context and researcher, no bracketing, lack of description of data collection and analysis.
Mthombeni and Digamela (2015)	South Africa	Clinical learning experiences of male students during midwifery education	Qualitative description	Clinical environment	8 students	Purposive	In-depth interviews	18.8	No triangulation, lack of description the relationship of context and researcher, and no description about bracketing.
Ha, Kim, Choi, and Ahn (2015)	China	Student experiences in Obstetrics	Qualitative description	Clinical environment	12 students	Purposive	In-depth interviews	12.9	Incomplete information about data collection and analysis, no triangulation, lack of description of the context, and the relationship of context and researcher, no direct quotes provided, and no bracketing

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Table 1 (continued)

Authors	Country	Explored area	Design	Setting	Sample	Sampling	Data collection	Quality score	Main limitations
Conner, Anderson, and Matutina (2016)	USA	Perceptions of male students	Qualitative description	Educational & clinical environment	18 male students	Convenient	Focus groups	15.3	No triangulation, lack of description the relationship of context and researcher, lack of description about data collection, and no description about bracketing.
Arif and Khokhar (2016)	Pakistan	Experiences of male nursing students in nursing profession	Phenomenology	Educational & clinical environment	Sample size not given	Convenient	Focus groups	12.6	Sample size not provided, no triangulation, lack of description of the context, and the relationship of context and researcher, no bracketing, lack of description of data collection and analysis.
Shin et al. (2017)	Korea	Students' experiences of simulation training in maternal and child nursing course	Phenomenology	Educational environment	14 students	Purposive	Interviews	16.7	No triangulation, lack of description of the context, and the relationship of context and researcher
Al-Momani (2017)	Saudi Arabia	Difficulties encountered by male nursing students	Qualitative description	Clinical environment	22 male students	Purposive	Focus groups & Documentary analysis	17.8	Lack of description the relationship of context and researcher
Mahadeen, Abushaikha, and Habashneh (2017)	Jordan	Educational experiences of male nursing students	Qualitative content analysis	Educational & clinical environment	20 Students	Purposive	Focus groups	15.7	No triangulation, lack of description of the context, the relationship of context and researcher, limited description about data analysis process and no description about bracketing.
Bartfay and Bartfay (2017)	Canada	Students' experiences of clinical and educational learning experiences	Phenomenology	Educational & clinical environment	37 students	Purposive and snowball	In-depth interviews	17.9	No triangulation, lack of description of the context and the relationship of context and researcher
Yang, Yu, Chin, and Lee (2017)	Taiwan	Lived experiences of nursing students	Qualitative	Educational & clinical environment	24 male students	Purposive	Semi-structured interviews	16.5	No triangulation, lack of description of the context, the relationship of context and researcher, no description about bracketing.
Akpaaka and Clarke-Tasker (2017)	USA	Experiences and perceptions of male nursing students in maternal newborn course	Qualitative content analysis	Maternal newborn nursing	11 male students	Purposive	Interviews and written responses	13.7	No triangulation, lack of description the relationship of context and researcher, lack of description about data collection, limited quotes provided, and no description about bracketing.
Liu and Li (2017)	Taiwan	Gendered experiences during clinical placements	Qualitative description	Clinical environment	10 male & 12 female students	Purposive	Focus groups and in-depth interviews	18.7	lack of description about the relationship of context and researcher
Carnevale and Prigode (2018)	USA	Factors affecting successful completion of nursing program	Phenomenology	Educational & clinical environment	11 male students	Convenient	Focus groups	17.6	Lack of description of the context, the relationship of context and researcher, no description about bracketing.
Cheng, Tseng, Hodges, and Chou (2018)	Taiwan	Lived experiences of nursing students	Qualitative description	Clinical environment	14 male students	Purposive and snowball	In-depth interviews	14.8	No triangulation, lack of description of the context, the relationship of context and researcher, no description about bracketing.
Kronenberg, Bourret, and Brett (2017)	USA	Lived experiences of nursing students	Phenomenology	Educational & clinical environment	29 male students	Purposive and snowball	In-depth interviews	9.8	No information about methods of data collection, analysis, no triangulation, no bracketing, lack of description of the context, and the relationship of context and researcher, and no information about sampling

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Table 1 (continued)

Authors	Country	Explored area	Design	Setting	Sample	Sampling	Data collection	Quality score	Main limitations
Powers, Herron, Sheeler, and Sain (2018)	USA	Lived experiences of nursing students	Phenomenology	Educational & clinical environment	11 students	Purposive	In-depth interviews	19.0	Lack of description the relationship of context and researcher
Smith (2006)	USA	Challenges of male nursing students	Convergent mixed methods	Educational & clinical environment	29 students for survey and 6 students for interviews	Purposive	Survey and semi-structured interviews	**	Limited information about the validity of the survey tool, limited information about the data collection process for qualitative phase, purposive and small sample, data collection from single setting, and incomplete data integration.
Sherrod (1991)	USA	To examine students' degree of role strain	Descriptive cross-sectional	Obstetrical unit	Male and female students (n = 36), 18 each	Convenient	Sherrod Role Strain Scale measuring strain in terms of overload, conflict, incongruity, & ambiguity.	0.64	Small sample of male students, data collection from one setting, limited information about the validity and reliability of the scale, convenient sample, in appropriate data analysis, and missing data.
Okrainec (1994)	Canada	Students' perceptions of nursing education	Descriptive cross-sectional	Educational environment	117 male & 121 female students (n = 238)	Convenient	Un-named Questionnaire	0.71	Convenient sampling, limited information about the validity and reliability testing of tool, and snapshot nature of the study.
O'Lynn (2004)	USA	Prevalence and barriers to male in nursing	Descriptive cross-sectional	Educational & clinical environment	111 students	Random	Newly developed questionnaire	0.90	Small sample and chances of recall bias as the participants completed their nursing 10 years ago
Orzdemir, Akansel, and Tunk (2008)	Turkey	Students perceptions of male in nursing profession	Descriptive cross-sectional	Educational & clinical environment	88 students	Convenient	Newly developed questionnaire	0.64	Limited information about validity and reliability of the data collection tool, convenient sampling, inclusion of only 4th nursing students, snapshot nature of the study, data collection from single setting, and incomplete information about the study variables and the scale items.
Eswi and El Sayed (2011)	Egypt	Experiences of male students while attending maternal nursing course	Descriptive cross-sectional	Maternal Nursing	60 students	Enumeration sampling	Survey and semi-structured interviews	0.64	Limited information about validity and reliability of the data collection tool, snapshot nature of the study, data collection from single setting, and incomplete information about the study variables and the scale items.
Sedgwick and Kellett (2015)	Canada	Exploring marginalization experienced by male nursing students during clinicals	Descriptive cross-sectional	Clinical environment	462 students, 33 male and 429 female students.	Convenient	Belongingness Scale Clinical Experience Questionnaire that measures connectedness, self-esteem, and efficacy.	0.80	Small sample of male students, convenient sampling, incomplete information about the items of the scale which limits understanding of the experiences of students, data collection from one setting, and snapshot nature of study

Quality score cut off values: Qualitative studies (Strong > 15, Moderate between 10 and 15, Weak < 10), Quantitative Studies (weak ≤ 0.50, moderate-weak = 0.51 to 0.65, moderate-strong 0.66 = 0.79, and strong ≥ 0.80), Mixed methods (100**** = 4 criterion met (QUAL = 4 and QUAN = 4 and MM = 3), 75*** = 3 criterion met (QUAL = 3 or QUAN = 3 or MM = 2), and 50** = 2 criterion met (QUAL = 2 or QUAN = 2 or MM = 1)).

Table 2
Terms used in qualitative synthesis.

Terms	Definitions
Principal themes	The principal themes are the overarching themes developed on the basis of the two fold research purpose of the review.
First order themes or codes	The first order themes are the codes obtained after line by line reading and coding of the findings of the reviewed studies.
Descriptive themes	The descriptive themes are the themes generated after grouping the first order themes based on their similarities, differences, and meanings.
Analytical themes	The analytical themes are the abstract themes generated after grouping and collating the descriptive themes and going beyond their apparent meanings.

units were all doctors and they would often ask male nursing students if they would study medicine after completing their nursing education. The students were also frustrated that there was an excessive use of “she” nurse in exams and nursing text books. The educators and patients referred to them as “male nurses”, but students indicated that they did not like being called male nurses. They wanted to be simply called a nurse. The findings were reported in the studies from US, China, Canada, Australia, Chile, Taiwan, and Australia. The following transcripts support this synthesized finding.

“I want to be known as a nursing student not a male nursing student, everyone can see I am a man, so what?”

(DeVito, 2016, p. 250)

Culture of Clinical and Educational Environments and Interactions with Peers

This theme was generated by collating five descriptive themes: “support from educators in clinical settings”, “relationship with female colleagues”, “interactions with hospital staff and nurses”, “interactions and relationships with patients”, and “interactions with educators in classrooms”. Both positive and negative findings were reported under this theme. Students indicated being supported by educators, female colleagues, and sometimes getting preferential treatment. For example, Cheng et al. (2018) shared a student's excerpt.

“When I work independently, my mentor is still happy to guide me. I think that is because there are only a few male nurses. Even if I make mistakes, they show tolerance and remind me not to make any mistakes again. Their attitude is more kind” (p. 49).

The students indicated that educators were welcoming towards them. However, several students felt being openly rejected by female colleagues and staff. They were viewed as being less caring and hard-working than female counterparts and lacking compassion for others. For example, one student stated:

“When I did my fundamental nursing clinical placement, the head nurse said that male nurse students should study hard and learn from their seniors.”

(Yang et al., 2017, p. 336)

Some students mentioned that they felt more supported by doctors while others indicated that they were not allowed to participate in procedures with other male professionals. Organizational barriers which restricted students' learning were reported. Students were often concerned about not meeting their skills and course requirements because of a non-supportive clinical environment. In the classrooms, students experienced discrimination and sometimes sarcasm from educators. They felt that educators had a pre-conceived notion that male nursing students should do physical work. Although some positive findings were reported under this theme, the number of negative findings outweighed the positive ones, indicating that students were mistreated in clinical and educational settings. However, at times the support from some female colleagues and faculty helped them to cope with this mistreatment. These findings were reported from Canada, US,

China, Taiwan, Chile, New Zealand, South Africa, Jordan, Iran, and Australia indicating that there was not much difference in various cultures. For example, some of the students stated:

“We were insulted by medical students, but our instructors did not defend us. Really, it ruined our self-confidence and identity.”

(Vaismoradi et al., 2011, p.178)

Male Nurses Understand Us Better: Need More Men in Nursing

The theme was generated by collating two themes: “effect of male educators” and “need for male nurses and mentors”. The students consistently felt a lack of male nurses and mentors in clinical settings and male students in classrooms. In line with the theme that students critiqued the feminine culture of nursing education, they said male mentors and educators increase their motivation to stay in nursing. They indicated that the teaching style and methods of male educators are different from female educators, therefore more male nurse educators can help male students better learn nursing theory and practice. These findings were reported in the studies from China, US, Canada, Saudi Arabia, and Australia. For example, one of the students stated:

“I wish there were more male instructors, actually. I think it's a negative not to have more males. Men and women think different. Men try to simplify things, and I think women just try to complicate things. If we had more male instructors, I don't think it would be this hard because, I think, women; I think they just try to make it as complicated as possible.”

(Ellis et al., 2006, p. 524)

What Does It Feel Like to be a Male Nursing Student: Prospects, Fears, and Uncertainties

Under this finding, three descriptive themes were combined: uncertainty about public and professional identity, the future of male nurses, and the impact on personal self. The students described their uncertainties and fears regarding male nurses and care. One of the consistent uncertainties was the future prospects after graduation and their identity as a male nurse. In most of the studies, students indicated that because of poor nursing image and non-acceptance of male nurses their career prospects could be limited. These uncertainties affected their physical and psychological self. For example, one of the students stated:

“The girls are all following the same path, all becoming nurses. I am the guy here, looking at the road signs and not knowing which way to go. I believe that the traditional girls, I mean the female nurses, have a single direction to follow and they know what to do, such as how to take care of the patients. However, as for me, I am confused about whether I should follow the girls or use my own knowledge to take care of the patients, but not following the same path.”

(Chan et al., 2014a, p. 31)

The students' felt stressed out, isolated, and sometimes overwhelmed. In line with the theme that students were rejected by female patients in obstetrics and maternal settings, the greatest fear of the

Table 3
Thematic synthesis.

Principal theme	First order themes or codes	Descriptive themes	Analytical themes	
Strategies to deal with challenges	Simply making jokes (Akpuaka & Clarke-Tasker, 2017; Yang et al., 2017)	Appraisal-focused strategies	One does not fit all: Switching from one strategy to another on a contextual basis	
	Personal motivation to tackle gender stereotypes in practice (Arif & Khokhar, 2016)			
	Accepting that gender stereotypes exists because of social norms (Smith, 2006)			
	Ignoring the gender stereotypes (Kronsberg et al., 2017; Smith, 2006)			
	Personal desire to continue learning and perform better upon rejection (Patterson & Morin, 2002; Yang et al., 2017)			
	Preparation beforehand to care for female patients (Akpuaka & Clarke-Tasker, 2017)			
	Seeking help from female nursing students (Liu & Li, 2017; Patterson & Morin, 2002)			Social support strategies
	Support from female nurse educators (Akpuaka & Clarke-Tasker, 2017)			
	Problem-solving (Akpuaka & Clarke-Tasker, 2017)			Problem-focused strategies
	Deliberately choosing to care for male patients (Chan et al., 2013)			
Staying focused on nursing tasks and organizing work (DeVito, 2016)				
Focusing on personal goals (Kronsberg et al., 2017; Liu & Li, 2017; Patterson & Morin, 2002; Powers et al., 2018)				
Not emphasizing their gender while caring for patients (Liu & Li, 2017)				
Defending their choices for choosing nursing (Kronsberg et al., 2017; Yang et al., 2017)				
Providing an explanation for the need of male nurses in nursing (Yang et al., 2017)				
De-gendering professional role (Liu & Li, 2017)				
Challenges faced during nursing education	“Teachers arranged the practical teaching activities without considering male students’ learning needs, which might dampen students’ interest” (Wang et al., 2011).	Female student-centered teaching strategies	Respect my learning needs too	
	Expected to care for patients like women (Paterson et al., 1996)			
	“The assignments were designed with an overemphasis on being emotional like female students” (Dyck et al., 2009). Expected to be emotional in clinicals (Bartfay & Bartfay, 2017)			
	Feminine culture of nursing education and educators supposed that male students are familiar with female anatomy (Ayala et al., 2014; Christensen & Knight, 2014; Dyck et al., 2009)			Feminine culture in nursing education
	“Policies that favored female over male nursing students, as well as hospital policies that prefer female over male students to train in clinical settings” (Abushaikh et al., 2014; Al-Momani, 2017)			
	Some courses are only suitable for females (Vaismoradi et al., 2011)			
	The curriculum was set up by women or geared towards women’s understanding (Ellis et al., 2006).			
	Classes centered on women’s healthcare (Powers et al., 2018).			
	Absence of topics related to men’s health (Christensen & Knight, 2014)			
	Lack of trust from patients (Al-Momani, 2017; Arif & Khokhar, 2016; Buthelezi et al., 2015; Cudé, 2004; Ha et al., 2015; Mahadeen et al., 2017; Streubert, 1994; Wang et al., 2011)			Working in maternal and obstetrics settings
Therapeutic touch was a major issue in maternal settings (Bartfay & Bartfay, 2017)				
Not allowed to care for female patients (Christensen & Knight, 2014)				
Fear and stress of being accused of sexual harassment in obstetrics settings (Akpuaka & Clarke-Tasker, 2017; Chan et al., 2013; Cheng et al., 2018; Kronsberg et al., 2017; Mthombeni & Digamela, 2015; Paterson et al., 1996; Patterson & Morin, 2002)				
Patients refused to be cared for by male nursing students especially in gynecological and maternal and child wards (Yang et al., 2017; Buthelezi et al., 2015;				

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Table 3 (continued)

Principal theme	First order themes or codes	Descriptive themes	Analytical themes
	Carnevale & Priode, 2018; Al-Momani, 2017; Liu & Li, 2017; Chan et al., 2013; Smith, 2006; Patterson & Morin, 2002; Powers et al., 2018; Meadus & Twomey, 2011; Streubert, 1994; Shin et al., 2017)		
	Better suited to work in mental health settings (Jordal and Heggen, 2015)	Working in mental health settings	
	Expected to work in specific units such as intensive care and emergency (Cheng et al., 2018)	Expected to work in fast pace settings and settings where heavy lifting is required	
	Male students are better suited to administrative posts and or units such as intensive care (Ayala et al., 2014). Expected to work in settings where they can lift heavy objects (Meadus & Twomey, 2011; Powers et al., 2018)		
	Lack of clear image of male nurses (Chan et al., 2014a; Kelly et al., 1996)	Identify conflict	Call me a nurse
	Being questioned if planning to study medicine after nursing (Meadus & Twomey, 2011)		
	Misidentified to be doctors (Ierardi et al., 2010; Liu & Li, 2017; Stott, 2007)		
	Patients speak in gendered terms (DeVito, 2016)	Feminine discourse	
	Educators speak in gendered terms (Ayala et al., 2014; Powers et al., 2018)		
	Textbooks use gendered language (Carnevale & Priode, 2018)		
	Educators did not defend students during the times of conflicts with other providers and medical students (Streubert, 1994; Vaismoradi et al., 2011)	Support from educators in clinical settings	Culture of clinical and educational environments: Interactions with peers
	Lack of respect and verbal abuse by nurse educators (Buthelezi et al., 2015)		
	Preferential treatment for male nurses as they received extra support from educators (Cheng et al., 2018)		
	Support from female educators (Akpuaka & Clarke-Tasker, 2017; Ayala et al., 2014; Chan et al., 2013; Patterson & Morin, 2002)		
	Nurse educators were welcoming (Ayala et al., 2014)		
	Female students consistently describe that educators show preferential attitudes towards male students (Liu & Li, 2017)		
	Lack of supervision (Mthombeni & Digamela, 2015)		
	Female students openly stated that nursing is no place for men (Christensen & Knight, 2014)	Relationship with female colleagues	
	Supportive female colleagues (Akpuaka & Clarke-Tasker, 2017; Ayala et al., 2014; Cheng et al., 2018; Patterson & Morin, 2002)		
	Clinical nurses view male students as less caring than female students (Yang et al., 2017)	Interactions with hospital staff and nurses	
	Organizational barriers on the practice of male nurses (Chan et al., 2014a; Christensen & Knight, 2014; Kronsberg et al., 2017)		
	Support and likeness from female nurses (Chan et al., 2013)		
	Some students indicated being scolded by female staff (Chan et al., 2013)		
	Supportive attitude of doctors (Cudé, 2004)		
	Organizations are working to reduce gender gap in nursing positions (Arif & Khokhar, 2016)		
	Rejection and discrimination from female nurses (Christensen & Knight, 2014; Cudé, 2004; Kronsberg et al., 2017; Liu & Li, 2017; Mahadeen et al., 2017; Meadus & Twomey, 2011; Powers et al., 2018)		
	Male nurses are less careful than female nurses (Wang et al., 2011)		
	Patients complimented male students on their communication skills and professionalism (Cheng et al., 2018)	Interactions and relationships with patients	
	Patients trust male doctors more than male students (Wang et al., 2011)		
	Felt more humiliated during early years of nursing education (Buthelezi et al., 2015)	Interactions with educators in classrooms	
	Educators singled out male students in class (Carnevale & Priode, 2018)		
	Lack of appreciation (Liu & Li, 2017)		
	Being picked out by educators (Dyck et al., 2009; Stott, 2007)		
	Nurse educators negatively perceived male wanting to be nurse (Kronsberg et al., 2017)		

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Table 3 (continued)

Principal theme	First order themes or codes	Descriptive themes	Analytical themes
	Male students challenged educators more than female students (Dyck et al., 2009)		
	Not being involved in discussions with female colleagues (Kelly et al., 1996)		
	Not being involved in skills that involved female urinary and reproductive system (Dyck et al., 2009)		
	Male nurses teach better, and are rationale and logical (Chan et al., 2013; Ellis et al., 2006)	Effect of male educators	Male nurses understand us better: Need more men in nursing
	Seeking out male nurses for support (Carnevale & Priode, 2018)		
	Felt motivated by the presence of other male nurses (Al-Momani, 2017; Carnevale & Priode, 2018)		
	Indicated the need for more male nurses and mentors in clinical settings (Yang et al., 2017; Stott, 2007; Ellis et al., 2006; Smith, 2006; Kelly et al., 1996; Powers et al., 2018; Bartfay & Bartfay, 2017; DeVito, 2016; Wang et al., 2011)	Need of male nurses and mentors	
	Uncertainty about their professional identity (Chan et al., 2014a; Vaismoradi et al., 2011)	Uncertainty about public and professional identity	What does it feel like to be a male nursing student: Prospects, fears and uncertainties
	Positive public image (Smith, 2006)		
	A little to no recognition from public (Ayala et al., 2014; Meadus & Twomey, 2011; Vaismoradi et al., 2011; Yang et al., 2017)		
	Questioned about future prospects as a male nurse (Carnevale & Priode, 2018)	Future of male nurses	
	Hopeful about improved image of male nurses (Abushaikha et al., 2014; Arif & Khokhar, 2016; Wang et al., 2011)		
	More time and opportunities to develop career (Chan et al., 2014b; Chou & Lee, 2007; Conner et al., 2016; Yang et al., 2017)		
	Concerned about limited career prospects (Chan et al., 2014a)		
	More job prospects because of less competition (Wang et al., 2011)		
	Decreased sense of self-worth (Buthelezi et al., 2015; Kronsberg et al., 2017)	Impact on personal self	
	Feelings of isolation and loneliness (Bartfay & Bartfay, 2017; Carnevale & Priode, 2018; Kelly et al., 1996; Stott, 2007; Wang et al., 2011)		
	Felt fatigued and helpless (Cheng et al., 2018)		
	Lack of autonomy (Chan et al., 2014a; Kelly et al., 1996)		
	Feeling stressful and overwhelming (Ellis et al., 2006; Akpuaka & Clarke-Tasker, 2017; Mahadeen et al., 2017; Kronsberg et al., 2017)		
	Singled out (Powers et al., 2018)		
	Frustration (Kronsberg et al., 2017; Mthombeni & Digamela, 2015)		
	Fearful of being accused of inappropriate touch and sexual advances by female patients (Akpuaka & Clarke-Tasker, 2017; Chan et al., 2013; Patterson & Morin, 2002; Yang et al., 2017)		
	Eroded confidence (Kronsberg et al., 2017)		

students was being accused of inappropriate touch and sexual advances. For example, one of the students stated:

“You know I didn't want to approach somebody wrong, touch somebody, wrong being a male.”

(Patterson & Morin, 2002, p.269)

The students also acknowledged that the fear of being accused of sexual advances is because of the cultural and traditional beliefs that females should be cared for by female nurses. In a few studies students indicated that being a minority in nursing, there are greater chances for men to get better positions and jobs. The students were also hopeful that the image of male nurses would improve over time and there would be more acceptance from the public. These findings were reported from Canada, US, China, Taiwan, Chile, New Zealand, South Africa, Jordan, Iran, and Australia indicating that there was not much difference in various cultures.

Principal Theme II: Strategies to Deal with Challenges

One Size Does Not Fit All: Switching From One Strategy to Another on a Contextual Basis

Three types of strategies were used by nursing students to tackle all the above described challenges in educational and clinical settings. The most commonly used strategies were *appraisal focused* (i.e., simply making jokes (Akpuaka & Clarke-Tasker, 2017; Yang et al., 2017); personal motivation to tackle gender stereotypes in practice (Arif & Khokhar, 2016); accepting that gender stereotypes exists because of social norms (Smith, 2006); ignoring the gender stereotypes (Kronsberg et al., 2017; Smith, 2006); personal desire to continue learning and perform better upon rejection from female patients (Patterson & Morin, 2002; Yang et al., 2017); and preparation beforehand to care for female patients (Akpuaka & Clarke-Tasker, 2017)); *problem focused* (i.e.,

Table 4
Findings of quantitative studies.

Authors	Measured variables	Main finding
Sherrod, 1991	Role strain was measured in terms of overload (i.e., how lack of time interferes with the completion of tasks assigned by the educator and clinical staff), conflict (i.e., ability to perform assigned tasks due to patients' preference and restriction), incongruity (i.e., the assigned tasks are not aligned with my personal interest), and ambiguity (i.e., patients are not fully aware of my roles and responsibilities). The total score for role strain ranged from 40 to 200 with higher score indicating greater strain.	Compared to female students, male students' role strain was 94.78 compared to 75.62. The conflict score was 22.94 indicating that male students experienced rejection from patients compared to female students (18.28). The incongruity score was 25.67 compared to 20.94 indicating that there was a mismatch in the tasks assigned and the tasks that student liked. The ambiguity score was 23.05 compared to 18.76. The male students experienced greater role strain than female students especially in the obstetric settings.
Okraïneç, 1994	Anonymous Questionnaire with 72 items.	In total, 66.6% male students perceived nursing education to be challenging. 92.3% male students recommended nursing as career to more men. 85% men indicated that male nurses would increase in future. 74.1% of men indicated that they would join administrative positions. Male students indicated that they would prefer working in emergency (35.1%), intensive care (20.5%), administration (19.6%), OR (17.9%), and education (14.5%). In total, 81% male students were satisfied with their interactions with instructors, 79.5% with female colleagues.
O'Lynn (2004)	Newly developed questionnaire	In total, 99.1% indicated a lack of mentorship for male students, 82% indicated a female language laden curriculum, 74.5% indicated they were not encouraged to seek support from other male students, 69.1% indicated they need to prove themselves because of being in a minority, 61.8% indicated lack of guidance on therapeutic touch. 91.9% did not feel welcomed in clinical settings, 90.1 were nervous that patients may accuse them of sexual harassment, 89.1% indicated that faculty made anti-male remarks, 80% each indicated that different requirements for maternal/obstetrics clinicals for both men and women and no acknowledgement or content on difference in communication styles of men and women, and 78.4% indicated that there is a shortage of male students and mentors. Students indicated that nursing education was challenging (4.10 ± 1.14), students indicated that they needed assistance from colleagues (3.55 ± 1.21)
Smith (2006)	Mixed methods approach	Male students indicated that they can improve the patient care through their physical strength (47.8). It was found that ICU, OR, and emergency departments were perceived to appropriate settings for male students. Male students also indicated that they can work better at administrative position (5.7%) and educators (22.9%).
Ozdemir et al. (2008)	Newly developed questionnaire	In total, 53.6% reported unfavorable attitude of clinical educators and 66.7% of students preferred to care for male patients. 15.7% of students faced rejection from female patients, 11.7% reported discrimination from instructors. Students (66.7%) were stressed about causing harm to female patients. Rejections from patients (53.3%), rejected as male caregivers (25%), and lack of patients' cooperation (15.7%).
Eswi and El Sayed (2011)	Newly developed questionnaire	No difference in the belongingness of male (mean 3.1 ± 1.0) and female students (3.6 ± 0.88). However, male students indicated that they felt discriminated against during their clinical placements (mean 3.8 ± 0.90) compared to female (4.1 ± 0.87), they indicated they felt like outsiders (mean 3.0 ± 1.1). Overall. No differences were noted which could be because of low sample of male nurses.
Sedgwick and Kellett (2015)	Belongingness Scale Clinical Experience Questionnaire that measures connectedness, self-esteem, and efficacy.	

problem-solving (Akpuaka & Clarke-Tasker, 2017); deliberately choosing to care for male patients (Chan et al., 2013); staying focused on nursing tasks and organizing work (DeVito, 2016); focusing on personal goals (Kronsberg et al., 2017; Liu & Li, 2017; Patterson & Morin, 2002; Powers et al., 2018); not emphasizing their gender while caring for patients (Liu et al., 2017); defending their choices for choosing nursing (Kronsberg et al., 2017; Yang et al., 2017); providing an explanation for the need of male nurses in nursing (Yang et al., 2017); and de-gendering professional role (Liu & Li, 2017)). For example, one of the students stated:

“It is okay to be rejected. I can always care for another patient.”
(Yang et al., 2017, p. 337)

Some students reported using *social support strategies* (i.e., seeking help from female nursing students (Liu & Li, 2017; Patterson & Morin, 2002) and support from female educators (Akpuaka & Clarke-Tasker, 2017)). These strategies were mainly used in obstetrical and maternal and child health settings where students experienced rejection from female patients. For example, one of the students stated:

“I would talk to the faculty member, one of the staff nurses, or

another nursing student...if I was going to be doing anything sensitive as far as looking at the perineum.”

(Patterson & Morin, 2002, p.270)

These three kinds of strategies were collated to form an analytical theme describing how the use of these strategies was context dependent and students had to discern the best possible strategy to tackle the challenges. The studies that highlighted the use of these strategies were from the US, Taiwan, Hong Kong, and Pakistan.

Quantitative Synthesis

The quantitative analysis of six studies and the quantitative phase of the mixed methods study, resulted in the following common findings (Table 4).

Role Strain

Four out of seven studies reported role strain for the male students. Role strain was measured in terms of overload (i.e., how lack of time interferes with the completion of tasks assigned by the educator and

Table 5
Joint display of findings.

Analytical theme	Descriptive theme	Qualitative findings	Quantitative Findings	Inference
Which work settings are appropriate: Confusion prevails	Working in maternal and obstetrics settings	Male nursing students experienced several challenges in maternal, child health, and obstetrics settings. They experienced patients' lack of trust on their caring, their skills, and even straight forward rejection. Students were expected to work in some specialized units such as intensive care and emergency.	The male students (94.78 ± 20.69) experienced more role strain in the obstetrics area than female students (75.62 ± 22.76) ($p = 0.01$) (Sherrid et al., 2006).	Confirmed. Students experience rejection from female patients in maternal and obstetrics settings.
Which work settings are appropriate: Confusion prevails	Expected to work in fast pace settings where heavy lifting is required.		Male students indicated that they would prefer working in emergency (35.1%), intensive care (20.5%), administration (19.6%), OR (17.9%), and education (14.5%) (Okraimec, 1994). Male students wanted to work in ICU, OR, and emergency departments. They also indicated their interest for the position of administrators (5.7%) and educators (22.9%) (Ozdemir et al., 2008).	Confirmed. Students are expected to work in fast pace settings such as emergency and intensive care and are often only used as the labour and to lift heavy loads.
Culture of clinical and educational environments and interactions with peers	Interactions with educators in classrooms and relationship with female colleagues	Most of the students shared negative views about their interactions with educators in the classroom and teaching environments. Similarly, mixed views about their interactions with female colleagues. Although, male students received support from female educators and students, they also experienced open discrimination.	In total, 81% male students were satisfied with their interactions with instructors and 79.5% with female colleagues (Okraimec, 1994). In total, 53.6% reported unfavorable attitude of clinical educators and 11.7% reported discrimination from instructors (Eswi & El Sayed, 2011).	Discordant. Students are discriminated against by female students and nurse educators.
What does it feel to be a male nursing student: Prospects, fears and uncertainties	Future of male nurses	Several students reported that they are hopeful that the number of male nurses would increase and there would be more job prospects.	In total, 85% men indicated that they expect an increase in the number of male in future.	Expanded. Students are hopeful about the increase in number of male nurses, but are uncertain about future job prospects because of the challenges outlined above.
What does it feel to be a male nursing student: Prospects, fears and uncertainties	Impact on personal self	One of the greatest fear of the students was being accused of in appropriate touch and sexual advances.	In total, 66.7% of students were stressed about causing harm to female patients (Eswi & El Sayed, 2011) and 90.1% of students were nervous that patients may accuse them of sexual harassment (O'Lynn, 2004)	Confirmed. Students continuously experience stress and isolation in clinical and educational settings and are fearful of being accused of sexual advances and harassment in clinical settings.
Call me a nurse	Feminine discourse	Students indicated that there was an excessive use of "she" nurse in exams and nursing text books. The educators and patents referred to them as "male nurses"	In total, 82% indicated a female language laden curriculum and 89.1% indicated that faculty made anti-male remarks (O'Lynn, 2004)	Confirmed. Feminine discourse is prevalent in educational and clinical settings and male students declined to be referred to as male nurses. They continuously remind others to call them a nurse.
Respect my learning needs too: Teach me to be a nurse not a just a female nurse	Female student-centered teaching strategies	The educators often neglected learning needs of male students	In total, 80% each indicated that different requirements for maternal/obstetrics clinicals for both men and women and no acknowledgement or content on difference in communication styles of men and women (O'Lynn, 2004).	Confirmed. Mostly nurse educators do not pay attention to the learning needs of male nursing students.
Male nurses understand us better: Need more men in nursing	Need of male nurses and mentors	Students indicated the need for more male students, mentors, and educators	In total, 99.1% indicated a lack of mentorship for male students, 74.5% indicated they were not encouraged to seek support from other male students, and 78.4% indicated that there is a shortage of male students and mentors (O'Lynn, 2004).	Confirmed. Students need more male educators, mentors and male students to lend them support and encouragement during their nursing educational journey.
Which work settings are appropriate: Confusion prevails	Working in maternal and obstetrics settings	Students were unable to fully practice in maternal and obstetrics settings and experienced rejection and lack of trust from patients.	Students experienced rejections from patients (53.3%), rejected as male caregivers (25%), and lack of patients' cooperation (15.7%) (Eswi & El Sayed, 2011). In total, 61.8% indicated lack of guidance on therapeutic touch and 91.9% did not feel welcomed in clinical settings (O'Lynn, 2004).	Confirmed. Students cannot practice in maternal and obstetrics settings because of several cultural reasons, privacy issues, and upright rejection from female patients.
Strategies to deal with challenges	Social support strategies	In order to deal with patients' rejections, students sought support from female colleagues, educators, and staff.	Majority of students indicated that they needed assistance from colleagues (3.55 ± 1.21) (Smith, 2006)	Confirmed. The commonly used strategy to deal with these challenges is seeking support from female colleagues and educators.

clinical staff), conflict (i.e., inability to perform assigned tasks due to patients' preference and restriction), incongruity (i.e., the assigned tasks are not aligned with my personal interest), and ambiguity (i.e., patients are not fully aware of my roles and responsibilities). The total score for role strain tool ranged from 40 to 200 with a higher score indicating greater strain (Sherrod, 1991). Sherrod (1991) reported that male students' role strain score was 94.78 compared to 75.62 of female students. Regarding the “conflict” domain, Eswi and El Sayed (2011) reported that of 60 students, 15.7% of students experienced rejection and unsupported attitude of female patients. O'Lynn (2004) reported that of 111 students, 80% students reported that there are different requirements or limitations for male students to work in obstetrics settings. Regarding the incongruity domain, Okrainec (1994) reported that of 117 male students, most of the students preferred working in emergency (35.1%), intensive care (20.5%), administration (19.6%), OR (17.9%), and education (14.5%) because of their personal interest and bad working experiences in other settings. Ozdemir et al. (2008) also reported that students preferred working in emergency, operating room, and intensive care.

Educational Challenges

Five out of seven studies found that male students found nursing education challenging. For example, Smith (2006) reported that students faced several challenges during their nursing education and found the educational environment overall challenging (4.10 SD1.14). Similarly, Okrainec (1994) reported that of 117 male students, 66.6% of students found nursing education challenging. The commonly reported challenges were: female language laden curriculum, lack of encouragement to seek support from other male students, lack of guidance on therapeutic touch, sense of belongingness in clinical settings, anti-male remarks from educators, and unfavorable attitude and discrimination from educators. For example, Eswi and El Sayed (2011) reported that of 60 students, 53.6% reported unfavorable attitude of clinical educators and 11.7% reported experiencing discrimination from instructors.

Clinical Challenges

All seven studies reported clinical challenges such as rejection of male student nurses, rejection from female patients, feelings of being accused of sexual harassment from female patients, discrimination from hospital staff and clinical educators, and lack of patient cooperation. For example, Sedgwick and Kellett (2015) measured students' levels of belongingness in clinical settings. Of 462 students, male students reported that they felt discriminated against during their clinical placements (mean 3.8 ± 0.90) and felt like outsiders (mean 3.0 ± 1.1). Although, no difference in the belongingness of male (mean 3.1 ± 1.0) and female students (3.6 ± 0.88) levels was reported, it could be because of a very low sample of male students ($n = 33$) compared to female ($n = 429$). Consistently, Eswi and El Sayed (2011) reported that students were stressed about causing harm to female patients (66.7%), experienced rejections from patients (53.3%), were rejected as male caregivers (25%), and indicated lack of patients' cooperation (15.7%).

Other Common Findings

Two out of seven studies (O'Lynn, 2004; Smith, 2006), found that students indicated the need for more male educators and students. For example, O'Lynn (2004) reported that 67.8% of students indicated the need for more male educators and 78.4% indicated that there is a shortage of male students and mentors. Two of seven studies (Okrainec, 1994; Ozdemir et al., 2008) found that students expected the number of male nurses would increase in future as there are more job prospects for them and male nurses have the ability to improve the overall nursing image. For example, Ozdemir et al. (2008) reported that of 88 students,

59% of students indicated that male nurses can improve the image of nursing.

Integration of Qualitative and Quantitative Findings

The qualitative and quantitative synthesized findings were compared and presented in the form of a joint display, which allows developing new insights about the data by bringing together the qualitative and quantitative findings in a tabular format (Guetterman, Fetters, & Creswell, 2015). This data integration resulted in one expanded, one discordant, and eight confirmed findings (Table 5).

Discussion

This mixed-methods review synthesized educational challenges of male nursing students and identified the strategies used by students to tackle these challenges. The use of mixed-methods allowed the development of a comprehensive understanding of these challenges and strategies. In general, an ample qualitative evidence provided a richer description of students' challenges in different contexts and the quantitative findings complimented the qualitative findings. Although under some domains, both negative and positive qualitative findings were reported, only two quantitative studies reported some positive findings. The number of negative findings outweighs the positive findings thereby indicating that male nursing students are still discriminated against compared to female students. Despite the differences in contexts, the challenges are perceived to be similar across both eastern and western countries indicating that although there has been more acceptance of male students in nursing programs, students find it challenging to pursue nursing career. Despite the research on male nursing students, the need for more male nurses, and the importance of male nurses for the nursing profession, the remedies to provide smooth transitions to male students into nursing careers are few and far between. There is a dire need for studies to identify and evaluate institutional level strategies to recruit more male students and assist male students to become successful nurses. Based on this review, the following implications are proposed for nursing education, research, and policy making.

Implications for Nursing Education

Nursing institutions should emphasize the need of gender neutral discourse in classrooms as well as in the clinical settings and develop institutional level policies to provide support groups for male nursing students. Nursing institutions should revise their curricula and remove gendered terms that may be intimidating to male nursing students. The educators should use both male and female student-centered teaching strategies and develop pedagogical tools to enhance nursing experiences of male students. The review found that male nursing students were unable to meet the course requirements regarding practice in maternal and obstetrics settings. Perhaps, one of the ways to overcome this challenge is by providing simulation learning experiences to prepare male students how to interact well with patients in maternal settings. One of the reviewed studies found out that male nursing students indicated the usefulness of simulations in maternal health settings (Shin, Kim, & Lee, 2017). However, it should not mean that male students be excluded from the health care settings. Nursing institutions can review and use the methods employed in medical schools to teach male medical students. Other strategies should focus on collaboration of nursing schools and teaching hospitals, education of health care providers about the role and importance of male nursing students, and assisting students in interacting with female patients. Male students indicated the need of male mentors, therefore students could be included in interprofessional groups, where they can seek support from male health care providers. In addition, male care providers can share their experiences and offer some suggestions to male nursing students

to improve their clinical practice. Students mentioned that they often received support from female colleagues and educators, but for the most part are discriminated against by them. Therefore, measures should be taken to address discrimination towards male nursing students. One of the measures could be to develop separate support groups and chapters as a part of professional organizations. For example, in the United States the American Nursing Association can develop a separate chapter the American Association for Men in Nursing.

Implications for Nursing Research

Several strategies were identified which students used to tackle the educational and clinical challenges. However, there is a clear need for research to identify and evaluate strategies used by educators to maintain a gender-neutral classroom environment and strategies to increase the interactions of female and male nursing students. This is important because the review noted a resistance from female students towards acceptance of male students. Research should also determine different mentorship programs and their usefulness for male nursing students, use of simulations for teaching maternal and obstetrics courses to male students, and strategies to increase recruitment and retention of male students in nursing. Students indicated the need for more male mentors and students, therefore institutions should develop support groups or internship programs for male students and educators and assign male students to similar clinical groups. The usefulness of these strategies for male nursing students is an open area for further research.

Implications for Policy Making

Nursing institutions and teaching hospitals should develop collaborative policies to address the challenges experienced by male students. Nurse educators can collaborate with hospitals to develop policies that no longer prevent male students from participating in clinical care of women. This policy can be strengthened by educating hospital staff and nurses about male nursing students so as to increase the acceptance of male students. Policies should be developed to initiate female educator-male student and male educator-male student mentorship programs to assist male students in the clinical settings. Policy making should focus on developing gender-neutral curricula and eliminating the use of “she” for nurses. Policies should be developed to promote equality in classrooms and clinical settings by emphasizing the need of gender neutral teaching learning strategies and pedagogies.

Limitations

The literature search was performed in three databases, but other potential studies not indexed in these databases were missed. The exclusion of non-English language studies could have missed potentially significant contributions in this area. The lack of intervention studies on strategies used by students to overcome educational and clinical challenges may have limited the outlining of effective strategies.

Conclusion

The nursing profession emphasizes the need of equality of care for male and female patients in clinical settings. In the similar manner, there is a seminal need of gender equality within nursing itself. The nursing institutions and teaching institutions should collaborate to address challenges faced by male nursing students during their nursing education. The addressing of these challenges is important to produce a diverse nursing work force, recruit more men in nursing, and retain male student so as to overcome the nurses' shortage. The review delineated that the male nursing students were hopeful about the increased acceptance of men in nursing. However, considering the array of challenges and lack of support and efforts from nurse educators and

institutions, we reiterate calls to action for developing strategies and policies to increase male students' recruitment and retention in nursing.

Author Contributions

Conceived the idea AY.
 Performed literature search AY & AS.
 Data Extraction and analysis AY, HZ & AS.
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Conflict of Interest

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