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**Citation:** McCann, E. & Brown, M. (2018). The inclusion of LGBT+ health issues within undergraduate healthcare education and professional training programmes: A systematic review. *Nurse Education Today*, 64, pp. 204-214. doi: 10.1016/j.nedt.2018.02.028

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**Link to published version:** <https://doi.org/10.1016/j.nedt.2018.02.028>

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# **THE INCLUSION OF LGBT+ HEALTH ISSUES WITHIN UNDERGRADUTE HEALTHCARE EDUCATION AND PROFESSIONAL TRAINING PROGRAMMES: A SYSTEMATIC REVIEW**

## **Authors:**

Edward McCann, Assistant Professor, School of Nursing and Midwifery, University of Dublin, Trinity College, Dublin, Ireland.

Email: [mccanned@tcd.ie](mailto:mccanned@tcd.ie)

Tel: +353 1 896 4161

Michael Brown, Professor of Nursing, Queen's University Belfast, School of Nursing & Midwifery, 97 Lisburn Road, Belfast, Northern Ireland.

Email: [m.j.brown@qab.ac.uk](mailto:m.j.brown@qab.ac.uk)

Tel : +447879 433215

## **\*Corresponding Author:**

Dr Edward McCann· Trinity College Dublin, School of Nursing and Midwifery

24 D'Olier Street, Dublin 2, Republic of Ireland

Tel: +353 8964161

## **Funding:**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## **Author contributions:**

EM and MB designed the review, conducted searches, critical appraisal and analysis of the data. Both authors reviewed drafts and prepared and finalised the review for publication.

**Word count:** 4,274

# THE INCLUSION OF LGBT+ HEALTH ISSUES WITHIN UNDERGRADUATE HEALTHCARE EDUCATION AND PROFESSIONAL TRAINING PROGRAMMES: A SYSTEMATIC REVIEW

## ABSTRACT

**Background:** An inclusive health curriculum within undergraduate and continuing professional development programmes (CPD) should include issues related to people whom identify as LGBT+.

**Objectives:** The aim of this systematic review was to examine the education and training requirements of undergraduate students and health professionals regarding the inclusion of LGBT+ health.

**Design:** A systematic review of the available published empirical studies.

**Data sources:** A systematic literature search was undertaken of the following databases: CINAHL, PubMed, PsycINFO, Embase and Sociological Abstracts. All papers reviewed were from the years 2007 to 2017 and written in English.

**Review methods:** Three research questions informing the literature review were: (i) What are the education and training requirements of undergraduate students and health professionals regarding the health needs of LGBT+ people? (ii) What are the approaches utilized in the education and training of undergraduate students and health professionals regarding the health needs of LGBT+ people? (iii) What are the best practice examples of the education and training of undergraduate students and health professionals? Following the application of definitive criteria, 22 papers were included in the review. Quality appraisal and data extraction was undertaken by two of the authors.

**Results:** The 22 papers were reviewed in detail in the final data analysis and synthesis where four main themes were identified: (1) Cultural competence and inclusivity. (2) Existing knowledge of

LGBT+ health-related issues. (3) Curriculum developments and outcomes. (4) Evidence of best practice in education delivery.

**Conclusion:** The review highlights the importance of the inclusion of LGBT+ health-related issues within the health curriculum and continuing professional development programmes and the implications for education and training, clinical practice and research.

### **Keywords**

LGBT+, health education, health professionals, systematic review, medicine, nursing, allied health

## **1. Introduction**

To be more fully inclusive of the range of sexual and gender identities, including groups such as asexual, intersex, questioning and queer, the contemporary umbrella term LGBT+ is now being more widely adopted (Formby 2017; Fredriksen-Goldsen 2016). This is the term used throughout this paper.

There is a global interest in providing access to adequate healthcare for all (Australian Human Rights Commission 2014; Department of Health 2013; Ontario Human Rights Commission 2014), and to specific groups such as people whom identify as lesbian, gay, bisexual (Institute of Medicine 2011; Royal College of Nursing 2016; Royal College of Nursing 2017; World Health Organization 2013). However, while this is laudable, there remains significant gaps, in for example, the research evidence-base focusing on the distinct needs of people who are transgender and intersex. This is despite the existing concerns around social inclusion, human rights, discrimination and marginalisation (McCann and Brown 2017) and the challenges and negative attitudes faced by LGBT+ people when accessing and using health services (Dearing and Hequembourg 2014; Mayock et al. 2008; Stewart and O'Reilly 2017).

## 2. Background

There is clear evidence of the distinct health needs and service requirements of people whom identify as LGBT+. Physical health needs include sexually transmitted infections (STIs) including Human immuno-deficiency virus (HIV), hepatitis (Cahill and Makadon 2013; The Royal College of General Practitioners (Northern Ireland) 2015). Mental health conditions are also prevalent such as anxiety, depression, self-harm, suicidal ideation, attempted suicide and drug and alcohol use (King et al. 2008; Kuyper & Fokkema 2011; McCann and Sharek 2016). Furthermore, there are wider psychosocial issues that can have negative consequences for LGBT+ people. Prejudice, discrimination and victimization experiences can have a profound effect upon a person's well-being and may result in *minority stress* (Hendricks & Testa 2012; Meyer 2015). The minority stress model demonstrates the potential damaging effects of internalized homophobia, biphobia and transphobia. These negative societal reactions to an LGBT+ identity can lead to poor psychosocial outcomes including anxiety, depression, drug use and suicidality (Bariola et al. 2015; Grossman et al. 2011; McCann and Sharek 2016). Also, stigma-related experiences can have a significant impact upon health service access and utilization (Bauer et al. 2009, Grant et al. 2011; McCann and Sharek 2013).

To facilitate an improved healthcare experience, it is necessary to make available a responsive, appropriate and well-resourced health services that is delivered by knowledgeable and skilled health practitioners (Health Service Executive 2009; Institute of Medicine 2011; Transgender Equality Network Ireland 2013). There is an important role for higher education providers and health services to support the development of curricula that can reach all groups, including people who identify as LGBT+ (Lim and Bernstein 2012). Existing studies have looked at developing cultural sensitivity and the enhancement of cultural competence in health training

programmes such as psychiatry (Willen, 2013), dentistry (Behar-Hoenstein and Feng 2017), physician assistant training (PA) (Kelly, 2012) and nursing (Sirota 2013). Other studies have investigated heteronormativity in healthcare and education and the potential impact on the student learning experience (Ripley et al. 2012, Singer 2015) and ultimately on the lives of LGBT+ service users (Enson 2015). Significant gaps still exist in the preparation of culturally competent practitioners in both education and health service delivery. Therefore, it is the purpose of this review to examine the education and training requirements of health practitioners, identify good practice examples and to make recommendations for developments in practice, research, education and training.

### **3 Methods**

#### *3.1 Aim*

The aim of this systematic review was to identify the educational needs of undergraduate students and health professionals and the approaches used in their education and in relation to people who identify as LGBT+. The review questions were:

1. What are the education and training requirements of undergraduate students and health professionals regarding the needs of LGBT+ people?
2. What are the approaches utilized in the education and training of undergraduate students and health professionals regarding the needs of LGBT+ people?
3. What are the best practice examples of the education and training of undergraduate students and health professionals?

#### *3.2 Design*

The systematic review was guided by recognized methods that supported the development of ‘mapping’ and narrative integration’ of the data (Arskey and O’Malley 2005).

#### *3.3 Inclusion criteria*

The inclusion criteria were limited to academic journals and peer reviewed empirical studies written in English. Studies were included that focused specifically on the education of undergraduate students and training of health professionals about the needs of LGBT+ people. The education and training approaches utilized and examples of good educational practices were also included.

### *3.4 Participants*

The review considered studies that included the views of undergraduate students and healthcare professionals and educators regarding LGBT+-specific issues.

### *3.5 Phenomena of interest*

The review examined the experiences of healthcare professionals, undergraduate students and educators regarding the needs of LGBT+ people.

### *3.6 Study types*

The review included peer-reviewed studies that used quantitative, qualitative or mixed methods approaches.

### *3.7 Search and selection strategy*

A subject Librarian assisted in devising the literature search strategy. The databases used in the search were CINAHL, MEDLINE, PsycINFO and Sociological Abstracts. The search terms used included gay, lesbian, bisex\*, intersex\*, transgender\*, education, training, curricular\*, physician\*, doctor\*, nurs\*, health professional. Boolean operators AND/OR were used. The data were published from August 2007 to August 2017. An example of the search strategy used in one electronic database is shown in Table 1.

\*\*\*Insert Table 1 here\*\*\*



The *PRISMA* method for reporting the results of the searches was used (Moher et al. 2015) (see Figure 1). The searches revealed 943 hits across all the databases. These were screened and irrelevant and duplicates were removed leaving 325 papers that were further screened by title and abstract. A total of 37 full text articles were assessed against the eligibility criteria and a further 16 excluded. The primary reasons for exclusion included: not focusing specifically on education and LGBT+ people; not explicitly addressing LGBT+ issues; were commentary, discussion, opinion and position papers. This left a total of 22 studies that were included for full review and synthesis (see Figure 1).

\*\*\*Insert Figure 1 here\*\*\*

### 3.8 *Quality assessment*

A quality assessment tool, the *Critical Appraisal Skills Programme* (CASP) was used as framework to review the papers. (Critical Appraisal Skills Programme, 2013). Relevant questions were applied to the individual studies (Table 2). Each question was scored zero, one or two out of a possible 20 points. A score of zero was given if the paper contained no information, one if there was a moderate amount, and a score of two if the question was fully addressed (Rushbrooke, Murray & Townsend 2014). A total of 13 studies scored 17 and above (Bidell et al. (2017), Carabez et al. (2015b, Daley & MacDonnell 2015, Echezona-Johnson 2017, Grosz et al. 2017, Kelley et al. 2008, Lim et al. 2015, Obedin-Maliver et al. 2011, Parameshwaran et al. 2017, Rogers et al. 2013, Strong and Folse 2014, Walsh and Hendrickson 2015, White et al. 2015). A total of 9 studies scored between 14 and 16, indicating gaps and limitations in relation to aims, data collection methods, and ethical concerns (Carabez et al. 2015a, Cheng & Yang 2015, Corliss et al. 2007, Fredriksen-Goldsen et al. 2011, Gendron et al. 2013, Hardacker et al. 2014, Røndahl 2011, Sequeria et al. 2012, Vance et al. 2017). None of the studies scored less than 14 and all

studies were considered suitable for the systematic review as they addressed and met the inclusion criteria.

\*\*\*Insert Table 2 here \*\*\*

### *3.9 Characteristics of the selected studies*

The 22 studies that addressed the aim of the systematic review are contained in Table 3. Most of the selected studies (n=18) were conducted in the USA. The remaining countries were Canada (n=1), Sweden (n=1), Taiwan (n=1) and UK (n=1). Only two studies had a trans\* specific focus. Studies included students, health professionals and faculty members. A significant number of studies investigated nursing (n=8) and medical students' (n=7) experiences of LGBT+ issues. One study involved both nursing and medical students. Some of the studies involved inter-professional groups (n=4) and allied health professionals (n=2). Data collection techniques included qualitative methods (interviews, online postings, documentary and observational) (n=7), quantitative methods (surveys and measures) (n=9) and mixed methods (surveys with comments, survey and measures, survey and focus groups (n=6). Participant numbers varied between 9 and 1,231.

\*\* Insert Table 3 here \*\*\*

### *3.10 Data extraction and analysis*

The process of data analysis and synthesis involved the extrapolation of themes that addressed the aims of the research. These were coded from the results of the included studies, organised according to concepts and verified and agreed by the research team (Mays et al, 2005).

## **4 Findings**

The aim of this systematic review was to consider the literature around the education of undergraduate students and the training of health professionals in relation to people whom identify as LGBT+. Following analysis of the included studies, four main themes emerged from the data: (1) Cultural competence and inclusivity. (2) Existing knowledge of LGBT+ health-related issues. (3) Curriculum developments and outcomes. (4) Evidence of best practice in education delivery and evaluation. Each theme is presented and discussed in turn.

#### *4.1 Developing cultural competence and inclusivity*

It has become clear, through this review, that issues exist around the development of cultural competence to enable practitioners to deliver care and supports in culturally responsive, sensitive and inclusive ways (Corlis et al., 2007; Fredriksen-Goldsen et al., 2011; Carabez et al., 2015b; Chen and Yang, 2015; Walsh and Hendrickson, 2015; Echenzona-Johnson, 2017; Parameshwaran et al., 2017). In one UK study involving medical students, where almost 85% of participants reported a distinct lack of LGBT+ education, nearly half said that they would not routinely ask about sexuality or gender identity needs when assessing patients. Students admitted feeling a lack of confidence and poorly prepared regarding LGBT+-specific health care terminology and this may lead to miscommunication and potential shortcomings in the provision of adequate health and social care (Parameshwaran et al., 2017). Some education programmes, identified in this review, had attempted to embed suitable LGBT+ content into their curricula, however with varying levels of success. Identified barriers included student and staff negative attitudes including preconceptions and biases about LGBT+ people (Fredriksen-Goldsen et al., 2011;) stereotypical beliefs (Carabez et al., 2015b) gendered values (Chen and Yang, 2015) and an acceptance of the prevailing heteronormative practices and policies (Daley and MacDonnell, 2015). Some

commentators have argued that nursing and allied health practices and procedures remain predominately ‘heterosexist’ (Röndahl, 2011; Carabez et al., 2015b). Ways in which health practitioners may be helped and supported in their work among LGBT+ populations is through the provision of adequate education and training initiatives. Nurses and others need to be able to explore their own attitudes, beliefs and preconceptions; explore LGBT+ specific physical and psychosocial needs and develop the confidence and skills to respond competently and confidently with the necessary supports and requirements of LGBT+ people, their friends and families (Carabez et al., 2015b; Walsh and Hendrickson, 2015; Echezona-Johnson, 2017). Furthermore, a robust LGBT+ curriculum within undergraduate health programmes would have widespread appeal by offering a specific focus on interpersonal and communication skills, health knowledge and appropriate terminology, and cultural competency; essential components in student and practitioner professional development (Obedin-Maliverat et al., 2011; Sequeria et al., 2012; Lim et al., 2015). The most effective way to promote equitable access to services for all is to provide education and training for both undergraduate students and healthcare practitioners that equips them with competent knowledge and skills for the delivery of affirming, respectful and socially inclusive care (Lim et al., 2015; Parameshwaran et al., 2017).

#### *4.2 Existing knowledge of LGBTQ health related issues*

A recurring theme across a number of studies related to the limited, variable and often patchy inclusion of LGBT+ health within the undergraduate curriculum for student doctors, nurses and other health professionals. Therefore, there is a need to develop the knowledge, skills and understanding of undergraduate students undertaking preparation as healthcare professionals and continuing professional development for existing professionals of the specific health needs and

concerns of LGBT+ people (Corliss et al., 2007; Kelley et al, 2008; Obedin-Maliver et al., 2011; Gendron et al, 2013; Hardacker et al., 2014; Carabez et al., 2015a; Dale & MacDonnell 2015; Lim et al., 2015; Strong and Folse 2014; Vance et al., 2017; Bidell et al., 2017; Echezona-Johnson 2017; Grosz et al, 2017).

Central to addressing the health needs and concerns of LGBT+ people is the need to proactively integrate the subject area within the undergraduate health curriculum for all students (Kelley et al., 2008; Strong and Folse 2014; Grosz et al., 2017). From an undergraduate and Continuing Professional Development (CPD) perspective, undertaking pre-baseline assessments of the knowledge, attitudes, values, confidence and perceived capabilities and learning needs is an important starting point when integrating LGBT+ issues and concerns within the health education curriculum (Carabez et al., 2015a; Bidell et al., 2017). A range of approaches to teaching and learning have been advocated to support the delivery of LGBT+ health issues within the curriculum. They include the need to develop new LGBT+-sensitive education materials, multilingual learning resources and the use of e-learning technologies and Problem-Based Learning (PBL) to increase and widen access and participation (Röndahl 2011; Genderon et al., 2013; Hardacker et al., 2014; Vance et al., 2017). Clinical skills simulation can be used to enable undergraduate students to challenge negative and stereotyping beliefs regarding LGBT+ people and build and develop confidence and skills (Röndahl 2011). Clinical attachments and practice assessments offer the opportunity for undergraduates to develop skills in sexual history taking, formulating interventions, increasing self-awareness of inclusive practices and developing cultural competence and LGBT+ sensitive care and support skills (Kelley et al., 2008; Strong and Folse 2015; White et al., 2015).

Continuing Professional Development (CPD) for health professionals is also an area that requires attention and development to ensure that they have the knowledge and skills necessary to address issues related to personal attitudes and values, discrimination, prejudice, stigma and oppression that enables the delivery of culturally competent health care to LGBT+ people now and in the future (Carabez et al., 2015a; Daley & MacDonnell 2015; Bidell et al., 2017). Evidence further highlights that many health professionals have limited previous education and practice development regarding LGBT+ health issues and concerns beyond the care and support of patients with HIV and AIDS (Corliss et al., 2007). Several approaches to the delivery of LGBT+ professional development opportunities have been suggested. They include, developing new LGBTQ education tools and resources, the use of workshops and train-the-trainer programmes and education available in multi-lingual formats and flexible on-line learning materials to enable wider access (Corliss et al., 2007; Fredriksen-Goldsen et al., 2011; Hardacker et al., 2014; Daley & MacDonnell 2015; White et al., 2015).

Prior to the delivery of both undergraduate and CPD education is the need to undertake pre-assessments of undergraduate students and health practitioners of their preparedness, attitudes, values, experiences and knowledge of LGBT+ psychosocial health needs and concerns (Bidell et al., 2017). The use of self-assessments prior to delivery of the education can also act to raise and increase student self-awareness by facilitating individual reflection and of the impact of learning about LGBT+ health and enable the identification of future learning needs and areas requiring further development (Carabez et al., 2015a; Bidell et al., 2017). Post curriculum delivery evaluation is also necessary at different time points to evaluate the effectiveness and impact of the education to identify changes in knowledge, skills, attitudes, confidence and competence to meet the needs of LGBT+ people (Carabez et al., 2105a). The use of formative and summative

assessments to identify learning and development of knowledge, skills, confidence and competence regarding LGBT+ health is also required as an integral part of curriculum delivery.

#### *4.3 Curriculum evaluation and research*

A recurring theme emerging from this review is the need for formal evaluation and research of the integration of LGBT+ needs within the health curriculum (Corliss et al., 2007; Kelley et al., 2008; Gendron et al., 2013; Rogers et al., 2013; Carabez et al., 2015a; Daley & MacDonald 2015; White et al., 2015; Biddell et al., 2017; Echezona-Johnson 2017; Grosz et al., 2017). Undertaking initial base-line evaluations of the existing knowledge, experiences, skills, values attitudes and understanding of the health and wider care and support needs of LGBT+ people is an area that needs to be incorporated into the curriculum at the outset (Carabez et al., 2015a; Bidell et al., 2017). There is an absence of post-curriculum evaluations that formally reviews and identifies the impact and outcomes that have been achieved through the inclusion and delivery of LGBT+ health; this is an area that needs to be incorporated and reviewed against the program learning aims and outcomes (Gendron et al., 2013; Daley & MacDonald 2015; White et al., 2015; Echezona-Johnson et al., 2017). Formative and summative assessments and examinations also offer an opportunity to review learning and the understanding of students following the integration of LGBT+ health needs within courses (Carabez et al., 2015a).

As LGBT+ health is more widely integrated within the curriculum of undergraduate student and within CPD programmes for health practitioners, there is a need to undertake longitudinal studies that identifies the impact on practice. Longitudinal studies and long-term curriculum evaluations should aim to identify changes and development of positive attitudes and values towards LGBT+ people and in knowledge of their specific health and support needs that

goes beyond the 'traditional' sexual health issues, such as HIV and AIDS (Gendron et al., 2013; Daley & MacDonald 2015). Longitudinal studies also offer the opportunity for national and international collaborations that follow-up undergraduate students as they move forward into their professional careers to identify sustained changes in attitudes, values and knowledge and skills acquisition (Kelley et al., 2008; Gendron et al., 2013; Rogers et al., 2013; Grosz et al., 2017). Longitudinal studies including the views and experiences of LGBT+ people of health professionals and their healthcare experiences also need to be undertaken (Corliss et al., 2007; Frediksen-Goldsen et al., 2011).

#### *4.4 Evidence of best practice in education delivery*

The review has revealed important shortcomings in adequately addressing LGBT+ concerns within both current undergraduate health education and continuing professional development training programmes. However, useful information has emerged from the existing research that may inform future curricular developments. Several studies highlighted specific approaches and strategies to enhance and support student learning experiences in relation to knowledge, attitudes and the development of cultural competence in caring for LGBT+ people (Bidell et al. 2017; Vance et al. 2017; Carabez et al. 2015a; Gendron et al. 2013; Sequeria et al 2012). A range of methods were used including presentations, scripted interview sessions, group-work and e-learning technologies (Vance et al. 2017). To highlight particular psychosocial issues faced by older LGBT+ people such as invisibility, social isolation and discrimination, the use of training panels was evaluated among inter-professional health practitioners (n=605). A significant proportion of participants (94%) found the training beneficial to their own practice such as increasing knowledge, facilitating self-reflection and promoting a deeper understanding and



acceptance of pertinent issues faced by people who identify as LGBT (Rogers et al. 2013). Another positive example of innovative approaches to teaching and learning was a student-led session by medical students delivered to first-year student colleagues. It consisted of a presentation, a patient panel and a group discussion. Participants particularly valued the patient panel and rated their experience highly in terms of preparedness, comfort and confidence (Grotz et al. 2017). Experiential exercises using interview scenarios have been utilized to develop cultural awareness of potential health issues related to LGBT individuals and families (Carabez et al. 2015a). Some studies supported the inclusion and embedding of LGBT concerns and issues into the broader healthcare curriculum to complement interpersonal and communication skills development (Glendron et al. 2013; Sequeria et al. 2012). In order to address health inequalities and support inclusive practices, including affirmative approaches, there needs to be the full backing of relevant professional regulatory bodies to include LGBT+ content in the health curricula (Strong and Folse 2014).

## **5 Discussion**

In many countries across the world there have been major legislative developments that have recognised and strengthened the position of LGBT+ people (World Health Organization 2013). These advancements have enshrined within legislation the fundamental human rights and equality directives necessary to tackle discrimination, marginalisation and social exclusion. The positive legislative developments include human rights, civil partnership, marriage equality, adoption and fostering (Henry & Wetherell 2017). Despite the important evolving legislative context that provides protection for LGBT+ people, there remain challenges that need to be addressed within the healthcare arena. The key findings from this systematic review have revealed significant gaps in the development of cultural competence in LGBT+ health issues for

undergraduate students and practitioners and the limited availability of appropriate education and training opportunities. Addressing this is necessary as education and training can result in the acquisition of important knowledge and skills, an opportunity to question attitudes and beliefs, and explore ways to reduce stigma and implement best practice approaches to providing appropriate, responsive and affirmative care.

The review has highlighted the importance of developing curricula that is influenced by the latest evidence and include learning about key terminology, stigma and discrimination, sexuality and sexual concerns, talking about sex and LGBT+ -specific health issues and health disparities (Chen and Yang 2015; Echenzona-Johnson 2017; Sekoni et al. 2017). Educational programmes should be supported by professional organisations such as the Medical Colleges, Royal College of Nursing and The General Medical Council; international bodies such as the United Nations and World Health Organisation (WHO); and non-statutory groups such as Stonewall in the United Kingdom (UK). A recent educational initiative between Cardiff University and Stonewall involved embedding LGBT+ -specific content in their undergraduate nursing courses in order to create a more inclusive health curriculum (Pearce 2017).

It has become increasingly clear from this review that opportunities exist for the development and inclusion of LGBT+ -specific needs and issues within undergraduate, postgraduate and continuing professional development (CPD) programmes (Carabez et al. 2015a; Gendron et al. 2013; Groz et al. 2017; Kelley et al. 2008). It has become evident that there is an absence of studies that relate to cross-disciplinary learning at undergraduate level. Inter-professional teaching and learning approaches could be utilized to support practitioners to develop awareness, clinical expertise and skills to work competently, ethically and effectively with LGBT+ clients and their families (Freeth et al. 2008). Learners would be able to share experiences, develop interpersonal

and communication skills, question their own attitudes and biases, reflect on key issues and identify LGBT+ -specific psychosocial and health concerns. Although the review has highlighted important concerns for practice developments, some initiatives do exist, mainly in the United States (US), that address LGBT+ clinical competence training and education that is provided by community-based organisations and healthcare agencies. A good example is the National LGBT Health Education Center at the Fenway Institute where practitioners receive awareness, knowledge and skills training to work more effectively with LGBT+ client groups (Reisner et al. 2015).

It is evident from the wider research literature related to LGBT+ people, that they continue to experience discrimination and barriers to accessing healthcare which further contributes to their poor health and social exclusion (McCann and Brown 2017; McCann and Sharek 2016). Given the extent of the research evidence in the area, there is a need to undertake further studies focusing on LGBT+ health in the undergraduate curriculum that are international and multi-centred. This would allow for studies to be undertaken between different universities, countries and continents thereby allowing larger samples with a wider international and transcultural focus thus enabling comparisons to be made. There is also a need to research the impact and outcomes of the inclusion of LGBT+ health within the undergraduate health curriculum and continuing professional development programmes. Therefore, there is an opportunity to undertake longitudinal studies focusing on pre- and post-evaluation LGBT+ health education and training programmes to identify change over time. There is currently no available research evidence identifying the long-term impact of including LGBT+ health within the undergraduate health curriculum or CPD programmes. There are no research studies that have studied the impact of including LGBTQ health within education initiatives from the perspective of patients who are LGBT+. This would enable the identification of changes in attitudes, values, confidence, competence and improved

knowledge and skills leading to the delivery of culturally sensitive and positive, affirmative approach to care, treatment and support.

## **6 Strengths and limitations**

This systematic review has identified important issues that need to be addressed to ensure that undergraduate students and health practitioners possess the appropriate knowledge, skills, attitudes and values necessary to meet the distinct health needs of LGBT+ people. Tools have been developed to assist educators, undergraduate students and practitioners to identify areas related to LGBT+ health where further development is required. The identification of areas of best practice about LGBT+ health within the curriculum offers a useful starting point for educators to review their current programmes and develop and improve content and assessment strategies. However, in terms of empirical evidence, the review is limited by the paucity of studies, beyond the USA, where most had been conducted. There were no international, multi-centred studies or studies focusing on specific LGBT+ subgroups, such as transgender and intersex people. There were no longitudinal studies identifying the impact of LGBT+ health within education programmes or of the experiences of patients when accessing healthcare. Future research studies should consider ways of addressing these gaps in the existing research evidence-base.

## **7 Conclusion**

There are examples of the inclusion and integration of LGBT+ health needs and concerns within undergraduate health curriculum and CPD programmes for practitioners. This is encouraging and necessary given the significant health inequalities and distinct needs experienced by this population. There are examples of best practice in the delivery and evaluation of LGBT+ health within education programmes that offer a helpful starting point to guide developments more widely. It is also apparent from this systematic review that inclusion within health programmes is

patchy and limited with a need for a more consistent approach across all undergraduate health programmes for doctors, nurses and other professional disciplines. Similarly, there is a need for continuing professional development opportunities for health and other professionals in the area of LGBT+ health. Longitudinal national and international research collaborations offer a way forward to undertake studies into the immediate and longer-term impact on practice and health outcomes and experiences, thereby seeking to improve the health and well-being of LGBT+ people.

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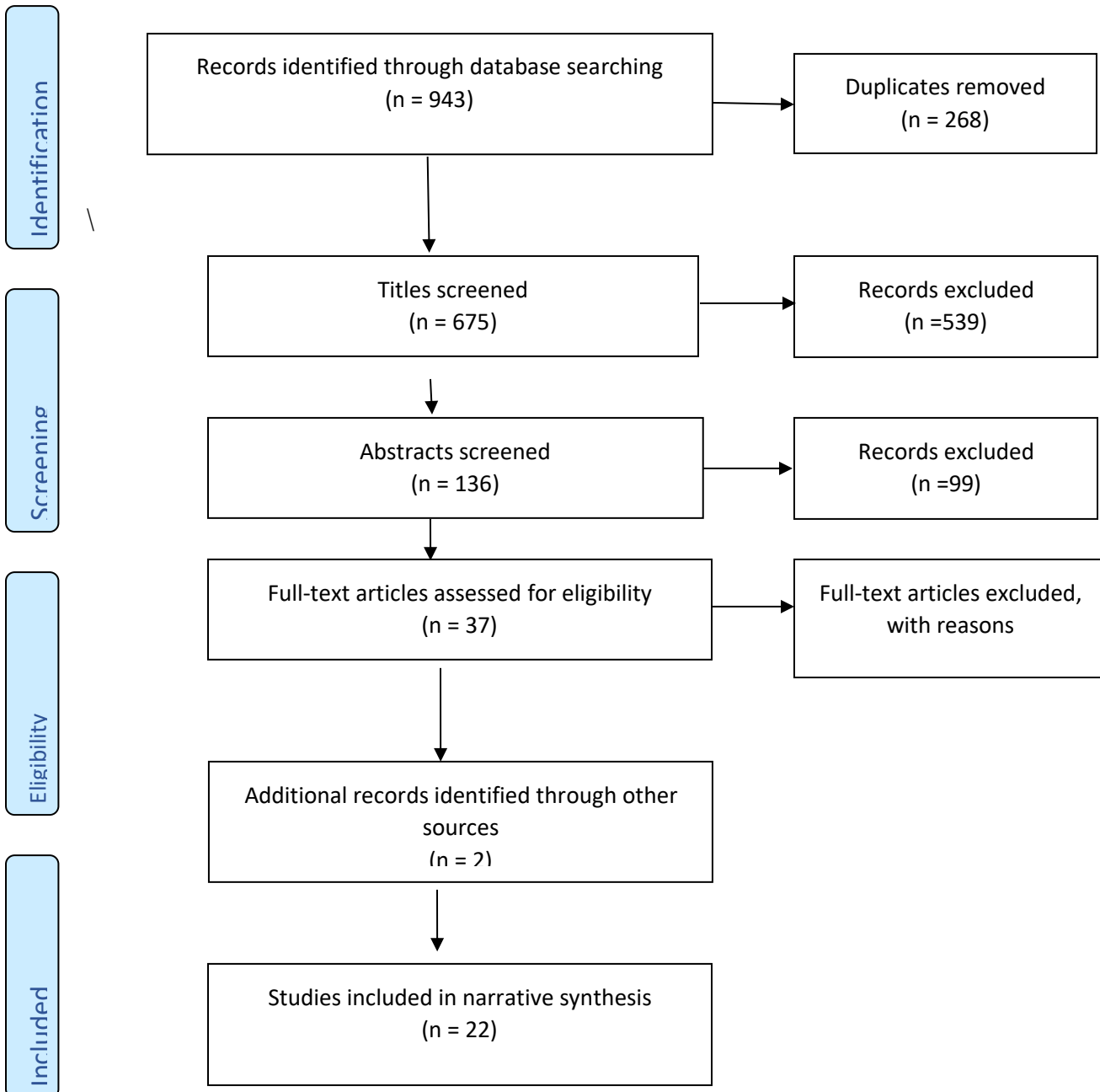
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**Fig 1: PRISMA Flow Diagram**



**Table 1:** CINAHL search strategy and results

Search code	Query	Results
S1	gay	8,393
S2	lesbian	2,933
S3	bisex*	3,909
S4	intersex*	193
S5	transgender*	2,932
S6	education	524,278
S7	training	145,952
S8	curriculum	21,966
S9	Physician*	182,655
S10	Doctor*	44,356
S11	Nurse*	409,242
S12	Health professional*	30,636
S16	S1 OR S2 OR S3 OR S4 OR S5	11,741
S17	S6 OR S7 OR S8	612,414
S18	S9 OR S10 OR S11 OR S12	611,051
S19	S16 OR S17 OR S18	289
S20	Date limiter: 2007-2017	177

**Table 2:** CASP quality scores

CASP criteria	Bidell at al. (2017)	Carabez et al. (2015a)	Carabez et al. (2015b)	Cheng & Yang (2015)	Corliss et al. (2007)	Daley & MacDonnell (2015)	Echezona-Johnson (2017)	Fredriksen-Goldsen et al. (2011)	Gendron et al. (2013)	Grosz et al. (2017)	Hardacker et al. (2014)
1. Clear statement of aims	2	2	2	2	1	2	2	2	2	2	2
2. Appropriate methodology	2	2	2	2	2	2	2	2	2	2	2
3. Appropriate research design	2	2	2	2	2	2	2	2	2	2	2
4. Appropriate recruitment strategy	2	2	2	1	2	2	2	2	2	2	2
5. Appropriate data collection methods	2	2	2	2	2	2	2	2	2	2	2
6. Research relationships considered	0	0	1	0	0	0	1	0	0	0	0
7. Consider ethical issues	2	0	2	0	0	1	2	0	0	2	0
8. Rigorous analysis	2	2	2	2	2	2	2	2	2	2	2
9. Clear findings	2	2	2	2	2	2	2	2	2	2	2
10. Value of the research	2	2	2	2	2	2	2	2	2	2	2
Total scores out of 20	18	16	19	15	15	17	19	16	16	18	16

CASP criteria	Kelley et al. (2008)	Lim et al. (2015)	Obedin-Maliver et al. (2011)	Parameshwaran et al. (2017)	Rogers et al. (2013)	Röndahl (2011)	Sequeria et al. (2012)	Strong et al. (2015)	Vance et al. (2017)	Walsh & Hendrickson (2015)	White et al. (2015)
1. Clear statement of aims	2	2	2	2	2	2	2	2	2	2	2
2. Appropriate methodology	2	2	2	2	2	2	2	2	2	2	2
3. Appropriate research design	2	2	2	2	2	2	2	2	2	2	2
4. Appropriate recruitment strategy	2	2	2	2	2	2	2	2	2	2	2
5. Appropriate data collection methods	2	2	2	2	2	1	2	2	2	2	2
6. Research relationships considered	0	0	0	1	0	0	0	0	0	0	0
7. Consider ethical issues	2	2	1	2	0	0	0	2	0	2	2
8. Rigorous analysis	2	2	2	2	2	1	1	2	2	2	2
9. Clear findings	2	2	2	2	2	2	2	1	2	2	2
10. Value of the research	2	2	2	2	2	2	2	2	2	2	2
Total scores out of 20	18	18	17	19	18	14	15	17	16	18	18

<b>Table 3: Papers included in the review (n=22)</b>						
<b>Study Citation and Country</b>	<b>Aims</b>	<b>Participants</b>	<b>Data collection methods</b>	<b>Key Findings</b>	<b>Recommendations</b>	<b>CASP scores out of 20</b>
Bidell et al. (2017) USA	Develop an interdisciplinary LGBT self-assessment for health providers	Students and health professionals (602)	Survey	The clinical tool is valid for measuring clinical preparedness, attitudinal awareness, LGBT psychosocial health issues.	Can inform educational learning objectives and clinical supervision and lead to LGBT culturally competent health professionals.	18
Carabez et al. (2015a) USA	Examine nursing students' knowledge of LGBT issues using a multi-purpose assignment	Nursing students (n=122)	Pre and post-test surveys	Almost 40% felt unprepared in providing LGBT care and 85% said their nurse education did not prepare them. After completing the assignment task, 74% felt more aware of LGBT issues and personal unconscious biases.	Use of guided assignments in the nursing curriculum that address LGBT issues. Collect baseline data around knowledge and evaluate students' teaching and learning experiences.	16
Carabez et al. (2015b) USA	Explore nurses' education experiences about LGBT health	Practicing nurses (n=268)	Interviews	Almost 80% stated that no training in LGBT care was available. Nurses felt discomfort providing care.	More diversity training opportunities. Review and update policies and procedures to be inclusive of LGBT needs.	19
Cheng & Yang (2015) Taiwan	Analysis of the curriculum for medical students including gender and LGBT issues	Medical students (n=197)	Discourse analysis of Bulletin Board System (BBS) postings	Negative comments about women and postings 'ridiculing' LGBT people were common. Heterosexual masculinity as the dominant culture.	Postings can be used to promote discussion of the issues in class and used to create case studies. Exclusion and discrimination may be explored and addressed.	15
Corliss et al. (2007) USA	Investigate LGBT issues and needs in Schools of Public Health	Department Chairpersons in 35 Schools (n=102)	Postal survey	About 40% were conducting LGBT research (mainly HIV). Less than 2% offered LGBT specific education or training.	More education and training urgently needed related to LGBT issues beyond HIV and AIDS. Support more LGBT research among staff and students.	15

Daley & MacDonnell (2015) Canada	Examine LGBTQ education for home-service providers	Health professionals (n=15)	Focus groups and individual interviews	Little opportunity to access LGBTQ education. Where it did exist, very medical and risk focus (HIV/AIDS), death and dying.	More education provision in professional programmes and in-service training courses. Rigorous evaluation of such programmes.	17
Echezona-Johnson (2017) USA	Examine LGBT health knowledge in obstetrical nurse education	Clinical instructors (n=7) Obstetric students (n=8)	Interviews and documents	Significant lack of knowledge of LGBT-related health issues among students and instructors. No evidence of LGBT content in the obstetrics nurse syllabus, curriculum or clinical lesson plans.	Need thorough review of nurse education and training to ensure the inclusion of LGBT-related health issues. Need to evaluate education initiatives. Increase scholarly knowledge with faculty on LGBT health issues.	19
Fredriksen-Goldsen et al. (2011) USA	Investigate support of LGBT identity in social work education	Faculty members: USA (n=175) Canada (152)	Online surveys and measures	Over 90% supportive of LGBT content in education. Less important regarding trans* issues (57% U.S.; 53% Canada). Canadians more supportive of gay marriage (69% U.S.; 92% Canada).	Greater inclusion of curriculum content related to trans* specific issues and on structural inequalities, prejudice and oppression for LGBTI people (not just needs). More research needed among intersex people and on social attitudes to LGBTI people.	16
Gendron et al. (2013) USA	Evaluate cultural competence and sensitivity among health professionals working with LGBT older adults	Health professionals (n=6) Stakeholders (n=3)	Interviews and observation	The training increased participants' awareness of LGBT issues and improved comfort level in addressing the needs of older LGBT people.	Need for more education and resources tools. Creation of an online resource page. More outcome measures, evaluation and sustainability studies.	16
Grosz et al. (2017) USA	Evaluate student-led teaching of LGBT Health issues to medical students	First year medical students (n=167)	Pre and post-test surveys	Student knowledge of LGBT terminology, preparedness and comfort significantly increased after the teaching session. Students rated the patient panel highly as an effective learning method.	Future research should include randomization and longitudinal studies. This study should be used as a model for integrating LGBT Health topics into medical education.	18



Hardacker et al. (2014) USA	Examine the development of a nurses' education about LGBT elders curriculum	Health professionals (n=848)	Pre and post-test surveys	Gains in knowledge about LGBT older people across all six modules. Results suggest positive attitudinal changes in participants.	Wider dissemination of the results and cascading of the training. Multi-lingual versions of the curriculum to be developed.	16
Kelley et al. (2008) USA	Explore the LGBT Health curriculum: knowledge and attitude outcomes among medical students	Medical students (n=75)	Pre and post-test surveys	Following training related to LGBT issues: 91% felt the syllabus had increased their knowledge; 92% felt the patient panel helped increase knowledge; 96% felt the case scenarios helped educate them about LGBT issues. Some significant attitudinal changes seen.	Needs to be increased visibility and inclusion of LGBT people in healthcare settings. Increased awareness may lead to greater inclusivity. More long-term follow-up studies of the interventions. Integration of LGBT concerns into the broader patient-centred medical curriculum.	18
Lim et al. (2015) USA	Surveying the teaching of LGBT health in baccalaureate nursing programs	Nursing Faculty members (n=1,231)	Survey and comments	Knowledge, experience and readiness very limited for teaching LGBT health. But, LGBT faculty scored higher compared to non-LGBT faculty on all counts. Median time spent teaching LGBT health was just over 2 hours.	Need seminar workshops and train the trainer programs to support faculty in teaching LGBT health (delivered by expert clinicians, advocates and researchers from LGBT organizations). Integration of LGBT health topics into the interprofessional clinical and classroom teaching and learning environments. Incorporated into all curricula.	18
Obedin-Maliver et al. (2011) USA	Examine LGBT content in undergraduate medical education	Medical school deans of education (n=132)	Web-based survey	Median reported teaching time on LGBT issues was 5 hours. Nine schools reported 0 hours in preclinical years and 44 reported 0 hours in clinical years. LGBT content was rated 'fair' at 58 schools. Majority of schools teach over 50% of the 16 identified LGBT topic areas.	Need to increase curricular content of LGBT-related issues. Need dedicated staff to teach the topics. Need to build and expand the LGBT health evidence base. Need more funding and resources to support the development of LGBT health education and training initiatives.	17

Parameshwaran et al. 2017 UK	Examine LGBTQ health care education among UK medical students	Medical students (n=166)	Survey	Almost 85% of participants reported a lack of LGBTQ - related health education. More than 50% would not enquire about gender identity. Lack of confidence in clinical practice and finding support resources. Positive attitudes shown towards LGBTQ patients.	Determine the training and education needs for medical students. Work on providing or improving LGBTQ-specific health care education. Embed within the current curriculum.	19
Rogers et al. (2013) USA	Investigate older LGBT adult training panels	Students and health professionals (n=605) from 34 Gay and Grey Panels (GGPs)	Survey and comments	82% felt panel trainings had increased awareness of LGBT issues. 61% reflected on attitudes and biases. 54% felt the training helped with understanding, acceptance and equality concerns. 65% valued the input of older LGBT adults in delivering the training.	Education and training should be delivered in a safe and trusting environment that allows for reflection on the issues. Older adults should be involved at all levels in the development and delivery of the training. Need follow-up studies to measure sustainability and impact.	18
Röndahl (2011) Sweden	Examine heteronormativity in health care education programs	Nursing students (n=8) Medical students (n=3)	Interviews	No LGBT issues in the curriculum apart from HIV and STIs. LGBT people remain invisible. All students in the study concealed their own sexual orientation. Students described feeling isolated and marginalised in work situations. Heteronormativity was the prevailing discourse.	LGBT issues should be taught using problem-based learning (PBL) methods and small group activities. Need to move beyond the medical and incorporate the psychosocial elements into medical and nursing curricula. LGBT people should be included in patient cases and clinical group discussions.	14
Sequeria et al. (2012) USA	Explore the integration of LGBT content into undergraduate medical school curricula	Medical students (n=39)	Surveys	Following training, 82% could appropriately ask about the partner's gender, thus revealing the person's LGBT status. Emerging themes were: lack of LGBT education content; agreement that LGBT issues are important to future work as physicians.	Need to incorporate LGBT health – related issues into the medical school curriculum alongside interpersonal and communication skills and cultural competence.	15

Strong et al. (2015) USA	Assess undergraduate nursing students' knowledge, attitudes and cultural competence toward LGBT patients	Nursing students (n=88)	Survey and measures: 1. Attitudes Toward Lesbians and Gay Men Scale 2. LGBT Healthcare Scale 3. LGBT Knowledge Questionnaire.	Significant increase in LGBT-related knowledge and positive attitudes following education sessions.	LGBT Health related education should be included in all undergraduate nursing curricula to support cultural competence, inclusive and sensitive care.	17
Vance et al. (2017) USA	Evaluate pediatric trainees' and students' knowledge in transgender youth health care	Inter-professional students (n=20)	Pre and post-test survey and comments	Significant improvement in the knowledge and awareness components following education sessions. Students rated the curriculum highly and valued the observational clinical experience.	Curricula should use e-learning technology and identify suitable training areas for clinical experiences e.g. gender clinics to support culturally competent gender-affirming services to transgender youth and their families.	16
Walsh & Hendrickson (2015) USA	Survey of trans* content in Texan nursing programs	Texas Nursing Programs (n=113)	Surveys	21 survey returned (19% response). 10 respondents provided some trans* health content, 12 taught gender identity, and 6 taught about terminology. A median of 1.5 hours was recorded for 15 of the programs.	LGBT-related nursing care should be incorporated into all health care curricula. Trans* people are particularly vulnerable and have unique biopsychosocial needs. Schools are responsible for integrating all standards of care into practice and need to support students' in providing comprehensive care.	18
White et al. (2015) USA	Examine LGBT patient: medical students' preparedness and comfort	Medical students (n=4262)	Online survey and focus groups	67% respondents rated their LGBT-related curriculum 'fair' or worse. 78% most prepared to deal with HIV. Least prepared regarding trans* issues. Focus group participants had significant concerns about LGBT health provision. Curricula could be improved.	More clinical exposure to LGBT patients during medical training. Better sexual history taking and formulating specific interventions. Opportunities to translate classroom activities into clinical practice. Standardise the curriculum for all medical schools and include LGBT issues. Develop LGBT specific curricular materials. Increased institutional supports to develop the curriculum. Thorough evaluations.	18

