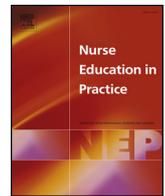




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Review

The impact of curriculum on nursing students' attitudes, perceptions and preparedness to work in primary health care: An integrative review

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ABSTRACT

Background: The ageing population and growing burden of chronic disease has increased demands for primary health care services, necessitating growth of this nursing workforce. Studies have explored strategies in retaining nurses, employment conditions in primary health care, and transitioning of acute care nurses to primary health care employment. Few studies have explored how undergraduate nursing students perceive and are prepared to work in this sector.

Aim: This review synthesises evidence on the impact of undergraduate curriculum on nursing students' attitudes, perceptions and preparedness to work in primary health care.

Design: An integrative literature review guided the synthesis of evidence.

Data sources: Scopus, ScienceDirect, CINAHL and MEDLINE were searched for relevant studies published between 2008 and 2018.

Review methods: 491 studies were identified from the database searches. Following the removal of duplicates, review of abstracts and keywords against the inclusion and exclusion criteria, 39 papers were subjected to full-text review. Twelve papers, including one thesis, met the inclusion criteria. Using an appraisal system, no paper was excluded based on methodological quality.

Results: Three themes were identified, namely: impact of curricula; knowledge and attitudes to primary health care; and students' intention to work in primary health care. The preparation of undergraduate nursing students to work in this area is inconsistent as curricula remain acute-care focussed. Negative perceptions about the primary health care nursing role impact intentions of nursing students to work in primary health care.

Conclusion: This review highlights a need to implement strategies to improve the understanding of undergraduate nurses around the primary health care nursing role. In particular, providing students with skills, knowledge and an understanding of working in this area through curriculum content and structure may provide undergraduates with the desire and confidence to seek employment in primary health care following graduation.

1. Introduction

The demand for primary health care (PHC) has increased internationally over recent years due to an ageing population and growing burden of chronic conditions (Halcomb et al., 2018; Peters et al., 2015; Wojnar and Whelan, 2017). The PHC sector is a broad umbrella “whole-of-society approach” to managing health and wellbeing in the community (Dussault et al., 2018, p. 3). Health systems with strong PHC are more efficient, have fewer health inequalities, lower rates of hospitalisations, better health outcomes and lower mortality (Australian Government Department of Health, 2013).

This shift in health care delivery has a significant impact on the health workforce required to meet these changing needs. There is

strong evidence that multidisciplinary models of care, where various health professionals can provide care within their scope of practice, are optimal in terms of balancing health care needs and resource consumption (Drinka and Clark, 2016; Ehikpehae and Kiernan, 2018; Gougeon et al., 2017; Leach et al., 2017). Nurses play an important role in PHC, irrespective of country or setting, internationally (Carryer et al., 2015) given their person-centred approach and role across health promotion, disease prevention and chronic disease management.

The nursing role in PHC has developed at differing rates across the globe. Whilst nurses in the US, UK and New Zealand are well established within PHC (Freund et al., 2015; MacLean et al., 2014; Prior et al., 2010), nurses in Australia have only moved into primary care roles in substantial numbers over the last two decades (Halcomb et al.,

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2014; Joyce and Piterman, 2011). Whilst there are challenges in reporting data around the number of nurses working in PHC both locally and on a global scale (Dussault et al., 2018; Halcomb et al., 2014; MacLean et al., 2014), it is generally agreed that the PHC nursing workforce continues to experience pressure worldwide (Freund et al., 2015; Halcomb et al., 2014; Kendall-Raynor, 2015). This is due to both an ageing nursing workforce and a shortage in nurse numbers (Halcomb et al., 2014; Harris et al., 2011; Kendall-Raynor, 2015). In addition, fee-for-service schemes for physicians may hinder the role expansion of non-physician health professionals in PHC settings (Freund et al., 2015). MacLean et al. (2014) identifies that issues such as poor remuneration, long hours, high workloads, lack of workforce planning and policy/political instability are key issues impacting on the ability to sustain the PHC nursing workforce.

Within the literature there has been significant attention given to the exploration of PHC nursing roles and the barriers and facilitators of nursing in PHC, particularly from an Australian context (Halcomb et al., 2008, 2014). However, there has been limited focus on the recruitment and retention of nurses and their preparedness to work in this area (Ashley et al., 2016; McInnes et al., 2015a). Many nurses find themselves inadequately prepared to deliver PHC since nursing education programmes worldwide have inconsistent records of success when it comes to integrating PHC knowledge and skills into their curricula (MacLean et al., 2014). Therefore, an exploration of how student nurses are prepared to work in PHC is important if the PHC workforce is to meet the growing demand for its services.

2. Background

Almost thirty years after moving out of the hospital-based training model, nursing education has been firmly established in the tertiary sector internationally (Halcomb and Newton, 2017). Graduates' career choices and their confidence and preparedness to work in a particular setting are impacted upon by a number of factors, including curricula (McCann et al., 2010), school and workplace cultures, perspectives projected by lecturers and clinical instructors (McCann et al., 2010), personal and placement experiences (Che et al., 2018; Salamonson et al., 2018; Wareing et al., 2018) and preconceived ideas of settings (Ong et al., 2017; Thongpriwan et al., 2015). While there has been research undertaken examining the preparedness of undergraduate nursing students in some specific clinical areas, such as aged care (Algozo, 2015), critical care (Halcomb et al., 2012) and mental health (Ramlugun, Anjoyeb, & D'Cruz, 2017; Thongpriwan et al., 2015), PHC has received far less attention (Keleher et al., 2010). Given the growing need to recruit graduate nurses into PHC either directly following graduation or in the future (Ashley et al., 2016; McInnes et al., 2015a), it is important to understand the factors that impact on their career choices, confidence and preparedness to work in PHC settings.

Current literature has largely focussed on the employment conditions of PHC nurses (Halcomb et al., 2018; Hood and Allen, 2017; Royer, 2011) and their job satisfaction (Almalki et al., 2012; Curtis and Glacken, 2014; Delobelle et al., 2011; O'Donnell et al., 2010), as well as

the experiences of nurses transitioning from acute care to PHC employment (Ashley et al., 2017, 2018a, 2018b). Some studies of PHC graduate nurse programs have begun to emerge (Aggar et al., 2017, 2018; Thomas et al., 2018), but these report early experiences of such programs. There remains limited exploration of undergraduate preparation of nursing students to work in PHC.

3. Aim

This paper aims to review available literature that reports on how current undergraduate coursework shapes nursing students' perceptions of and preparedness to work in PHC. More specifically, this review aimed to critically synthesise the published literature on the impact of undergraduate nursing coursework on students' attitudes, perceptions and preparedness to work in PHC settings.

4. Method

4.1. Research design

This review was informed by the five-step methodological framework described by Whittemore and Knafel (2005). This framework provides for; a clear identification of the problem; a rigorous and auditable search strategy; a comprehensive evaluation; interpretation and critical analysis of the primary data collected; and the synthesis and appropriate presentation of the findings (Whittemore and Knafel, 2005). This approach permits the simultaneous review of both empirical and theoretical research, and allows for a rich understanding of the topic of interest.

4.2. Search strategy

The electronic databases, Scopus, ScienceDirect, CINAHL and MEDLINE, were searched using various keyword combinations, including: “nursing student”, “undergraduate nurse*”, “undergraduate nursing student”, “undergraduate student nurse*”, “career intention”, “readiness”, “preparedness”, “primary care”, “primary health care”, “family practice” and “community”. Reference lists of identified studies were also reviewed, while relevant journals and theses repositories were hand searched.

4.3. Search criteria

Papers or theses that reported primary data about undergraduate nursing students' knowledge, attitudes and career intention to work in PHC, as well as studies that reported primary data on the PHC content in the current nursing curricula were included (Table 1). Studies which focussed solely on PHC clinical placement experience were excluded as this represents an issue parallel to the review aim. Given the changing trends around nursing workforce and the undergraduate nursing curricula, results were limited to studies published between 2008 and 2018. Only papers or theses published in the English language were

Table 1
Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Published between 2008 and 2018 Peer-reviewed papers or theses	Literature reviews, editorials, discussion papers Reported data on nursing students' clinical placement experience in PHC
Published in the English language	Described experiences of new graduate nurses transitioning from acute-care to PHC
Reported primary data about PHC content in nursing curricula, undergraduate nursing students' knowledge, attitudes and career intention to work in PHC, or preceptors views about preparedness of students to work in PHC.	
Primary research	

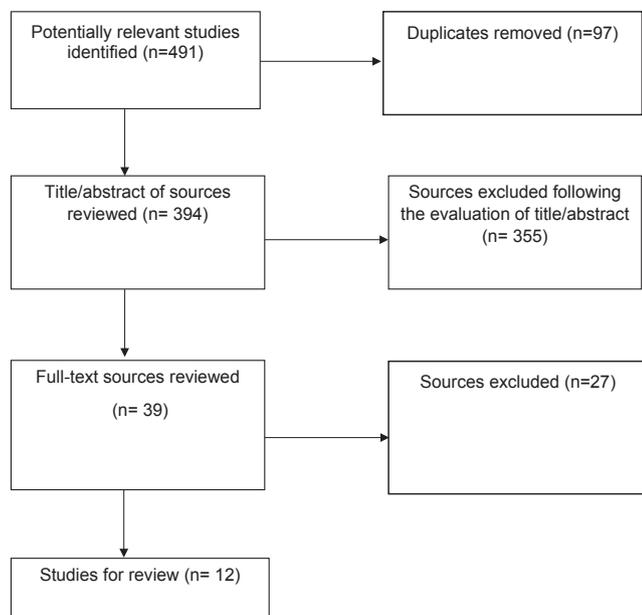


Fig. 1. Prisma flow diagram of study selection.

included due to resource restrictions that precluded translation.

4.4. Search outcomes

The 491 results from the database searches were exported into Endnote[®] Version X8 (Clarivate Analytics, 2017) (Fig. 1). Following the removal of duplicates (n = 97), analysis of the titles and abstracts by one reviewer (KC), 355 sources were assessed to not meet the inclusion criteria, and so these were excluded. Papers were excluded if they did not report research, were published in a predatory journal, focussed on clinical placement experiences only or described experiences of new graduate nurses transitioning from acute care to PHC. The remaining 39 sources were then reviewed in full text by three researchers (KC, EH, MS) against the inclusion criteria to achieve consensus. This process excluded a further 27 sources as they did not address the review aims. Twelve sources, including 11 published papers and 1 thesis, met the inclusion criteria. As the thesis did not have any publications in the peer-reviewed literature reporting results it was decided to include this source in the review.

4.5. Quality appraisal

The scoring system developed by Pluye et al. (2009) was used to appraise the included studies. The initial stage of appraisal assessed the presence of a clear aim and a comprehensive description of the data collection methods. Qualitative studies that clearly described the participants and context, and acknowledged the minimisation of researcher bias were considered to be of high methodological quality. Quantitative studies had to have high response rates and appropriate sampling methods, and should include descriptions of validity measures. The combination of quantitative and qualitative methods of analysis, and integration of data were appraised in mixed methods studies (Pluye et al., 2009).

Using this appraisal system, it was unanimous among all three reviewers that all included studies had a similar level of high methodological quality. Therefore, no paper was excluded based on its methodological quality.

4.6. Data abstraction and synthesis

All relevant data from the included studies were extracted into a

summary table (Table 2). Due to the heterogeneity of the studies, a constant comparison approach was used to synthesise results (Whittemore and Knafl, 2005). In doing so, the included studies were compared and contrasted to detect patterns, variations, themes and relationships (Whittemore and Knafl, 2005). Findings from all included studies were read and coded, line by line. Data were carefully reviewed and categorised using an inductive approach, until no new concepts were discovered. The display of data in a summary table allowed for more manageable identification and comparison of themes; and eventually, the synthesis of the patterns identified (Whittemore and Knafl, 2005). The tabulation of both quantitative and qualitative results in a single matrix allowed for integration of statistical and narrative data, which subsequently facilitated identification of patterns across sources (Whittemore and Knafl, 2005).

5. Results

Of the 12 included studies, 58.3% (n = 7) adopted quantitative methodologies (Betony and Yarwood, 2013; Bloomfield et al., 2015, 2018; Larsen et al., 2012; Mackey et al., 2018; van Iersel et al., 2018a; Wojnar and Whelan, 2017), 33.3% (n = 4) used qualitative approaches (Albutt et al., 2013; Ali et al., 2011; Duah, 2015; Keleher et al., 2010) and 8.3% (n = 1) used a mixed methods approach (Cooper et al., 2014) (Table 2). Studies were conducted in Australia (41.7%, n = 5), United Kingdom (UK) (25%, n = 3), United States (US) (16.7%, n = 2), New Zealand (NZ) (8.3%, n = 1), and Canada (8.3%, n = 1). Three key themes were identified from the included studies, namely: 1) impact of curricula; 2) knowledge and attitudes to PHC; and 3) students' intention to work in PHC.

5.1. Impact of curricula

Six studies explored how the pre-registration curricula prepared nursing students for PHC practice. Of these, four studies investigated the PHC content of curricula (Betony and Yarwood, 2013; Cooper et al., 2014; Keleher et al., 2010; Wojnar and Whelan, 2017). Two studies explored nurse educators' perceptions of PHC content in an undergraduate program (Albutt et al., 2013), and nurses' perceptions of graduates' preparedness for PHC employment (Ali et al., 2011). One study which focussed on PHC career intentions, also reported data on the exposure of undergraduate nurses to PHC (Bloomfield et al., 2015).

5.1.1. Course is acute care focussed

Most included studies raised concerns about the nature of curricula being too acute care focussed. Ali, Watson, and Albutt (2011) reported mixed feelings amongst UK nurses around graduate nurses' preparedness for PHC employment. Both UK papers described current undergraduate nursing courses as being too acute care focussed (Albutt et al., 2013; Ali et al., 2011). Similarly, Keleher et al. (2010) described how preparation for PHC was patchy across courses in Australia. Interestingly, in the US, Wojnar and Whelan (2017) found that some schools avoid delivering PHC content with a belief that undergraduate programs prepare students for an acute care career. Only in NZ, did Betony and Yarwood (2013) reported that over three quarters of academic participants felt that their programs adequately prepared students for PHC employment.

5.1.2. PHC content within curricula

The nature of PHC content within curricula was variable. Bloomfield et al. (2015) reported that 92.8% of their final-year nursing student participants had some educational exposure to PHC during their degree, and 87.1% completed a PHC clinical placement. Keleher, Parker, and Francis (2010) identified various ways in which PHC was covered, including being embedded in health units covering broader topics; as a standalone unit; delivered within Indigenous health subjects; or as a unit focussed on public or population health. Most of the

Table 2
Summary table.

Reference/Country	Focus	Sample	Methods	Significant findings
Albutt et al. (2013) UK	Nurse educators' perceptions of education in preparing nurses for PHC practice	4 university educators & 4 nurse educators from 2 primary care trusts	Interviews	<ul style="list-style-type: none"> ● Key barriers to student learning and preparedness for PHC employment were shortage of clinical placements and lack of mentors for students. ● Pre-registration education was perceived inadequate due to limited clinical experience. ● The current nursing curriculum was seen as acute-care focussed. ● Recommendations made to increase PHC placements duration, involve PHC nurses in pre-registration programmes to increase curriculum relevance to PHC, and provide a more structured preceptorship programme to improve transition into PHC employment. ● There was a mixed response around preparedness - some nurses felt that the curriculum adequately prepares nurses for PHC work; others felt it did not prepare them at all. ● Pre-registration curriculum viewed to be acute-care focussed lacking practical aspects. ● Novice nurses lack understanding of PHC structures and roles, communication skills and confidence to practice independently. ● Recommendations included: <ul style="list-style-type: none"> - Better preceptorship/mentorship programmes - Focus on preparing students for the changing health care system - More PHC placements to enhance understanding of PHC structure and processes - A focus on PHC content delivery in the beginning progressing to acute care ● Greater involvement of PHC nurses in the undergraduate curriculum ● 11 institutions embedded PHC throughout the BN programme. ● 86% taught PHC specific skills including health promotion, community/family assessment. ● There was a variable understanding of PHC across institutions ● In 9 institutions all academics had PHC experience, many clinicians delivered PHC content. ● 79% 'agreed'/'strongly agreed' that the program prepares students for PHC employment. ● Issues raised included: Lack of PHC placement availability, Placements in health centres seen to have greater preference for medical students, Reluctance of staff to supervise a student; impact on workload, Nursing students did not see the relevance of PHC placement, Students were acute-care focussed
Ali et al. (2011) UK	Nurses' perceptions about the PHC role and their preparedness for PHC work	14 primary care trust nurses	Interviews	<ul style="list-style-type: none"> ● Innovations in place: A revised curriculum embedding PHC concepts throughout the programme and increased PHC placements capacity ● 90.6% were enrolled in a BN program; 9.4% in BN accelerated, combined degree/MN ● 91.9% expected to undertake a new graduate transition program ● 73.2% expected to work full-time in their first year ● 22.8% ranked PHC setting as their first priority work setting following registration ● 96.6% considered learning about the PHC nursing role during their undergraduate degree as "moderately important" or "extremely important" ● 92.8% had educational exposure to PHC ● 87.1% completed a PHC clinical placement during their course ● 76.85% reported being "moderately" or "extremely familiar" with the PHC nurse role ● Preferred workplace was not associated with undergraduate learning about PHC (p = 0.49). ● Placements in PHC did not influence choice of PHC work after registration (p = 0.53) ● 16% intended to work in PHC ● Gender was not a significant predictor (p = 0.073), although more females wanted PHC work. ● Older participants had significantly stronger intention to work in PHC (p < 0.001) ● Students at a university offering a PHC placement were more likely to want to work in PHC (p = 0.078) ● Participants who thought it was important to learn about the PHC RN role at university were more likely to desire to work in PHC (p = 0.068) ● Those who considered employment conditions to be of greater importance were significantly more likely to desire to work in PHC (p = 0.026) ● Participants who considered workplace support to be of greater importance were significantly less likely to express intent to work in PHC (p = 0.012)
Betony and Yarwood (2013) New Zealand	Exposure of undergraduate nursing students to PHC nursing	14 institutions who provide a BN programme	Survey	
Bloomfield et al. (2015) Australia	Intentions of final year nursing students to enter PHC after registration	456 final year nursing students from 14 universities	Survey	
Bloomfield et al. (2018) Australia	Factors associated with final year nursing students' intention to work in PHC	530 final year nursing students from 14 universities	Survey	

(continued on next page)

Table 2 (continued)

Reference/Country	Focus	Sample	Methods	Significant findings
Cooper et al. (2014) Australia	Evaluation of a Bachelor of Nursing (Community Health) degree	Enrolment data: 90 nursing students Focus groups: 38 nursing students	Focus groups Enrolment data	<ul style="list-style-type: none"> 23 were in first year and 15 were in second year of their degree Few students wanted to work in PHC despite being enrolled in a PHC focussed program Community and PHC units were seen as the least relevant to future nursing practice. Clinical laboratories were valued as these linked theory to practice Students preferred nurse academics to those from other professions Many students wanted more support to adjust to university learning The course had an 11% attrition rate. 1st year students had less insight due to limited exposure Students believed community nurses looked at the big picture; teaching patients, promoting health and linking resources within the community as a whole A perception that community nurses can dress nicely and do not get involved in difficult and dirty procedures Students believed community nursing is a lesser form of nursing and an easy way out Stereotypes caused some to feel reluctant to work in the community - people try to change their minds if they talk about PHC employment A belief that community health is for older nurses approaching retirement – since skill foundation are cultivated in hospitals Preparation for PHC was patchy across courses Four types of curriculum content were identified in which PHC is covered: <ul style="list-style-type: none"> Embedded health units covering broad topics such as sociology, psychology, health care systems, professionalisation or age-related content Indigenous health units Stand-alone units in community health/PHC/social determinants/social model Units with content on public/population health, prevention, health behaviour and health promotion There was not always a clear distinction between units of PHC and health promotion Some courses reflected a philosophy of PHC within the curriculum, but most covered PHC and health promotion as a topic within the curriculum 90.4% of participants were female 246 (69.5%) reported having completed public health course work 95 (26.8%) completed clinical placement in traditional public health agencies and 142 (40.1%) undertook their placements in non-traditional sites (school, prison, campus health, women's shelter, outpatient treatment facility, or international experience) 21.1% indicated they would be likely or very likely to consider a job in public health after graduation; 26.4% 1 year after graduation; 35% > 1 year after graduation Most important recruitment strategies as rated by students: Comparable wages to a hospital (96%); flexibility in scheduling (94.6%); tuition reimbursement (95.2%) Enrolling institution ($p = 0.008$) and placement in non-traditional setting were factors likely to contribute to public health employment immediately following graduation Those completing a public health theory class were less likely to seek public health employment
Duah (2015) Canada	Nursing students' perspectives of a community health nursing career	11 1st and 4th year nursing students from 1 university	Interviews Focus groups	
Keleher et al. (2010) Australia	The extent of professional socialisation and educational preparation of nurses for PHC	38 pre-registration nursing courses	Audit	
Larsen et al. (2012) US	Public health career intentions among undergraduate nursing students	165 junior and 189 senior nursing students from 2 institutions	Survey	

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Table 2 (continued)

Reference/Country	Focus	Sample	Methods	Significant findings
Mackey et al. (2018) Australia	Knowledge and attitudes of nursing students embedded in PHC focussed courses	286 nursing students from 2 universities	Survey	<ul style="list-style-type: none"> • 18 to > 50 years of age; 90.5% were female; 51% were born overseas • 95.8% were in their first year • Knowledge scores ranged from 19.68 to 95.78 (mean 69.19) • Attitude scores ranged from 33.12 to 93.88 (mean 70.45) • 94.4% knew that “accessibility to health care is a basic concept of PHC” • < 6% knew that “PHC focusses on setting targets and plans of action to meet national health goals” • Attitude items with the highest mean scores: “access to good health care is a fundamental right of all people” (3.73) and “helping people learn to stay well is an important role for nurses” (3.67) • Mean knowledge (p = 0.01) and attitude scores (p = 0.001) of Australian-born students were significantly higher than overseas-born students • Mean knowledge scores of metropolitan university students were significantly higher than those enrolled in the rural university (p = 0.002) • Older students’ mean attitude scores were significantly higher than younger students’ (p ≤ 0.005)
van Iersel et al. (2018a) UK	Perceptions of 1st year nursing students of community care	1058 1st year nursing students from 6 universities	Survey	<ul style="list-style-type: none"> • There was an overall knowledge deficit relating to the application of PHC concepts. • 71.2% would choose to go to a hospital for a clinical placement; 5.4% indicated they would go to a community centre. Elderly care was the least preferred area (4.1%) • Most participants considered community care to be important (mean = 8.39), meaningful (mean = 8.43), and good (mean = 8.32) • Items ‘attractive’ (mean = 5.36), ‘comfortable’ (mean = 5.85) and ‘interesting’ (mean = 5.88) scored relatively low • Enjoyable relations with patients and family, variety in caregiving and opportunities for advancement most vital in choosing a placement • Community care perceived to be looking after mostly older patients (mean = 8.72) with limited variety and advancement opportunities • Perceptions of community care sector were incongruent to what students considered important • Community nursing was perceived as a low-status job • Students had a limited idea of what community nursing entails • 76.8% in the BSN and Master’s entry to practice program indicated some PHC content in the curriculum • 6.6% indicated that they have implemented or are in the process of implementing PHC content in both theory and clinical practice • Enablers of PHC content delivery included: Senior leadership and progressive thinking of the faculty (42.3%), Collaborating with clinical partners (19.2%). Current trends in health care (10.9%). Insufficient number of acute inpatient care sites (9.2%), Combination of some of these forces (47.6%) • The biggest barriers to PHC content included: Lack of faculty interest (29.1%), More students than PHC placements (24.5%), Lack of RN preceptors in PHC (23.8%), Student expectations to receive clinical education solely in acute care (23.1%), Student perception of losing skills in PHC (22.1%) • Undergraduate education prepares students to work in acute care, whilst postgraduate MN students are prepared to work in PHC.
Wojnar and Whelan (2017) US	Barriers, enablers and current state of PHC content delivery in nursing programmes	529 institutions delivering pre-licensure and RN-to-BSN online education	Survey	

audited courses covered PHC as a topic within the curriculum (Betony and Yarwood, 2013; Keleher et al., 2010).

Two studies described the implementation of PHC within pre-registration curricula. The NZ study revealed that over three quarters of surveyed institutions embedded PHC concepts throughout the programme (Betony and Yarwood, 2013); while US universities implemented student community-based projects or online PHC programmes (Wojnar and Whelan, 2017). It was clear from both studies that some tertiary institutions are experiencing a curricular shift. This indicates some progress in terms of increasing PHC content delivery, however, there is insufficient evidence that this shift is sufficient to address the gaps identified in this review.

In contrast, Cooper et al. (2014) described their experience in offering a dedicated community health Bachelor of Nursing (BN) programme. Despite the potential allure of this program, many students reportedly did not see the importance of PHC content to their practice and few were inclined to want to work in PHC following graduation. This raises significant questions about the effectiveness of this strategy for enhancing PHC within undergraduate nursing programs.

5.1.3. Barriers and enablers to PHC content

A number of barriers were identified in delivering PHC content within undergraduate nursing curricula. Limitations around clinical placement availability impacted skills consolidation and socialisation into PHC settings (Albutt et al., 2013; Betony and Yarwood, 2013; Wojnar and Whelan, 2017). Other barriers were related to lack of academic staff with PHC expertise (Albutt et al., 2013; Wojnar and Whelan, 2017), variable understandings of PHC, tension between embedding concepts and discrete units of study (Keleher et al., 2010; Wojnar and Whelan, 2017), and student expectations (Betony and Yarwood, 2013; Cooper et al., 2014; Wojnar and Whelan, 2017).

A need to engage PHC nurses in curriculum development, and a more structured preceptorship programme was identified (Albutt et al., 2013; Ali et al., 2011). Senior leadership, faculty interest, collaboration with clinical partners and insufficient acute inpatient facilities were enablers to PHC content delivery (Wojnar and Whelan, 2017). Some enabling innovations have already been attempted, such as increased PHC placements (Betony and Yarwood, 2013). But while students in a BN programme with a community health focus commented that clinical laboratories linked theory to practice, the programme was not successful in recruiting the graduates to PHC (Cooper et al., 2014).

5.2. Knowledge and attitudes to PHC

Three studies reported data specifically around undergraduate nursing students' knowledge and attitudes toward PHC (Duah, 2015; Mackey et al., 2018; van Iersel et al., 2018a), whilst three other studies reported knowledge and attitudes as part of a broader study (Bloomfield et al., 2015; Cooper et al., 2014; Wojnar and Whelan, 2017).

5.2.1. Knowledge about PHC nursing

In the only study to measure knowledge of PHC amongst nursing students, Mackey et al. (2018) reported students had an overall understanding that PHC is an important aspect of people's healthcare. Knowledge scores were shown to be higher in Australian-born students and those enrolled in a metropolitan university (Mackey et al., 2018). Participating nursing students appreciated the societal importance of PHC (Mackey et al., 2018; van Iersel et al., 2018a), and correctly associated community nursing with health promotion, education and low patient acuity (Duah, 2015). However, others have reported that nursing students underestimate PHC nursing and consider this to be the least relevant in their degree (Betony and Yarwood, 2013; Cooper et al., 2014; van Iersel et al., 2018a; Wojnar and Whelan, 2017). Some studies reported that PHC content should be delivered either as an elective (Cooper et al., 2014) or as postgraduate content (Wojnar and Whelan,

2017).

Bloomfield et al. (2015) reported that over three quarters of their student participants were familiar with the PHC nurses' role. However, van Iersel et al. (2018a) described that participants had limited understanding of the PHC nursing role. van Iersel et al. (2018a) also reported that student participants believed community nurses are mostly involved in caring for the elderly. This gap was reflected in an Australian study where less than 6% knew that PHC focusses on target setting and action plans to meet national health goals (Mackey et al., 2018). These misconceptions reportedly led to ambivalence in subsequent career choices (Duah, 2015).

5.2.2. Attitudes to PHC nursing

There was variation in student attitudes to PHC, as well as a disconnect between students' appreciation of PHC in society, and their attitude towards it in a more personal way (van Iersel et al., 2018a). Some studies described an overall positive attitude towards PHC among students (Mackey et al., 2018), such as students who valued learning about the PHC nursing role (Bloomfield et al., 2015). In contrast, others reported that students viewed PHC nursing as not 'real nursing' (Cooper et al., 2014; Duah, 2015; van Iersel et al., 2018a).

Potentially arising from these stereotypes are perceptions that a PHC career is an easy way out (Duah, 2015) and a low-status job (van Iersel et al., 2018a). Two studies described perceptions that working in PHC can limit opportunities for skill practice and diminish potential for career advancements (van Iersel et al., 2018a; Wojnar and Whelan, 2017). A belief that PHC is for older more experienced nurses whom otherwise have accumulated sufficient acute care nursing skills was also reported (Bloomfield et al., 2015; Duah, 2015). Participants also described PHC nurses as those who can look pretty and do not engage in complicated 'dirty' clinical procedures (Duah, 2015). Interestingly, Mackey et al. (2018) reported that attitude scores of older students were significantly higher than younger students.

5.3. Students' intention to work in PHC

Three studies specifically explored undergraduate nursing students' intention to work in PHC (Bloomfield et al., 2015, 2018; Larsen et al., 2012). There is some evidence that attitudes to PHC nursing can impact career intention, with participants who valued learning about the PHC nurses role more inclined to seek PHC employment (Bloomfield et al., 2018).

5.3.1. Age as a predictor for PHC career intention

Both Bloomfield et al. (2018) and Bloomfield et al. (2015) reported that less than a quarter of participants intended to work in PHC in the near future. Bloomfield et al. (2018) reported that age was a significant predictor for career intention, with older students more inclined to want to work in PHC. Additionally, Larsen et al. (2012) identified that participants did not see themselves working in public health until they were further along in their career.

5.3.2. Curriculum exposure/clinical placements

There is variable evidence of the impact of PHC clinical placements and curriculum exposure on nursing students' intent to work in PHC. Bloomfield et al. (2015) reported that PHC placements did not influence career intention. However, Bloomfield et al. (2018) reported that placements were a predictive factor and that students who had a PHC placement during their undergraduate education were more likely to intend to work in PHC upon graduation.

Larsen et al. (2012) identified that placement location impacted students' career intention. Furthermore, nursing students' limited exposure to nursing courses in their first-year may limit insight into community nursing roles, which can further lead to misconceptions about this area of nursing (van Iersel et al., 2018a). Enrolling institution was also a significant variable to career intention (Larsen et al., 2012),

which may indicate that other factors about the program and its delivery may be important influences.

5.3.3. Employment conditions

Perceived employment conditions contributed to student nurses' intention to work in PHC (Bloomfield et al., 2018; Larsen et al., 2012). Participants who considered employment conditions to be important were more likely to express a desire to work in PHC (Bloomfield et al., 2018). Indeed, Larsen et al. (2012) identified comparable wages, schedule flexibility and tuition reimbursement as the top three recruitment strategies. However, Bloomfield et al. (2018) identified that students who valued workplace support, including preceptor support, were less likely to intend to work in PHC.

6. Discussion

This integrative review has provided an insight into the impact of undergraduate nursing curricula on students' understanding and perceptions of, as well as their preparedness to work in PHC settings. It has drawn together international literature and synthesised findings to highlight gaps in knowledge for future research. The findings highlight the acute care focus of current undergraduate nursing curricula, and gaps exist in undergraduate nursing students' knowledge about PHC despite the shift of the workforce. These may be important factors contributing to the low career intention in PHC among graduate nurses internationally. Given the need to continue to grow and sustain the PHC nursing workforce, the review highlights the need for urgent attention towards the preparation of new graduate nurses for PHC employment.

The finding that undergraduate nursing curricula remain acute-care focussed supports previous evidence that contemporary nursing education falls short in responding to the shifting focus of health care delivery from hospital to community (Albutt et al., 2013; Ali et al., 2011; Peters et al., 2013). As health systems shift to have stronger PHC services, we need to build and maintain a strong PHC nursing workforce to meet community demands. It is vital to engage accreditation agencies in driving undergraduate nursing curricula to meet current and emerging clinical trends. Accreditation bodies should monitor collaboration between nursing schools and PHC organisations to ensure that students are influenced by clinically relevant role models who can provide an accurate representation of contemporary PHC and integrate PHC theory and clinical practice (van Iersel et al., 2018b). Additionally, accreditation bodies should ensure that entry-to-practice competencies are applicable to pre-registration nurses across practice settings to assist in theoretical knowledge translation (Schofield et al., 2018). The fact that the focus of curricula has not yet shifted to include PHC highlights the need for accreditation bodies and curriculum developers to be more agile in responding to trends in health service delivery. There is a real need to ensure that curricula keep pace with evolving trends to future proof the nursing profession (Ralph et al., 2014).

A lack of academics experienced in PHC was identified as one of the biggest barriers in preparing students for a career in PHC (Albutt et al., 2013; Ali et al., 2011; Wojnar and Whelan, 2017). The PHC nursing role has developed significantly in recent years and, as such, is not necessarily well understood by the broader nursing profession (Halcomb et al., 2017), including nurse academics. This is an important consideration as nurse academics are strong role models for their students (Gibbs and Kulig, 2017). The gap highlights the need to ensure that nurses with PHC expertise are engaged to develop and deliver PHC content. Strategic appointments of nurses with PHC expertise to Schools of Nursing is an important step in both building the career pathway and capacity within curricula. However, much like in clinical nursing, there are workforce shortages of academic staff. Clearly strategies implemented to recruit academics need to consider not only cultural and ethnic diversity (Bittner and Bechtel, 2017), but also diversity of clinical expertise to ensure that nursing students are exposed to a range of influences during their education.

The final key finding was around the negative perceptions of the PHC nurse role (Duah, 2015; van Iersel et al., 2018a). Nursing students have previously been shown to have a limited understanding of PHC nursing and the complexities of the role (McInnes et al., 2015b; van Iersel et al., 2016). These beliefs also resonate with previous work on clinical placements which revealed that student nurses believe hospital experience is required before working in general practice (McInnes et al., 2015a), as well as in studies on transition and career expectations following registration (Aggar et al., 2017; Thomas et al., 2018).

Interestingly, McInnes et al. (2015a) found that these negative perceptions were significantly shifted once students had the opportunity to experience high quality PHC clinical placements. Clinical experience is an important tool in shaping students' attitudes to their learning, professional role development and clinical skills (Henderson et al., 2012), and it is the combination of theoretical and clinical experience that can influence career intentions (McCann et al., 2010). Exposing nursing students to high quality PHC clinical experiences can aid preparation and stimulate interest in PHC (Peters et al., 2015). Universities must strengthen clinical placement programs across PHC settings and continue to promote PHC as a feasible career option (Peters et al., 2015). Ensuring that all undergraduate students undertake a quality, well supported clinical placement in PHC is one strategy for promoting career opportunities in this setting. However, the small business structure of general practices and relatively small nursing numbers seen in many PHC settings adds complexity to providing such clinical placements, particularly in programs with large student cohorts (Peters et al., 2013).

To ensure that clinical placements promote PHC as a feasible career option, it is important that the nurses within these settings have a positive perception of their role and project positive perspectives about a career in PHC. There is some evidence that currently PHC nurses lack a sense of identity, are challenged by articulating their role and its value, and project variable support for graduate nurses seeking to enter PHC (Halcomb et al., 2012; Thomas et al., 2018). Strategies to build the identity of PHC nursing and increase its visibility within the nursing profession have the potential to not only improve the confidence and contribution of current PHC nurses, but can also help to build student exposure through increased awareness of the issues and more positive introductions to the setting.

While various strategies have been trialled at a local level in different locations with variable success, this review highlights that there is still more to be done to address the key issues. Gaining the support of policymakers, professional organisations and accreditation bodies is vital to achieve real change in pre-registration nurse preparation. Such support requires robust evidence from the perspectives of education providers, PHC workplaces and nursing students/graduates to guide strategic planning. Perhaps one of the challenges is that much of the evidence comes from studies that broadly examine PHC and all its relatively disparate clinical settings, which may have different and unique issues (Mackey et al., 2018; Schofield et al., 2011). Further research should concentrate on students' preparedness to work in key PHC settings where large numbers of nurses work, such as general practice, community health or rural and remote health services.

6.1. Limitations

This integrative review has several limitations. Despite systematic searching, only 12 studies from 5 countries were identified. Geographically, studies reviewed were mostly published in developed countries. Consequently, the structure of PHC sector and how PHC content is delivered within the BN curricula in other parts of the world were not represented. The included studies explored PHC in the context of community or public health, or as a whole sector, but specific clinical areas, such as general practice, which make up a large section of the PHC sector were not explored separately.

7. Conclusion

The acute-care focussed nature and inconsistencies in PHC content delivery in undergraduate nursing curricula may contribute to low numbers of students intending to work in PHC following graduation. Collaboration between accreditation bodies, universities and experienced PHC nurses, is crucial in the development of a more inclusive curriculum. Future strategies should focus on challenging perceptions of PHC and the PHC nurse role to improve the allure of this important area of practice. In particular, equipping students with required skills and knowledge, as well as an understanding of working in this area through curriculum content and structure may provide undergraduates with the desire and confidence to seek employment in PHC following graduation. Given the importance of a strong PHC nursing workforce to meet the demands of chronic and complex disease, the review highlights the need for urgent attention towards the preparation of nursing graduates for PHC employment.

Author contributions

Conception and design of the study, or acquisition of data, or analysis and interpretation of data; KC, EH, MS, Drafting the article or revising it critically for important intellectual content; KC, EH, MS, Final approval of the version to be submitted; KC, EH, MS.

Conflicts of Interest Statement

The author(s) have declared no conflicts of interest.

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