Using Simulation Training to Strengthen Staff Confidence in Delivering Integrated Care to LGBT Patients

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I have no known conflict of interest to disclose.

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Abstract

Providing quality healthcare for Lesbian, Gay, Bisexual, and Transgender (LGBT) individuals is a growing but complex challenge in medical and mental health practice. Delivering gender-affirming care effectively remains a significant hurdle, impacting how providers interact with their patients. The lack of inclusive healthcare spaces further compounds the medical and mental health risks faced by LGBT individuals. Educational programs in nursing and medical schools often fail to adequately address LGBT-related topics, leaving providers ill-prepared and lacking standardized approaches which undermines the healthcare system's ability to meet LGBT patients' needs effectively. To address this concern, a quality improvement study was conducted with 79 integrated direct care staff, utilizing didactic education and simulation to enhance clinical skills. The study measured changes in attitudes, clinical preparedness, and clinical experience. While attitudes toward LGBT individuals declined, overall clinical competence improved. This project highlights the potential of simulation as a powerful educational tool that can enhance clinical performance, even in the presence of negative biases toward marginalized populations. These findings may have important implications for preparing a workforce to deliver competent care, regardless of personal attitudes.

Keywords: LGBT nursing, sex education, medical, nursing, confidence, simulation, provider, LGBT, education, treatment, transgender, gender-affirming, and *mental health.*

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Lesbian, Gay, Bisexual, and Transgender (LGBT) healthcare continues to expand within medical and mental health practice but remains a challenging area for many providers. This is especially evident in the realm of transgender healthcare. Despite strides in improving access to medical and mental health services for LGBT individuals in recent years, obstacles persist in delivering optimal treatment, particularly concerning providers' proficiency in having gender-affirming care interactions with their patients. Offering avenues for healthcare providers and frontline personnel to deepen their comprehension of the specific needs of LGBT patients and refine their competencies in conducting affirming care interactions shows promise in supporting their overall confidence and readiness to engage meaningfully with this patient population.

Problem Statement

Numerous LGBT individuals report feeling unwelcome in healthcare environments, while many practitioners frequently struggle with discomfort when it comes to delivering care to these individuals. This limited access to healthcare services and non-inclusive spaces exacerbates the risk of chronic medical and mental health complications faced by LGBT patients (Medina-Martinez et al., 2021). Despite advancements in society's acceptance of the LGBT community, nursing and physician programs still fall short in educating their students on the unique issues and treatment needs of this population. This shortcoming is evident in the lack of dedicated academic materials on LGBT topics within medical and nursing curricula and the reported low levels of readiness among their graduates (Nowaskie & Patel, 2020; Koch et al., 2021). The lack of education negatively effects the current and future healthcare workforce as there is no

standardized approach to address the educational gap and poor attitudes towards LGBT patients (Sherman et al., 2021).

Background and Significance

Although there is a widespread understanding of the LGBT community in American culture, the sentiments and viewpoints frequently overlook the individual journeys and the diverse experiences of its members. This oversight further dismisses their status as an underrepresented minority group in the United States. Under the Biden-Harris Administration, the National Institute of Health was focused on combating poor LGBT education standards and negative attitudes while enhancing healthcare quality for the transgender community and expanding their healthcare accessibility (The White House, 2022).

Nationally, LGBT individuals comprise 5.5% of the US population, with the 18-24 age bracket being the most populous within this demographic. In Arizona, this group represents 5.9% of the total population (Flores & Conron, 2023). Moreover, approximately 0.6% of Americans aged 13 and above identify as transgender (Herman et al., 2022). The LGBT population experience minority and discrimination stressors across the lifespan, especially if they also identify as transgender. Devis-Devis et al. (2022) note that medical providers still report the most discomfort working with the transgender population when compared to lesbian, gay and bisexual patients. Hence, the LGBT population is at an increased risk for medical and mental health complications when compared to the heterosexual population, and this is compounded by the lack of provider preparedness to work with this population (Medina-Martinez et al., 2022).

Current Skills of Medical and Mental Health Providers and Direct Care Staff

Medical and mental health professionals graduating from various medical programs exhibit limited knowledge about the specific treatment needs of the LGBT community and lack

confidence in working with this population (Nowaskie & Patel, 2020; Pregnall et al., 2021). Mental health providers had the highest level of confidence working with transgender patients and demonstrated the lowest levels of transphobia and homophobia among various healthcare professionals (Burgwal et al., 2021). In contrast, general and primary care providers experience the lowest level of confidence when working with the LGBT community when compared to other medical and mental health practitioners (Koch et al., 2021).

Provider confidence is further impacted by the limited time allotted to practice their affirming interaction skills with the LGBT patients (Koch et al., 2021). In present day, the academic training programs for physicians, nurse practitioners and registered nurses lack adequate instructions on how to engage in affirming interactions with the LGBT individuals (Pregnall et al., 2021). This gap in education may negatively affect the fiscal health and current productivity of healthcare agencies that provide services to the LGBT community.

Current National and State Practices on LGBT Affirming Care

Guidelines for medical and mental health workers interacting with LGBT patients are primarily based on theories of multiculturalism and tolerance (Hsieh & Shuster, 2021; Nowaskie & Patel, 2023). However, the only standardized approach to medical and mental health practice with LGBT patients is the use of gender-affirming interactions. Unfortunately, many healthcare workers do not understand this concept and cannot effectively implement it (Medina-Martinez et al., 2021; Pregnall et al., 2021). Further, there are no national or state quality metrics for transgender healthcare or uniform guidelines for practice in the United States, including Arizona. Although various non-profit organizations are actively working towards creating these systems of measurement and standards of care, these metrics currently serve as an optional guide (Human Rights Campaign Foundation (HRC), 2022).

Education and Simulation in Medical & Mental Health Care

Although many healthcare professionals acknowledge the need for further training on LGBT issues, research into how such education is integrated into their programs or acquired otherwise remains limited (Burgwal et al., 2021). While academia traditionally employs classical and didactic approaches to equip students for the workforce, alternative methods such as simulation have been increasingly recognized (Billet, 2020). Despite the prevalence of video trainings in many workplaces for new employee orientations and annual updates, the lack of opportunities for practical application in a simulated environment before returning to duty can impede the acquisition of crucial skills, potentially leading to adverse outcomes (Billett, 2020). Simulation has emerged as one of the most effective teaching modalities in comparison to classical and didactic approaches (Chernikova et al., 2020; Billett, 2020). However, standardized curricula in baccalaureate and master's level nursing programs have yet to incorporate LGBT-focused simulations (Pregnall et al., 2021; Karlin & Nickasch, 2022), and there are no uniform approaches for teaching about sexual orientation and gender-affirming interactions (Pregnall et al., 2021; Koch et al., 2021; HRC, 2022).

Increasing Confidence and Positive Attitudes in Healthcare Staff Providing LGBT Services

Stryker et al. (2020) underscore the significance of boosting the confidence levels of medical and mental health care personnel in their capacity to effectively engage with LGBT patients. When frontline healthcare staff feel more comfortable and exhibit a positive attitude towards this community, they create a more welcoming environment that fosters inclusivity and encourages LGBT patient retention. (Medina-Martinez et al., 2021; Bosse et al., 2015, as cited in Koch et al., 2021). Higher retention rates of LGBT patients will lead to increased access to

preventative and treatment-focused healthcare, ultimately resulting in a healthier population and reduced morbidities (Nation et al. in 2024; Hsieh in 2021).

Internal Data

The non-profit organization participating in this quality improvement initiative operates multiple community medical and mental health centers across Phoenix, Arizona. Their objective is to improve the overall well-being of every individual by offering access to primary medical and mental healthcare services under one roof. They provide outpatient services to people across the lifespan and socio-economic statuses. However, they recognize certain limitations in catering to sexual minorities and are actively working towards increasing their inclusivity. Through various interviews with medical and mental health providers, nurses, and frontline staff at two clinics, it was identified that the organization's staff lacked confidence in their ability to work with LGBT patients. Addressing this issue is crucial to creating a genuinely inclusive medical and mental health environment for LGBT patients.

PICOT Question

The above review of research literature led to the clinically relevant question of, “In clinical staff working at an integrated healthcare setting, how does sexual orientation and gender affirming interaction education and simulation, compared to no education, impact confidence in working with LGBT patients?”

Evidence Synthesis

Search Strategy

A review of the current literature was done by searching the following databases: Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, and APAPsychArticles®. Keywords included: *LGBT nursing, sex education, medical, nursing,*

confidence, simulation, provider, LGBT, education, treatment, transgender, gender-affirming, and *mental health.* Search limits were set to include research and peer reviewed articles published between 2019 – 2024 in the English language.

Upon conducting an initial search using the keywords *LGBT* and *nursing* and *simulation*, only two articles were found, indicating a lack of research in this area. However, by utilizing the combination of keywords such as *confidence* and *simulation* and *medical*, a significant number of articles were yielded. Specifically, APAPsychArticles® provided 1,100 options, CINAHL produced 502 articles and PubMed generated 3,084 results. Specific keyword searches, such as *LGBT education* and *simulation* and *medical*, produced zero search results. The lack of articles returned in this search highlights the intricate nature and insufficient amount of research in this domain. Conversely, utilizing the keywords "*sex education* and *confidence* and *LGBT* generated a satisfactory number of articles-26 from PubMed, two from CINAHL, and 12 from APAPsychArticles®, revealing the potential for more extensive research in this field.

This process resulted in the identification of seven articles from CINAHL, four from PubMed, and 18 from APAPsychArticles® databases. Subsequently, a meticulous examination of abstracts and titles was conducted to ensure alignment with predetermined inclusion criteria. Articles meeting these criteria were those that examined the state of LGBT education within medical or mental health contexts, proposed interventions aimed at enhancing attitudes toward the transgender community or explored nursing simulations involving interactions with LGBT individuals. A rapid critical appraisal method was employed and a final selection of ten articles was made for inclusion in the research review. Studies without an I-IV level of evidence were further excluded. Among these, ten studies were singled out for detailed critical evaluation and tabular presentation in the appendix.

Critical Appraisal & Synthesis

The evaluation of the 10 articles chosen for this literature review was conducted in reference to Melnyk and Fineout-Overholt's (2011) method of critical appraisal. Among these articles, a majority presented high-level evidence, comprising six cross-sectional survey designs(including two mixed-methods studies), one cohort study, two pre-test/post-test designs, and onemeta-analysis (Appendix B). Three of these studies delved into the realm of educational simulation, with two specifically targeting the teaching of gender-affirming interactions. No biases were detected in any of the studies, and all boasted an adequate sample size. The sample populations varied, encompassing healthcare students, graduates, and current professionals across diverse disciplines and educational levels. While three studies sourced international samples, the remaining seven were conducted within the United States (Appendix B).

Moreover, all interventions or measurements were administered to those within a university or community setting (Appendix B). Two studies employed the Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS) to assess areasfor improvement in LGBT education among healthcare workers, demonstrating strong internal validity with a Cronbach's Alpha score of 0.86. Despite the diversity in measurement tools in theother studies, nearly all evaluated self-reported knowledge of LGBT treatment needs and the desire for further training. Other common variables included confidence levels in working with LGBT patients, preparedness, and attitudes toward the LGBT community (Appendix B). Given the strength of the measurement tools, rigorous methodologies, and prevalence of statistically significant results, it is reasonable to infer that the selected studies exhibit strong reliability and validity (Appendix B).

Application to Project

In reviewing the literature, it's clear that many healthcare professionals feel underprepared to work with LGBT patients. They express a desire for more education and training, particularly in understanding the unique needs of this community. Their lack of confidence often stems from limited opportunities to interact with LGBT patients and uncertaintyabout how to ensure affirming patient-provider interactions. Studies on gender-affirming simulations have shown promising results, suggesting that simulation could be a valuable tool in improving these interactions. Offering more targeted education and opportunities for practical experience could make a real difference in improving care. Thus, this quality improvement project aims to enhance preparedness in working with LGBT patients through simulation exercises that focus on affirming patient-provider interactions, with the hope of making a meaningful contribution to the healthcare field.

Purpose and Rationale

The purpose of this quality improvement project was to address the lack of affirming healthcare access for LGBT patients and the limited number of providers that feel confident in providing them care within their scope of practice through educational modality of simulation. Past research by Bosse et al. (2015) underscores the pivotal role of the initial interaction betweenhealthcare providers and LGBT patients in fostering an environment conducive to open disclosure and continued engagement (Koch et al., 2021). The need for more opportunities for providers to increase their confidence through education on LGBT treatment issues and practice gender-affirming interactions to implement them in practice cannot be neglected. Without improvements in provider confidence and the establishment of more meaningful provider-patientrelationships, the LGBT population remains vulnerable to discrimination and marginalization within the American healthcare system.

Theory Application and Model Selection

The Minority Stress Model, initially formulated by Meyer (2003; Appendix D) to explain the mental health challenges faced by lesbian, gay, and bisexual individuals, has undergone adaptation to encompass diverse racial, ethnic, and sexual minority groups (Appendix D; Frost & Meyer, 2023). Central to this model is the recognition of the heightened social stressors endured by minority communities,stemming from various forms of discrimination, which predispose them to adverse physical and mental health outcomes. Moreover, the model attends to the compounded challenges experiencedby individuals navigating multiple minority identities, an aspect often overlooked in traditional frameworks. Acknowledging the broader context, the model also underscores the influence of additional stressors such as poverty, low socioeconomic status, and educational disparities on health outcomes among minority populations (Brooks et al., 2022; Frost & Meyer, 2023; Appendix D).

This theoretical lens proves pertinent to the present quality improvement endeavor, particularly concerning the healthcare experiences of LGBT individuals within the American healthcare landscape. Enhancing the confidence and competency of healthcare professionals inengaging with LGBT patients through affirming interactions holds promise for fostering more inclusive healthcare environments. Such initiatives not only aim to ameliorate disparities in healthcare utilization among LGBT individuals but also harbor the potential to promote both physical and mental well-being through consistent engagement with healthcare services.

Along with the Minority Stress Model, the project was guided by Larrabee's model forpractice change (2009) due to its systematic direction across the change process and is an

evidence-based practice model (Appendix C). The selection of an evidence-based practice model was driven by the anticipated project outcome: the enhancement of healthcare staff's interactions with LGBT patients, a goal necessitating a robust foundation rooted in empirical evidence. The model guided the project's process through each step of evidence gathering, planning, implementation, and evaluation. This choice aligns with the project's needs as it integrates quantitative and qualitative data and clinical insights like the data found in this literature review

Project Proposal & Framework Implementation

The project aimed to bolster the confidence of integrated clinic staff in their capacity to effectively engage with LGBT patients by facilitating affirming interactions. In compliance withLarrabee's Model (2009), kickstarting the project involves prioritizing clinic stakeholders. This includes key figures such as the Chief Medical Officer, President of Patient Relations, and designated representatives from each clinic across the Phoenix area. Planning periods included discussing the educational components with training staff, gathering opinions from direct care staff on the issue, and presenting the measurement scale to stakeholders prior to project implementation.

The intervention strategy entails offering simulations of LGBT-affirming interactions, accessible to all direct patient care clinic staff. Initial data collection encompassed descriptive statistics of the sample, along with administering a pre-test utilizing the Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS; Bidell, 2017). This scale serves to gauge shifts in attitudes towards LGBT individuals and the personal confidence levels of staff in their ability to cater to the LGBT community. Importantly, prior to its selection for thisproject, the scale underwent rigorous validation procedures and has been

used to measure outcomes in numerous other studies with similar objectives (see Appendix A). The overarching aim is that exposure to simulations of LGBT-affirming interactions will enhance staff members' comfort levels and competencies in working with the LGBT demographic, and the anticipated result will be reflected in higher scores on the LGBT-DOCSS. Existing literature provides supportive evidence for the efficacy of this project, as it presents a novel learning opportunity forintegrated care staff to augment their current knowledge of LGBT issues. Viewed through the framework of the Minority Stress Model (Brooks et al., 2022), LGBT individuals may perceive greater safety in seeking healthcare within a facility with more affirming staff.

Implications for Change in Practice

The implementation of initiatives aimed at enhancing the quality of interactions between LGBT patients and healthcare staff holds profound implications. By bolstering healthcare staff's confidence in working with LGBT individuals, such programming can foster an environment where LGBT patients feel more secure in seeking regular healthcare services, thereby potentiallymitigating adverse physical and mental health outcomes. Moreover, the cultivation of positive interactions between healthcare staff and LGBT patients has the potential to counteract prevailing negative attitudes that perpetuate discrimination against this minority group.

As healthcare access becomes more consistent, there is a notable potential for heightenedhealth promotion efforts and a subsequent reduction in chronic health issues through improved management. Creating a more inclusive healthcare environment for LGBT patients not only aligns with national objectives aimed at elevating care standards for transgender individuals but also presents an opportunity to expand healthcare access to the

LGBT population within the Phoenix, Arizona community.

Methods

Ethical Considerations

The DNP project's intervention and data collection was implemented with ethical considerations for human subjects in mind. Ethical principles to be upheld include the right to privacy without exploitation, freedom from physical harm and emotional distress, and minimizing unforeseen side effects. Actions taken to guarantee these provisions included ensuring data was aggregated and kept private from potentially invested third parties, implementing the project in a safe place, and directing patients to therapeutic resources. Moreover, privacy was safeguarded through anonymizing all written or printed materials, ensuring researcher objectivity by maintaining independence from the organization, and using the institutional review board for supervision regarding participant safety, privacy, andequitable treatment. Safety included creating a supportive and non-judgmental intervention environment where participants feel comfortable expressing their feelings, and efforts will be made to mitigate any potential psychological distress. Additionally, a list of local therapeutic resources was available to address any psychological discomfort that could have arisen. The Internal Review Board (IRB) reviewed this project and granted a status of exemption on 8/8/2024, citing the intervention as benign and low risk.

Setting & Stakeholders

The nonprofit organization engaged in this quality improvement endeavor operates multiple community medical and mental health centers throughout Phoenix, Arizona. Their overarching goal is to enhance the holistic well-being of individuals by providing comprehensiveaccess to primary medical and mental healthcare services conveniently located

under one roof. The organization provides these services to a diverse clientele spanning various age groups, socio-economic backgrounds, minority identifications, and other intersectionalities. They offer outpatient services aimed at addressing the healthcare needs of the local community.

Key stakeholders within the organization include the chief medical officer (CMO), Vice president of client relations, and the director of nursing and medical Services (DONMS). While their titles convey their responsibilities, all are deeply invested in ensuring the delivery of high-quality integrated healthcare services and the satisfaction of the organization's patients. The pivotal role of the CMO in granting approval for this quality improvement project underscores their importance in its execution. The CMO is deeply committed to ensuring that every patient receives superior healthcare and feels that their treatment space is inclusive. Further, the CMO and DONMS were able to uphold organizational goals while addressing policies that may encourage participation in the project as data from integrated care staff is integral to the project'starget population and outcomes. It is imperative that all three stakeholders fully grasp the significance of the project and recognize its potential to enhance the organization's overall service innovation and expansion of LGBT services. Securing the endorsement of these stakeholders is instrumental to the project and in cultivating a more inclusive medical and mentalhealth environment for LGBT patients and employees.

Participants & Recruitment

Participants in this quality improvement initiative encompassed all integrated care personnel who engage directly with patients. This diverse cohort spans various employee roles, including but not limited to physicians, nurse practitioners, physician's assistants,

registered nurses, medical assistants, mental health therapists, case managers, peer support specialists, call center technicians, and patient registrars. Eligibility criteria required participants to be at least 18 years of age, currently employed by the organization, and have direct patient interaction as a primary component of their job duties, whether through in-person, telehealth video, or telephone communication. Implicit exclusion criteria are seen within the inclusion parameters to ensure relevance to the organization's existing workforce.

Recruitment efforts included mass email distribution coordinated through office managers, the placement of flyers in clinical breakrooms and on bulletin boards, and the promotion of light refreshments on the day of each clinic's scheduled monthly staff meeting. Staff were also eligible to receive non-monetary credit for meeting attendance, fulfilling their monthly requirement with management. However, attendance and participation in the specific meeting during which the quality improvement project was implemented remained entirely voluntary.

Project Intervention & Timeline

The project intervention centered on incorporating simulation into employee LGBT education. While there was a brief didactic presentation covering interview skills, with an emphasis on body language and gender-affirming interactions, the core of the intervention involved participants watching a live demonstration of these skills and then practicing them in pairs. Prior to the intervention, participants were provided with consent forms and given a verbal explanation of the study. Completion of the pre-survey was considered implied consent to participate. After the simulation, a post-survey was conducted, marking the conclusion of the intervention.

The organization's goal to expand its LGBT services division aligns with the content

on the Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT- DOCSS; Bidell, 2017). This scale was selected for the project's measurement because it comprehensively examines various dimensions directly and indirectly associated with attitudes towards LGBT individuals. A detailed account of the project's timeline and steps for implementation is provided in Appendix E. Data collection during project execution focused on gathering demographic information for descriptive analysis and collecting pre- and post-test scores from all participants.

Data Collection & Plan of Analysis

Data collection prioritized participant privacy through anonymized scale forms that only include requested demographics such as age and sex. Paper forms were destroyed after data entry, and demographic information included the total number of participants for analysis purposes. All data was stored temporarily on the researcher's personal thumb drive and was permanently deleted upon degree conferral and graduation.

Pre-test and post-test data will be collected using The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS; Bidell, 2017; Appendix G) and scored using the instructional guidance for the scale found in Appendix H. This scale was chosen for its comprehensive assessment of attitudes towards LGBT individuals and confidence in working with them, aligning closely with the minority stress model. The LGBT- DOCSS (Biddell, 2017) consists of eighteen Likert scale questions that measure LGBT knowledge, clinical skills, and prejudicial attitudes. These measurements were essential for evaluating the project's impact, aiming to improve scores in these areas relevant to organizational goals. Participants completed the scale anonymously, and responses were gathered by the researcher.

The LGBT-DOCSS has demonstrated validity and reliability, supported by a Cronbach's Alpha score of 0.86 in previous research focusing on LGBT education among healthcare workers (Frearney et al., 2023). Data analysis employed Intellectus® software to perform descriptive (e.g., standard deviation, means, ranges) and inferential statistics to summarize pre and post-test scores across three subscales: clinical preparedness, attitudes, and knowledge. Inferential statistics included frequencies, percentages, two-tailed Wilcoxon Signed Rank Test, and Pearson Correlation Analysis. The application of these statistical methods aimed to identify meaningful improvements resulting from the intervention.

Budget

Implementing a comprehensive curriculum with a simulation component typically involves considerable costs if conducted by external professionals. By utilizing the researcher's expertise at no additional cost and training staff to independently conduct these sessions in the future, significant savings are anticipated for the organization. Details of these cost efficiencies are outlined in the accompanying budget (Appendix F). Ultimately, by equipping staff with essential knowledge and skills while keeping costs low, both the project and the organization aimto enhance their ability to engage effectively with LGBT individuals regarding their healthcare needs and sustain better LGBT patient-staff interactions.

Results

Descriptives

Intellectus Statistics (2023), was used to store, manage, and analyze the data for this evidence-based practice project. Descriptive statistics were used to characterize the sample and summarize key study variables. Integrated healthcare employees (N=79) completed the intervention, and the sample consisted mostly of female participants (n = 56, 70.89%), followed

by 21 (26.58%) participants identifying as male, and a smaller portion identifying as non-binary (*n* = 2, 2.53%). The majority of participants identified as heterosexual/straight (*n* = 62, 78.48%), with the following sexual orientations being homosexual/gay (*n* = 9, 11.39%), bisexual (*n* = 4, 5.06%), pansexual (*n* = 2, 2.53%), and queer (*n* = 2, 2.53%; See Appendix I, Table I2) respectively. The average participant was 40 years old (*SD*=14.08) with ages ranging from 22 to 71 (Appendix I, Table I1). Most participants identified as White/Caucasian (*n* = 26, 32.91%), followed by Hispanic/Latino (*n* = 22, 27.85%), African American/Black (*n* = 16, 20.25%), Mixed Race (*n* = 9, 11.39%), Native American (*n* = 4, 5.06%), and Asian (*n* = 2, 2.53%; Appendix I, Table I2) respectively.

Although all participants were employees of the same organization, the most frequently reported occupation was Case Manager (n = 14, 17.72%). This was followed by Peer/Support Specialists (n = 10, 12.66%), a collapsed category that included Peer Support Specialist (n = 4), Substance Abuse Specialist (n = 2), Rehabilitation Specialist (n = 1), and Engagement Specialist (n = 3). Clinical Staff accounted for 9 participants (11.39%) and included Clinician (n = 7) and Therapist (n = 2). Providers were reported separately (n = 3, 3.80%), as were Nursing staff (n = 3, 3.80%), all identified as Registered Nurses. Administrative/Operations Staff (n = 3, 3.80%) included Front Office Staff (n = 1), Supervisor (n = 1), and Clinical Coordinator (n = 1). Additional roles reported by one participant each—Operation Assistant, Housing Specialist, and Resource Navigator—were grouped into an "Other" category (n = 3, 3.80%). A substantial portion of participants (n = 35, 44.30%) did not report their occupation (Appendix I, Table I3).

The most common length of employment was less than 1 year (n = 23, 29.11%). This was followed by a collapsed category representing 1–2 years of employment, which included 1 year (n = 11), 1.5 years (n = 2), and 2 years (n = 7), totaling 20 participants (25.32%). The next

most frequent group was a collapsed 3–5 year category, including 3 years (n = 3), 3.5 years (n = 1), 4 years (n = 4), 5 years (n = 1), and 2.5 years (n = 4), totaling 13 participants (16.46%). A smaller number of participants reported 6–10 years of employment (n = 7, 8.86%), which included 6 years (n = 2), 7 years (n = 4), and 8 years (n = 1). The fewest participants fell into the "more than 10 years" category (n = 3, 3.80%), which included 10 years (n = 1), 12 years (n = 1), and 18 years (n = 1). Data for length of employment was missing for 13 participants (16.46%; Appendix I, Table I4).

Summary & Inferential Statistics

To assess the effectiveness of the simulation training intervention, the means, standard deviations, and ranges were calculated for each variable at both pre-and post-intervention. The primary outcome variable of total clinical skills was computed as a composite score comprising three subscales: attitudes, clinical preparedness, and knowledge per the LGBT-DOCSS scoring instructions found in Appendix H. After the intervention, statistically significant improvements were observed in overall clinical skills scores, preparedness, and knowledge. However, attitudes toward LGBT persons showed a slight decline from pre- to post-intervention. Detailed summary statistics for total clinical skills and each subscale are presented in Tables J1 and J2 (Appendix J).

Clinical Skills

A two-tailed Wilcoxon Signed Rank Test was used to assess changes in clinical skills and results indicated a statistically significant improvement in clinical skills from pre-intervention (Mdn = 98.47) to post-intervention (Mdn = 109.13), V = 456.50, z = -5.21, $p < .001$ (n = 79). The improvement suggests that simulation training had a meaningful and positive impact on participants' overall clinical skill development. A boxplot of the ranked scores

(Appendix K, Figure K1) illustrates the upward shift in median scores following the training. To further examine this relationship, a Pearson correlation analysis was conducted between pre-and post-intervention clinical skills scores and revealed a significant positive correlation, $r = .61$, $p < .001$, 95% CI [.45, .73]. These scores indicate a strong association between baseline and post-simulation performance. The correlative relationship is visually represented in the scatterplot with a line of best fit shown in Appendix K, Figure K2, indicating a large effect size per Cohen's (1988) criteria. It emphasizes the impact of the training on participants' self-reported clinical skill development.

Clinical Preparedness

The data implies a meaningful increase in staff reported clinical preparedness following the simulation as mean scores rose from pre-intervention levels of 33.54 ($SD = 8.35$) to post-intervention levels of 38.38 ($SD = 7.95$), indicating a notable improvement in perceived readiness. A Pearson correlation analysis showed a significant positive relationship between pre and post-test preparedness scores, $r = .58$, $p < .001$, 95% CI [.41, .71], representing a large effect size (Appendix K, Table K2, Figure K3). The correlation suggests a positive relationship between perceptions of clinical preparedness at pre and post-test, reflecting a consistent pattern of improvement across participants. The slight reduction in standard deviation at post-test suggests an overall increase in perceived preparedness and a convergence in participants' self-assessments to work with LGBT patients. This indicates that the training may have contributed to a more uniform sense of clinical readiness across staff, regardless of baseline preparedness levels.

Attitudes Toward Clinical Practice

Attitudes toward clinical practice remained relatively stable following the intervention,

though a slight decrease in mean scores was observed from pre-test (M = 43.83, SD = 6.68) to post-test (M = 43.31, SD = 8.07). A Pearson correlation analysis revealed a strong positive relationship between the attitude scores in pre-test and post-test, r = .77, p < .001, 95% CI [.67, .85], indicating a large effect size. The correlation and mean scores imply a strong relationship between participants' attitudes pre- and post-intervention and that the differences in attitudes remained highly connected but mostly unchanged even as participants engaged in the training content. However, the modest decline in mean scores, accompanied by a slight increase in variability—as indicated by the rise in standard deviation from 6.68 to 8.07—may reflect the influence of factors not directly addressed by the intervention (Appendix K, Table K3, Figure K4). These findings may be partially explained by potential threats to internal validity, such as increased self-awareness of personal attitudes toward the LGBT community, heightened critical reflection stimulated by the training content, the design of the assessment process (e.g., participants' lack of access to their pre-test scores for comparison), or shifting perceptions of clinical expectations as participants engaged more deeply with the material.

Knowledge

Participants' knowledge scores improved following the simulation training, with the mean increasing from 19.51 (SD = 5.77) at baseline to 22.65 (SD = 4.76) after the simulation. A Pearson correlation analysis revealed a significant positive relationship between pre and post-intervention knowledge scores, r = .46, p < .001, 95% CI [.27, .62], indicating a moderate effect size. These findings suggest the training was not only successful in increasing knowledge on therapeutic interviewing skills and LGBT topics, but also in enhancing understanding among the participants (Appendix K, Table K4, Figure K5). While those with higher baseline knowledge tended to maintain that advantage, the overall increase in mean scores and reduced

variability post-intervention strongly indicate the effectiveness of the training in enhancing knowledge across the participant group.

Project Impact & Sustainability

The outcomes of this project suggest that therapeutic interviewing skills with LGBT education can make a meaningful difference in both the work environment for staff and the care experience for patients. By improving clinical preparedness and knowledge among direct care staff, the simulation helped build greater confidence and competence in delivering gender-affirming care. This kind of growth may lead to more inclusive and affirming interactions and is in line with current research literature showing that the key elements to good integrated LGBT healthcare are building trust, increasing healthcare engagement, and reducing health disparities for LGBT patients. For the organization, this training aligns with ongoing efforts to expand LGBT services and foster a more inclusive environment where staff and patients feel valued and supported. Maintaining the impact of this intervention is highly feasible, given its low cost, brief one-hour format, and the ability of internal staff, particularly those with therapeutic or interviewing experience—to facilitate future sessions. Incorporating the training into new employee onboarding and routine annual education would help reinforce affirming care practices while demonstrating the organization’s long-term commitment to making diverse patient groups feel comfortable in their treatment setting.

Discussion

Summary of Findings

This quality improvement project examined how a brief simulation-based training could impact staff confidence and clinical skills in delivering affirming care to LGBT patients. The results showed a statistically significant improvement in participants' self-reported clinical

skills, including their sense of preparedness, knowledge, and attitudes following a simulation-based intervention on therapeutic communication, LGBT education, and interviewing skills. While participants' attitudes toward LGBT individuals showed an insignificant to modest decline, clinical competency scores increased, suggesting that even in the presence of complex personal beliefs, skill-based interventions can meaningfully improve provider readiness. The strong correlations between pre-and post-intervention scores in clinical preparedness, knowledge, and overall clinical skills reflected consistent growth and indicated more alignment in how participants viewed their readiness after the training. These findings support targeted simulation as a way to close training gaps and build competence among staff working in integrated care settings.

Limitations and Challenges

Limitations and challenges were identified for this project. First, the intervention was delivered to a single organization using a convenience sample of its staff, which may limit the generalizability of the findings to other healthcare settings. Second, attitudes slightly declined post-intervention, and while this was not the primary focus of the project, it may reflect a more complex dynamic influenced by potential threats to internal validity, such as increased self-awareness of personal biases, shifting perceptions of clinical expectations, or the response-shift bias. These factors could have led some participants to reassess their first responses more critically after engaging with the intervention material and assessment. Another limitation is the reliance on self-reported data as it is not an objective measurement. The one-hour time frame also restricted opportunities for participant debriefing, which may have offered valuable insight into their learning experiences and shifts in attitude. Lastly, nearly half of the participants did not specify their job title and length of employment, which restricted the ability to analyze

outcomes by discipline and prior experience in their role.

Relationship to Prior Literature

The findings from this project are mainly consistent with existing research suggesting that simulation is a powerful educational tool to improve healthcare staff confidence and skill in working with marginalized populations, including LGBT individuals (Chernikova et al., 2020; Koch et al., 2021; Pregnall et al., 2021). The gains seen in knowledge and clinical preparedness are comparable to outcomes in previous studies that highlight the potential for experiential learning to bridge gaps in traditional didactic education, particularly in areas often underserved in medical and nursing curricula. However, the slight decline in attitudes differs from prior studies reporting positive shifts in knowledge and attitudes (Burgwal et al., 2021; Stryker et al., 2020). This contrast reinforces that while simulation improves competence, addressing deeper biases may require longer or more reflective interventions.

Recommendations for Future Study

Future research could examine the impact of longer or repeated simulation experiences or pair simulation with guided reflection to support the better development of affirming attitudes. Gathering qualitative feedback from participants may also provide deeper insight into the emotional and cognitive shifts during the training, especially for those who reported lower attitude scores. Further, exploring patient satisfaction following staff participation in simulation could offer crucial data on how these practices shape the care experience from the patient's perspective. Investigating how incorporating simulation into broader organizational training efforts could be helpful as they may influence workplace culture, team dynamics, and engagement with LGBT-identified employees. Finally, using a control group in future studies could help strengthen the evidence for the intervention's effectiveness.

Conclusion

This project shows the potential of simulation training in building staff competence to deliver affirming care to LGBT patients, even within a short session. While changes in attitudes were complex, participants demonstrated clear improvement in overall clinical skills, preparedness, and knowledge, which are all essential for providing respectful and effective healthcare. These findings support using simulation as part of new employee onboarding and ongoing education to strengthen confidence and skill among healthcare staff. With continued support from leadership and thoughtful integration into practice, simulation can serve as a meaningful and lasting approach to improving inclusive care.

References

Arthur, S., Jamieson, A., Cross, H., Nambiar, K., & Llewellyn, C. D. (2021). Medical students' awareness of health issues, attitudes, and confidence about caring for lesbian gay, bisexual and transgender patients: A cross-sectional survey. *BMCMedical Education, 21*(1), 56. https://doi.org/10.1186/s12909-021-02512-1

Bidell, M. P. (2017). The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS): Establishing a New Interdisciplinary Self-Assessmentfor Health Providers. *Journal of Homosexuality, 64*(10), 1432–1460. https://doi.org/10.1080/00918369.2017.1321389

Billett, S. (2020). *Learning in the workplace: Strategies for effective practice*. Routledge.

Brooks, J.R., Madubata, I. J., Leavitt, J., Jewell, R. D., Odafe, M. O., Diallo, K., & Walker, L. (2022). Mental health and treatment considerations for Black Americans. *Comprehensive Clinical Psychology (Second Edition), 9*.https://doi.org/10.1016/B978-0-12-818697-8.00207-7

Burgwal, A., Gvianishvili, N., Hård, V., Kata, J., Nieto, I. G., Orre, C., Smiley, A., Vidic, J.,& Motmans, J. (2021). The impact of training in transgender care on healthcare providers competence and confidence: A cross-sectional survey. *Healthcare (9)*8. https://doi.org/10.3390/healthcare9080967

Chernikova, O., Heitzmann, N., Stadler, M., Holzberger, D., Seidel, T., & Fischer, F. (2020). Simulation-based learning in higher education: A meta-analysis. *Review ofEducational Research*, *90*(4). https://doi.org/10.3102/0034654320933544

Cutillas-Fernandez, M., Jimenez-Barbero, J., Herrera-Gimenez, H., Forcen, L. & Ruiz, I. (2023). Attitudes and beliefs of mental health professionals toward trans people: A systematic review of the literature. *International Journal of Environmental Researchand Public Health,*

20(15). https://doi.org/10.3390/ijerph20156495

Devís-Devís, J., Pereira-García, S., Valencia-Peris, A., Vilanova, A. & Gil-Quintana, J. (2022). Harassment disparities and risk profile within lesbian, gay, bisexual and transgender Spanish adult population: Comparisons by age, gender identity, sexualorientation, and perpetration context. *Front Public Health, 15*(10). https://doi.org/10.3389/fpubh.2022.1045714

Flores, A. & Conron, K. (2023). *Research that matters: Adult LGBT population in the UnitedStates?* Williams Institute, UCLA School of Law.

Freaney, C., Isles, S., Adler, S., & Katz-Wise, S. L. (2023). An examination of health care workers' education and training on their basic knowledge, clinical preparedness, andattitudinal awareness about LGBT patients. *Journal of Homosexuality. Advance online publication.* https://doi.org/10.1080/00918369.2023.2221760

Frost, D. M., & Meyer, I. H. (2023). Minority stress theory: Application, critique, and continued relevance. *Current Opinion in Psychology, 51*. https://doi.org/10.1016/j.copsyc.2023.101579

Herman, J., Flores, A. & O'Neill, K. (2022). *Research that matters: How many adults and youth identify as transgender in the United States?* Williams Institute, UCLA Schoolof Law.

Hsieh, N., & Shuster, S. M. (2021). Health and health care of sexual and genderminorities. *Journal of Health and Social Behavior*, *62*(3). https://doi.org/10.1177/00221465211016436

Intellectus Statistics. (2023). *Intellectus Statistics* [Computer software]. https://statistics.intellectus360.com

Karlin, J. & Nickasch, B. (2022). Development and implementation of LGBT simulationswith standardized patients in a primary care setting. *Nurse Educator, 47*(2). https://doi.org/10.1097/NNE.00000000001099

Koch, A., Ritz, M., Morrow, A., Grier, K. & McMillian-Bohler, J. (2021). Role-play simulation to teach nursing students how to provide culturally sensitive care totransgender patients. *Nurse Education in Practice, 54*. https://doi.org/10/1016.j.nepr.2021.103123

Larrabee, J. H. (2009). *Nurse to nurse: Evidence-based practice* (p. 22). New York, NY: McGraw-Hill. https://doi.org/10.7748/nop.22.4.9.s13

Medina-Martínez, J., Saus-Ortega, C., Sánchez-Lorente, M., Sosa-Palanca, M., García- Martínez, P. & Mármol-López, I. (2021). Health inequities in LGBT people and nursing interventions to reduce them: A systematic review. *International Journal ofEnvironmental Research and Public Health, 18*(22). https://doi.org/10.3390/ijerph182211801

Melnyk, B.M., & Fineout-Overholt, E. (2023). Evidence-based practice in nursing and healthcare: A guide to best practice (5th ed.). Lippincott, Williams & Wilkins.

National LGBT Health Education Center (2024). *Affirmative services for transgender and gender diverse people—best practices for frontline health care staff.* Fenway Institute. https://www.lgbtqiahealtheducation.org/publication/affirmative-services- for-transgender-and-gender-diverse-people-best-practices-for-frontline-health-care-staff/download/

Nation, A., Pelayo, L., Trevino, M., Ambalada, A., Hojilla, C., Raynor, C. & Outlaw, F. (2024). Exploring health care access among lesbian, gay, bisexual, and transgenderpopulations in orange county, california: A pilot cross-sectional study. *Nursing Administration Quarterly 48*(1). https://doi.ortg/10.1097/NAQ.0000000000000616

Nowaskie, D. & Patel, A. (2020). How much is needed? Patient exposure and curricular education on medical students' LGBT cultural competency. *BMC Medical Education,20*. https://doi.org/ 10.1186/s12909-020-02381-1

Pregnall, A., Churchwell, A., & Ehrenfeld, J. (2021). A call for LGBTQ content in graduatemedical

education program requirements. *Academic Medicine, 96*(6). https://doi.org/10.1097/ACM.0000000000003581

Sherman, A., McDowell, A., Clark, K., Balthazar, M., Klepper, M. & Bower, K. (2021). Transgender and gender diverse health education for future nurses: students'knowledge and attitudes. *Nurse Education Today, 97*. https://doi.org/10/1016/j.nedt.2020.104690

Stryker, S. D., Pallerla, H., & Pickle, S. (2020). Considerations on medical training forgender-affirming care: Motivations and perspectives. *International Journal of Transgender Health.*, *21*(1). https://doi.org/10.1080/15532739.2019.1689880

The White House, (2022). *Fact sheet: Biden-Harris administration advances equality andvisibility for transgender Americans.* https://www.whitehouse.gov/briefing-room/statements-releases/2022/03/31/fact-sheet-biden-harris-administration-advances-equality-and-visibility-for-transgender-americans/

Townsend-Chambers, C., Powers, K., Coffman, M., Okoro, F., & Robinson, P. A. (2022). Closing the gap: Using simulation to improve public health clinicians' affirming beliefs and behaviors with LGBT clients. *Clinical Simulation in Nursing, 71,* 128-134. https://doi.org/10.1016/j.ecns.2022.03.005

Appendix A

Evaluation and Synthesis Tables

Table A1

Evaluation Table for Quantitative Study

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
Burgwal et al., 2021) **Country**: Sample is from: Georgia, Poland, Serbia, Spain and Sweden **Funding**: This research received no external funding **Bias**: None apparent	Diversity, Equity, and Inclusion (DEI) training or education.	**Design:** Quantitative, Cross-Sectional Survey **Purpose:** to investigate the need for education among healthcare providers regarding transgender healthcare and to evaluate the impact of training on competence and confidence levels in those working with transgender persons.	**N= 810** **Demographics:** Healthcare providers from 5 European countries. **Setting:** Online **Exclusion:** Respondents had to consent to be part of the study, had to be in one of the 5 specified countries, may not identify as transgender, and response rate from Georgia was excluded due to low response rate and limited representation. **Attrition:** No dropouts.	**IV1:** Healthcare providers **DV1:** Training Experience **DV2:** Identified training needs **DV3:** Current knowledge base **DV4:** Current confidence level **Definitions:** Nothing needed to be further defined.	**Tools Used:** Categorizing variables, Likert Scales, comprehensive demographics, and the International Standard Classification of Education (ISCED-2011) and the Beliefs about Gender Scale. **Validity/ Reliability:** Using the above validated scales as part of their data gathering.	**Analyses Completed:** Descriptive Statistics with Chi-Square Analysis, Analysis of Covariance (ANCOVA), and Two-Way ANOVA.	**DV1:** Up to half had training, but those in mental health had the most. **DV2:** Most practitioners felt they had enough education, but did not feel confident in their ability to provide good care. **DV3:** Those with past LGBT training had the most confidence in their treatment abilities.	**Level of Evidence**: III **Strengths**: Measured what the study set out to measure. Appears valid and useful for further research. **Weakness**: Sampling may be skewed because the survey was distributed in specific online networks to get providers that have experience with transgender patients. **Feasibility**: Level is high due to easy sampling strategies and smooth data collection.

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
								Application: Can inform educational approaches to providers.
(Townsend-Chambers et al., 2022). **Country**: USA **Funding**: This work was supported by the Elinor Brooks Caddell, UNC Charlotte School of Nursing Faculty Award **Bias**: Completed by the UNC Charlotte School of Nursing and a couple of its faculty members.	"The Process of Cultural Competence in the Delivery of Healthcare Services," by Campinha-Bacote (2002).	**Design:** Pre-Test/Post-Test w/Survey **Purpose:** Assess the effectiveness video simulation aimed at improving public health clinicians' affirming beliefs and behaviors towards LGBT individuals and identify gaps for further education needs.	**N= 69** **Demographics:** public health clinicians working in HIV healthcare delivery. **Setting:** All were recruited from 7 HIV clinics with PrEP programs in an urban area of the Southeast US. **Exclusion:** Not directly stated **Attrition:** Only 20 participants finished all post-tests.	**IV1:** Public Health Clinicians **DV1:** Clinicians' affirming beliefs and behaviors towards LGBT persons. **DV2-3:** Changes in affirming beliefs and behaviors immediately after the educational intervention and again after a 2-month period. **Definitions:** None needed defining.	**Tools:** Gay Affirmative Practice (GAP) scale **Validity/ Reliability:** Use of the above validated tool with Cronbach's Alpha of 0.93.	**Statistical Tests Used:** descriptive statistics of sample, Mann-Whitney U, and Kruskal-Wallis tests to explore relationships between demographics and pretest scores, and Friedman and Wilcoxon Signed rank tests to detect changes in beliefs and behaviors over time. Descriptive statistics and content analysis were used to assess satisfaction with the intervention.	**DV1:** Increased affirmative beliefs…but they returned to baseline 2 months later. **DV2:** More affirming behaviors post -test and 2 months after. **DV3:** Satisfaction was high with this educational approach.	**Level of Evidence**: III **Strengths**: Measuring the use of video-simulation, important contribution to practice. **Weakness**: Participant attrition, no control group. **Feasibility**: Moderate to High. Survey method is relatively easy to perform and video simulation can be created easily. **Application**: Strong application to present day educational approaches in most facilities and some colleges. Increased

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
								understanding of current beliefs about LGBT patients in the healthcare system.
(Freaney et al., 2023) **Country**: USA **Funding**: There is not funding that was reported as associated. **Bias**: Study completed in a borough of NYC that is known for it's inhabitants historically supporting LGBT rights.	No mention of conceptual or theoretical framework.	**Design:** Quantitative cross-section design w/scaled survey. **Purpose:** To examine the self-assessed knowledge and clinical preparedness of healthcare working and the LGBT education and attitudinal awareness they received.	**N= 213** **Demographics:** healthcare workers of all education and career levels, ages 18 and older. **Setting:** All were recruited from a hospital in a NYC borough. **Exclusion:** Age 18+, and must provide direct care to patients. **Attrition:** None	**IV1:** Direct Patient Care Staff. **DV1:** LGBT basic knowledge **DV2:** Clinical Preparedness. **DV3:** Attitudinal Awareness **Definitions:** Attitudes: enduring evaluations or judgements that individuals hold about others. May be positive, negative, neutral, and have emotional, behavioral, and cognitive components.	**Tools:** Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS) **Validity/ Reliability:** Use of the above validated tool with Cronbach's Alpha of 0.86 for the entire instrument.	**Statistical Tests Used:** descriptive statistics of sample, T-Tests for Equality of Means comparing subscales between groups based on edu. hours, and perceptions of adequacy, and Proportional Analysis to determine impact on DV's using scale.	**DV1:** Most had a moderate to lower basic knowledge. **DV2:** Over half felt not clinically prepared. **DV3:** Over half had moderate to high attitudinal awareness, but still had poor attitudes.	**Level of Evidence**: III **Strengths**: clear objectives, use of established scale, large and diverse sample. **Weakness**: Sampling Bias based on location; data is self-report. **Feasibility**: Moderate to High. The survey method is relatively easy to perform. **Application**: Strong application to present day as it shows areas for improvement in education/training.
(Arthur et al., 2021)	Minority Stress Theory: Long-term discrimination in groups can	**Design:** Cross Sectional Survey **Purpose:** Explore the confidence	**N= 29**	**IV1:** Medical Students	**Tool:** The tool used to measure outcomes in the study was a 28-	**Statistical Tests Used:** Non-parametric tests used when data	**DV1:** Levels of confidence vary greatly among the medical students.	**Level of Evidence**: IV **Strengths**: This is one of the

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
Country: United Kingdom **Funding**: This research was funded by Brighton & Sussex Medical School as part of a researcher's year 4 undergraduate Individual Research Project. **Bias**: No competing interests.	lead to chronic stress, and potential medical and mental problems (Meyer, 2003).	level, attitudes towards and awareness of LGBT health issues in medical students, and their belief on the inclusion of LGBT content in the undergraduate curriculum	**Demographics:** undergraduate students in medical school (yrs 1-5). **Setting:** A medical school in the United Kingdom. **Exclusion:** Surveys that only had demographics filled out. **Attrition:** Of 72 that completed the simulation, only 29 completed the post-simulation	**DV1:** Confidence in providing care to LGBT patients. **DV2:** Receipt of formal LGBT training. **DV3:** Interest in additional training. **DV4:** Attitudes towards LGBT patients. **Definitions:** None needed defining.	question cross-sectional survey. This survey comprised six demographic questions, eighteen specially devised questions, and four questions adapted from previously validated surveys. **Validity/ Reliability:** Not explicitly stated but noted 4 questions were taken from other validated tests.	was non-normally distributed. Descriptive analysis was used, including median values, percentages and inter-quartile ranges. Kruskal-Wallis tests were done to identify any year group differences between questions on formal training they would have received.	**DV2:** Most students had not received formal training on LGBT issues in their schooling. **DV3:** Most wanted increased standalone training. **DV4:** Most had higher awareness and better attitudes towards LGBT patients.	largest studies with a cohort from the UK on this topic, medical school's curriculum is very similar to others and study result is somewhat generalizable. **Weakness**: Nearly 20% of participants identified as LGB, results are only from 1 medical school. **Feasibility**: Moderate to High. The survey method is relatively easy to perform. **Application**: High contribution to the field as there is limited research on baccalaureate level medical students and LGBT attitudes/clinical practice readiness.

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
(Koch et al., 2021) **Country**: USA **Funding**: Denies funding was received. **Bias**: None specified.	No mention of conceptual or theoretical framework.	**Design:** Descriptive post-test and mixed methods (qualitative and quantitative) design. **Purpose:** To determine if role play simulation is an effective method of increasing baccalaureate nursing students' knowledge and comfort with caring for transgender patients.	**N= 24** **Demographics:** first-semester students in a second-degree nursing prelicensure program. **Setting:** School Nursing in the Southwest USA. **Exclusion:** Students must attend simulation and fully fill out post-test survey. **Attrition:** Of the 79 students engaging in simulation, only 29 filled out the survey, and only 24 in its entirety.	**IV1:** Nursing Students **DV1:** Ability to conduct culturally sensitive assessments. **DV2:** Capability to provide support to transgender patients in hospital settings. **DV3:** Awareness of legal/ethical issues related to culturally sensitive healthcare delivery to transgender patients. **Definitions:** None needed defining.	**Tools:** Post Test Likert Scale 0-10. **Q1** - Tell us something you learned during the simulation (lung cancer/ gender/ family of choice Jenni visiting hours policy) **Q2** - How will the information reviewed in this simulation influence your practice as a student nurse/ nurse? **Q3** - What would you change, if anything, about the simulation?	**Statistical Tests Used:** **Quantitative:** Descriptive statistics and standard deviations. **Qualitative:** Emerging themes/descriptive analysis. Data Collection: Post-Test Survey method written or computerized (unspecified). **Data Validity/Reliability:** Mixed-Methods Design promoting validity and reliability through two types of measurement, and descriptive/theme analysis. Inter-rater reliability not mentioned.	**Themes from Qualitative Analysis w/Quantitative Support:** - Lack of awareness of the long history of discrimination experienced by transgender individuals. - Recognition of the importance of chosen family members in the absence of support from the family of origin. - Need for more knowledge and experience in asking patients about pronouns. - Insecurity and fear among students when discussing sexual orientation or gender identity. - Lack of awareness of hospital policies that may not be inclusive of transgender patients.	**Level of Evidence**: II **Strengths**: Prioritizing participant reflection and feedback on a controversial issue, **Weakness**: Participant attrition, no control group, small sample size. No standardized scaling. **Feasibility**: Moderate. The simulation will need to be created again with appropriate content. **Application**: Strong application to present day challenges facing nursing students, and use of a teaching tool in the nursing field to promote LGBT education.

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
(Sherman et al., 2021) **Country**: USA **Funding**: Nurse Support Program II (NSP_II_17-107) and the Postdoctoral Fellowship Funds from the Nell Hodgson Woodruff School of Nursing, Emory University, Atlanta, GA. **Bias**: None recognized.	Warren Blumenfeld's (1992) framework of personal, interpersonal, institutional, and cultural aspects of homophobia.	**Design:** Retrospective Cohort study/Mixed Methods **Purpose:** The purpose of this study was to assess the preliminary efficacy and feasibility Transgender Curriculum Integration Project (TCIP) to improve LGBT health knowledge and attitudes among a sample of pre-licensure nursing students.	**N= 160** **Demographics:** Groups of pre-licensure nursing students between the years 2014 and 2015. **Setting:** Baccalaureate nursing school in Georgia, USA. **Exclusion:** Individuals who responded to at least one of the voluntary surveys were included in the study **Attrition:** Original number of students in TCIP were not stated. Only those that fully completed surveys.	**IV1:** pre-licensure nursing students **DV1-8 Summarized:** **-**Importance of knowing patient's gender identity. -Comfort in interacting with a transgender/ gender non-conforming patient. -Transgender status affecting healthcare perceptions of patient. -Comfort around people whose gender presentation is ambiguous. -Level of confidence in their skills to provide respectful care LGBT patients.	**Tools:** 8-item Likert scale survey adapted from a scale based on the Index of Attitudes toward Homosexuals (Hudson and Ricketts, 1980) **Validity/ Reliability:** Offered through original research from validity of the above scale. No other statistics were identified.	**Statistical Tests Used:** Descriptive Statistics, rank-based nonparametric testing (Kruskal-Wallis H and Mann-Whitney U tests), and thematic content analysis, chi-square test for age variation.	**Summary:** -Statistically significant increase in participants' confidence in their skills to provide respectful and effective care to LGBT patients after exposure to TCIP. - The survey items with the highest (and most gender-sensitive) responses included importance of knowing about patients' gender identity and feeling comfortable interacting with LGBT patients. - Themes identified included requests for more information on LGBT health, and suggestions to make LGBT health content mandatory in the nursing curriculum.	**Level of Evidence**: III **Strengths**: Implementation of curriculum change in nursing program **Weakness**: inability to follow each student's individual progress between time points. Changes in knowledge/attitudes observed may reflect differences in sample of respondents instead of intervention. **Feasibility**: Moderate as it will require completion of TCIP content again. **Application**: LGBT education for healthcare providers.
(Stryker et al., 2020)	None Identified	**Design:** Cross-Sectional Survey	**N= 153**	**IV1:** Medical Providers	**Tools:** The survey instrument	**Statistical Tests Used:**	**DV1:** The two most common motivators for seeking	**Level of Evidence**: III

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
Country: USA **Funding**: Unspecified, but affiliated with National Institute of Health. **Bias**: Affiliation with University of Cincinnati College of Medicine		Design/Mixed Methods **Purpose:** To identify motivators for medical providers seeking training in gender-affirming care and to define which training experiences were most beneficial to their career development.	**Demographics:** Interdisciplinary medical providers (Specifically physicians, physician assistants, or advance-practice nurses). Found through listservs and referral bases. **Setting:** Online Survey **Exclusion:** Medical personnel not at provider level. **Attrition:** Any surveys that were not completely filled out.	**DV1:** Motivators for seeking LGBT training. **DV2:** Current sources of training **DV3:** Types of training and in what setting they should be presented in. **Definitions:** None provided/needed.	collected information on geographic location of practice, type(s) of practice(s) that respondents worked in, types of gender-affirming care provided, provider's years and volume of experience with transgender patients, access to and benefit from training opportunities, and recommendations for training others in transgender health. **Validity/ Reliability:** Anonymous completion of surveys, survey completed by a team of colleagues, IRB approval. No specified statistics ran on validity/reliability of tool.	Descriptive statistics of the population and responses, Bivariate Analysis.	training in gender-affirming care were filling a need in the community and/or having met a transgender patient requesting care. **DV2:** Most providers described being self-taught without any formal training in transgender health. Next common were learning sessions at professional conferences and mentorship. **DV3:** Clinical experience (e.g. rotations) was the largest identified training type needed by the sample, followed by on-site training provided by employers/ professional conferences, and residency/fellowship/ mentorship.	**Strengths**: This study is the largest to date that describes the gender-affirming care medical provider workforce and describes optimal ways in which providers can be trained in gender-affirming care. **Weakness**: inability to measure a response rate, convenience sampling making it not generalizable to the larger workforce (and the gender clinics in the known area). **Feasibility**: High. Online study design is easy to complete. **Application**: Increased knowledge about the population in

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
								need of further LGBT education.
(Hand & Gedzyk-Nieman, 2022) **Country**: USA **Funding**: Denies outside funding **Bias**: None identified.	None Identified.	**Design:** A multisite descriptive correlational design with Cross Sectional Survey **Purpose:** Assess perceived preparedness for and comfort level with providing care for LGBT patients.	**N= 359** **Demographics:** graduating prelicensure nursing students **Setting:** national survey **Exclusion:** 7 removed for indicating they were graduating from a diploma program. **Attrition:** None.	**IV1:** graduating prelicensure nursing students **DV1:** Perceived Preparedness to provide care to LGBT patients. **DV2:** Level of comfort working with LGBT patients. **Definitions:** None provided/needed.	**Tools:** Modified version of the Lesbian, Gay, Bisexual, & Transgender Medical Education Assessment tool (LGBT-MEA) **Validity/ Reliability:** The Cronbach's alpha for offering specific LGBTQ+ health content was 0.89. For perceived preparedness, Cronbach's alpha was 0.91. All values indicate high internal consistency.	**Statistical Tests Used:** Independent Sample T-Test, Pearson Correlations, One Way (ANOVA) Analysis of Variance.	**DV1:** Participants felt most prepared in areas related to HIV, safe sex practices, and STD/STI. Least prepared nonsurgical transitioning and gender-affirming surgery. **DV2:** Most feel comfortable caring for LGBT patients, but a portion felt only somewhat comfortable/uncomfortable. Many did not attribute their level of comfort to their nursing curriculum.	**Level of Evidence**: III **Strengths**: The study surveyed graduating nursing students on a national scale, study's design allowed for the examination of the relationship between variables easier, significant data analysis. **Weakness**: Majority of participants are cisgender white women. **Feasibility**: High. Survey scales are easily disbursed and completed. **Application**: Understanding more about the readiness of newly graduating nurses to

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Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
								provide high quality care to LGBT persons.
(Chernikova et al., 2020) **Country**: Germany **Funding**: None noted **Bias**: None noted	Learning Scaffolding Framework (Chernikova et al., 2019).	**Design:** Meta Analysis **Purpose:** To assess the effects of instructional support in higher education.	**N= 145** **Demographics:** Empirical Studies **Inclusion Criteria:** - Experimental or quasi-experimental design with at least one treatment and one control condition or report both pre- and postmeasures in the case of a within-subject design. - Treatment conditions had to include a simulation-based learning environment with instructional support measures. - The control condition could include alternative instructional methods to	**IV1:** Empirical Studies on higher education that met the inclusion criteria. **Q1:** (a) To what extent can simulation-based learning environments facilitate the development of complex cognitive skills in higher education? (b) Are the effects of simulation-based learning and scaffolding generalizable across different complex skills? **Q2:** How do simulation features contribute to the effectiveness of a simulation-based learning environment? **Q3:** To what extent does instructional support contribute to the effectiveness of simulations?	**Tools:** First, the studies were coded for eligibility criteria using Covariance, then double coded through interraters, and then agreed upon studies were coded independently. Cohen's Kappa run to due to strong imbalance in study categories, so 37 were excluded from final total for data analysis. **Validity/ Reliability:** This study's design as used as a control for validity, included interrater reliability.	**Statistical Tests Used:** Assessment of the data as described in "measurement/instrumentation" area. Meta-Regression, Subgroup analysis, interaction analyses including p-values, confidence intervals, heterogeneity statistics, standard errors, and effect size.	1. Simulation-based learning had a large positive effect on fostering complex skills compared to control conditions without intervention w/ a substantial effect size. 2. Live simulations with real patients were highly effective, followed by hybrid simulations and simulations using mannequins. 3. Examples and reflection phases were associated with higher learning outcomes, while prompts had a mixed effect depending on the context. 4. the effectiveness of scaffolding varied based on learners' prior knowledge, experience, and educational level.	**Level of Evidence**: II **Strengths**: large sample size, comprehensive analysis, statistical rigor. **Weakness**: Most studies were from medical literature (126) and may not be generalizable to specific areas of medicine. **Feasibility**: Challenging. Meta-analyses require large time commitment and multiple checks to control validity/reliability. **Application**: A more complete understanding of teaching methods that are most helpful in

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
			simulation (i.e., traditional teaching). **Exclusion:** Studies that did not report any intervention, reported the comparison of multiple experimental designs, and studies that did not provide any control condition were excluded from analysis. **Attrition:** None	**Q4:** (a) To what extent does the learner's prior knowledge (i.e., familiarity with the context, level of education) contribute to the effectiveness of simulation-based learning? (b) How does prior knowledge moderate the effect of different scaffolding types on different complex skills? **Definitions:** None Needed				medical academia.
(Nowaskie & Patel, 2020) **Country**: USA **Funding**: None noted **Bias**: None noted	None specified	**Design:** Cross-Sectional Survey **Purpose:** To understand how well medical students are equipped to care for LGBT individuals and explore how their experiences, such as working with LGBT patients and education medical students receive, relate to their ability to provide culturally	**N= 940** **Demographics:** Medical students across three universities. **Setting:** Survey from three universities with medical schools. **Exclusion:** None noted **Attrition:** None noted	**IV1:** medical students **DV1:** LGBT attitudinal awareness and level of education and preparedness. **DV2:** Level of preparedness to assess transgender patients. **DV3:** Level of cultural competency and overall exposure to LGBT patients **Definitions:** None	**Tools:** LGBT-Development of Clinical Skills Scale (LGBT-DOCSS) **Validity/ Reliability:** Cronbach's Alpha of 0.86	**Statistical Tests Used:** Paired sample's T-Test, Analysis of Covariance (ANCOVA), Correlational Analysis, Multiple Linear Regressions, descriptive statistics.	**DV1:** High level of attitudinal awareness and education on the LGBT group, but low level of education on medical needs. **DV2:** less adequate clinical training, supervision, and competence to assess transgender patients. **DV3:** Moderate cultural competence but scores depended on level of exposure to LGBT patients.	**Level of Evidence**: III **Strengths**: Multiple universities used to increase generalizability, statistical rigor. **Weakness**: The study's response rate was 27.6%, which is low and may create a sampling bias and skew results, and self-reported online surveys.

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Citation	Theoretical/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Variables	Measurement/ Instrumentation	Data Analysis	Results/ Findings	Level of Evidence; Application to practice
		competent LGBT care.						**Feasibility**: High. Survey data is easily created and gleaned from samples. **Application**: A greater understanding of the gaps in LGBT education in the medical field.

Key: IV: Independent Variable, **DV:** Dependent Variable, **Q:** Question, **LOE:** Level of Evidence

Appendix B

Synthesis Table

Study (Author, year)	(Burgwal et al., 2021)	(Townsend-Chambers et al., 2022)	(Freaney et al., 2023)	(Arthur et al., 2021)	(Koch et al., 2021)	(Sherman et al., 2021)	(Stryker et al., 2020)	(Hand & Gedzyk-Nieman, 2022)	(Chernikova et al., 2020)	(Nowaskie & Patel, 2020)
Design	Cross-Sectional Survey	Pre-Test/Post-Test w/Survey	Cross Sectional Survey	Cross Sectional Survey	Descriptive post-test and mixed methods	Retrospective Cohort study/Mixed Methods	Cross-Sectional Survey Design/ Mixed Methods	A multisite descriptive correlational design with Cross Sectional Survey	Meta Analysis	Cross-Sectional Survey
Level of Evidence	III	III	III	IV	II	III	III	III	II	III
Sample										
n subjects	810	69	213	29	24	160	153	359	10,532	940
M-Age	42.2		37.65	22		24.52	40.64	23.39		25.49
Medical				X					X	X
Nursing					X	X		X	X	
Integrated Clinical staff in workforce		X	X				X			
Students				X	X	X		X		X
Therapy Providers	X									
Theory/Conceptual Framework										
Framework Used	(DEI)	"The Process of Cultural Competence in the Delivery of Healthcare Services," by Campinha-Bacote (2002).		Minority Stress Theory (Meyer, 2003)		Warren Blumenfeld's (1992) framework of personal, interpersonal, institutional, and cultural aspects of homophobia.			Learning Scaffolding Framework (Chernikova et al., 2019	
No Framework			X		X		X	X		X
Setting										

Key: **LGBT:** Lesbian, Gay, Bisexual, and Transgender, **DEI**: Diversity, Equity, and Inclusion Education, **ISCED-2011:** International Standard Classification of Education, **GAP:** Gay Affirmative Practice, **LGBT-DOCSS:** Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale, **LGBT-MEA**: Modified version of the Lesbian, Gay, Bisexual, & Transgender Medical Education Assessment, **SD:** Standard Deviation, **ANOVA:** Analysis of Variance, **ANCOVA:** Analysis of Covariance, ⬆: Increased, ⬇: Decreased.

Study (Author, year)	(Burgwal et al., 2021)	(Townsend-Chambers et al., 2022)	(Freaney et al., 2023)	(Arthur et al., 2021)	(Koch et al., 2021)	(Sherman et al., 2021)	(Stryker et al., 2020)	(Hand & Gedzyk-Nieman, 2022)	(Chernikova et al., 2020)	(Nowaskie & Patel, 2020)
Universities/Academic Affiliation			X	X	X	X		X	X	X
Community Clinic/Hospital		X	X				X			
USA		X	X		X	X	X	X		X
International	X			X					X	
Measurement Tools										
Tools Utilized	ISCED-2011 and the Beliefs about Gender Scale	GAP	LGBT-DOCSS	Researcher created unique survey with quantitative measures.	Qualitative questions	Tool adapted from the Index of Attitudes toward Homosexuals (Hudson and Ricketts, 1980).	Researcher created unique survey with quantitative and qualitative measures.	LGBT-MEA	First, the studies were coded for eligibility criteria using Covariance, then double coded through inter-raters, and then agreed upon studies were coded independently.	LGBT-DOCSS
Study Created Likert Scales or Survey	X			X	X	X	X			
Validity/Reliability	No value provided. Past scale validity in summary.	Cronbach's Alpha of 0.93	Cronbach's Alpha of 0.86	Moderate. Not explicitly stated but noted 4 questions taken from other validated tests.	Mixed-Methods Design promotes validity and reliability through two types of measurement	Offered through original research from validity of the above scale.	Anonymous responses, tool created through inter-rater reliability.	Cronbach's alpha for offering specific LGBTQ+ health content was 0.89. For perceived preparedness, Cronbach's alpha was 0.91.	This study's design as used as a control for validity, included interrater reliability.	Cronbach's Alpha of 0.86
Thematic Coding					X	X	X			
Major Variables Studied/Interventions										
Level of LGBT Education	X		X	X	X		X	X		X
Simulation (Video/Live)		X			X				X	

Key: **LGBT:** Lesbian, Gay, Bisexual, and Transgender, **DEI**: Diversity, Equity, and Inclusion Education, **ISCED-2011:** International Standard Classification of Education, **GAP:** Gay Affirmative Practice, **LGBT-DOCSS:** Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale, **LGBT-MEA**: Modified version of the Lesbian, Gay, Bisexual, & Transgender Medical Education Assessment, **SD:** Standard Deviation, **ANOVA:** Analysis of Variance, **ANCOVA:** Analysis of Covariance, ⬆: Increased, ⬇: Decreased.

Study (Author, year)	(Burgwal et al., 2021)	(Townsend-Chambers et al., 2022)	(Freaney et al., 2023)	(Arthur et al., 2021)	(Koch et al., 2021)	(Sherman et al., 2021)	(Stryker et al., 2020)	(Hand & Gedzyk-Nieman, 2022)	(Chernikova et al., 2020)	(Nowaskie & Patel, 2020)
Confidence to Provide Care to LGBT Patients	X			X	X	X		X		
Attitudes Towards LGBT Patients	X	X	X	X	X	X				X
Level of Preparedness to provide LGBT services in scope of practice	X		X			X	X	X		X
Didactic LGBT Education Intervention		X				X				
Outcomes/ Themes										
Preparedness Level	↓		↓					↓		↓
Confidence Level					↓	↑		↓		
Level of Knowledge on LGBT treatment needs		↑	↓	↓	↓	↓	↓		↑	↓
Desire for More Training	↑			↑	↑	↑	↑	↑		↑
Level of Beliefs/Attitudes on LGBT population			↓	↑						↓
Level of behaviors/interactions with LGBT population		↑						↑		

Key: **LGBT:** Lesbian, Gay, Bisexual, and Transgender, **DEI**: Diversity, Equity, and Inclusion Education, **ISCED-2011:** International Standard Classification of Education, **GAP:** Gay Affirmative Practice, **LGBT-DOCSS:** Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale, **LGBT-MEA**: Modified version of the Lesbian, Gay, Bisexual, & Transgender Medical Education Assessment, **SD:** Standard Deviation, **ANOVA:** Analysis of Variance, **ANCOVA:** Analysis of Covariance, ↑: Increased, ↓: Decreased.

Appendix E

Project Timeline

Timeline	Activity	Detail/Rationale
Pre-Project	Permission for LGBT-DOCSS obtained.	Standardized scale obtained for measuring outcomes specific to aims of project.
Pre-Project	Completed recruitment methods and determine sample size.	Participants for project recruited through previously discussed methods.
Project Implementation: Started	Administer Pre-Test	Informed consents signed. Administer first LGBT-DOCSS prior to intervention.
Project Implementation: Intervention Part 1	10-minute didactic audio-visual presentation on LGBT affirming interactions.	Presentation to include information on pronoun usage, interviewing skills, tough/medical conversations, and how to recover from misgendering.
Project Implementation: Intervention Part 2	15-minute opportunity for simulation led by researcher.	Researcher to simulate clinic staff, and to simulate LGBT person for staff to practice affirming language and interviewing skills with.
Project Implementation: Ending	Administer Post-Test	Administer second LGBT-DOCSS after intervention.
Data Collection	Collect all Pre and Post-Tests	Collect Pre and Post-Tests from all participants
Start Again at “Pre-Project” for each clinic group.	Complete project at each clinic participating.	Project is voluntary; thus, each clinic/group of participants will need to go through this timeline again.
Data Processing	Data Ratification & Analysis	Data aggregated, ratified and statistics completed for analysis.

Appendix F

DNP Project Estimated Budget

Phase	Activities	Cost
Preparation	Design, print, and hang promotional materials to potential audiences. Source: Print materials from DNP student. Emailwill be free.	$20
	Create PowerPoint of presentation to staff Requirement: Subscription to Microsoft Office.	$135
	Obtain a copy of the LGBT-DOCCSS validated scale for measurement. Source: Author gave to researcher at no cost.	$0
	Use curriculum from “The Safe Zone Project” for gender affirming education. Source: Full curriculum given by the organization to the DNP Project at no cost.	$0
	Design and print evaluation tools and handouts (estimate: 100)	$100

Delivery	Community and/or conference rooms atorganization. Needed: Room with chairs. Amount seen is average market price per square footfor office space in Phoenix, AZ	$154.15/squ. Ft.
	Audio-Visual Equipment provided by organization: Projector, computer. But could be completed using other forms of equipment that are bought or rented for cheaper.	$500
Data Analysis	Computer software for data analysis	Price included with Microsoft Office or tuition
Total Cost	n/a	**$755** (potential square footage of office space notincluded)
Savings	LGBT trainings by a licensed professional: Estimated cost per training that is saved by the organization with this program.	**$250-1000 per hour or session** **(With each session being about 1-hour, potential savings is at least $5000.00)**
Total Savings	Potential savings less the total cost.	**$4245.00**

Appendix G

Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS)

Demographics: I would like to know a little more about you! Please ***"FILL IN THE BLANK"*** or ***"CHECK"*** the answer that best describes you.

Age:_____(years)

Sex: Male_____ Female_____ Non-Binary____

Sexual Orientation: Heterosexual/Straight_____Homosexual/Gay_____Bisexual_____ Pansexual_____Other_____(specify)

Ethnicity:

White/Caucasian_____

African American/Black_____

Hispanic/Latino____

Native American_____

Asian_____

Pacific Islander_____

Other_____(specify)

Occupation:_____

Length of employment with Terros Health: _____

Instructions: Items on this scale are intended to examine clinical preparedness, attitudes, and basic knowledge regarding lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please use the provided scale to rate your level of agreement or disagreement for each item. Please note, items on this scale primarily inquire about either sexual orientation (LGB = lesbian, gay, and bisexual) or gender identity (transgender). Two questions are inclusive and refer collectively to lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please ***"CIRCLE"*** the number that is most representative of your level of agreement or disagreement with each item.

1. I am aware of institutional barriers that may inhibit transgender people from using health care services.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

2. I am aware of institutional barriers that may inhibit LGB people from using health services.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	*2*	*3*	*4*	*5*	*6*	*7*

3. I think being transgender is a mental disorder.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*

1	2	3	4	5	6	7

Instructions: Items on this scale are intended to examine clinical preparedness, attitudes, and basic knowledge regarding lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please use the provided scale to rate your level of agreement or disagreement for each item. Please note, items on this scale primarily inquire about either sexual orientation (LGB = lesbian, gay, and bisexual) or gender identity (transgender). Two questions are inclusive and refer collectively to lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please ***"CIRCLE"*** the number that is most representative of your level of agreement or disagreement with each item.

4. I would feel unprepared talking with a LGBT client/patient about issues related to their sexual orientation or gender identity.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

5. A same sex relationship between two men or two women is not as strong and as committed as one between a man and a woman.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

6. I am aware of research indicating that LGB individuals experience disproportionate levels of health and mental health problems compared to heterosexual individuals.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

7. LGB individuals must be discreet about their sexual orientation around children.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

8. I am aware of research indicating that transgender individuals experience disproportionate levels of health and mental health problems compared to cisgender individuals.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

9. When it comes to transgender individuals, I believe they are morally deviant.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

10. I have received adequate clinical training and supervision to work with transgender clients/patients.

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

11. I have received adequate clinical training and supervision to work with lesbian, gay, and bisexual (LGB) clients/patients

Strongly Disagree			Somewhat Agree/Disagree			Strongly Agree
1	2	3	4	5	6	7

Instructions: Items on this scale are intended to examine clinical preparedness, attitudes, and basic knowledge regarding lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please use the provided scale to rate your level of agreement or disagreement for each item. Please note, items on this scale primarily inquire about either sexual orientation (LGB = lesbian, gay, and bisexual) or gender identity (transgender). Two questions are inclusive and refer collectively to lesbian, gay, bisexual, and transgender (LGBT) clients/patients. Please ***"CIRCLE"*** the number that is most representative of your level of agreement or disagreement with each item.

12. The lifestyle of a LGB individual is unnatural or immoral.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

13. I have experience working with LGB clients/patients.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

14. I feel competent to assess a person who is LGB in a therapeutic setting.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

15. I feel competent to assess a person who is transgender in a therapeutic setting.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

16. I have experience working with transgender clients/patients.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

17. People who dress opposite to their biological sex have a perversion.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

18. I would be morally uncomfortable working with a LGBT client/patient.

Strongly Disagree			*Somewhat Agree/Disagree*			*Strongly Agree*
1	***2***	***3***	***4***	***5***	***6***	***7***

Appendix H

LGBT-DOCSS Scoring Instructions

Scoring Instruction for the LGBT-DOCSS

1) Reverse score all 8 questions in parentheses: (3), (4), (5), (7), (9), (12), (17), and (18). Use the reverse scoring Likert scale (1 = 7, 2 = 6, 3 = 5, 4 = 4, 5 = 3, 6 = 2, 7 = 1).

2) Calculate total LGBT-DOCSS mean score: Add all test items (using the reverse score for items in parentheses) and divide by 18.

> The total LGBT-DOCSS mean score is equal to: 1 + 2 + (3) + (4) + (5) + 6 + (7) + 8 + (9) + 10 + 11 + (12) + 13 + 14 + 15 + 16 + (17) + (18) = LGBT-DOCSS Total Raw Score. Divide by 18 to obtain mean score.

3) Calculate Subscale scores: For each subscale, add up the scores of the questions listed (using the reverse score for items in parentheses) and divide by the number of questions in each subscale.

> **Clinical Preparedness subscale**: (4) + 10 + 11 + 13 + 14 + 15 + 16 = LGBT-DOCSS Clinical Preparedness subscale Total Raw Score. Divide by 7 to obtain mean score.
>
> **Attitudes subscale**: (3) + (5) + (7) + (9) + (12) + (17) + (18) = LGBT-DOCSS Attitudes subscale Total Raw Score. Divide by 7 to obtain mean score.
>
> **Knowledge**: 1 + 2 + 6 + 8 = LGBT-DOCSS Knowledge subscale Total Raw Score. Divide by 4 to obtain mean score.

4) Higher scores are indicative of higher levels of clinical preparedness and rudimentary knowledge and less prejudicial attitudinal awareness regarding LGBT clients/patients.

Suggested Citation: Bidell, M. P. (2017). The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS): Establishing a new interdisciplinary self-assessment for health providers. *Journal of Homosexuality*, 10, 1432–1460. doi: 10.1080/00918369.2017.1321389

Appendix I

Descriptive Statistics

Table I1

Summary Statistics Table for Interval and Ratio Variables

Variable	*M*	*SD*	*n*	Min	Max
AGE	40.17	14.08	77	22.00	71.00

Table I2

Frequency Table for Nominal Variables

Variable	*n*	*%*
Sex		
FEMALE	56	70.89
MALE	21	26.58
NON-BINARY	2	2.53
Sexual Orientation		
HETEROSEXUAL/STRAIGHT	62	78.48
BISEXUAL	4	5.06
HOMOSEXUAL/GAY	9	11.39
PANSEXUAL	2	2.53
QUEER	2	2.53
Ethnicity		
WHITE/CAUCASIAN	26	32.91
MIXED RACE	9	11.39
AFRICAN AMERICAN/BLACK	16	20.25
HISPANIC/LATINO	22	27.85
ASIAN	2	2.53
NATIVE AMERICAN	4	5.06

Table I3

Frequency Table for Nominal Variables related to Occupation.

Variable	*n*	%
CLINICAL STAFF	9	11.39
CASE MANAGERS	14	17.72
PEER/SUPPORT SPECIALISTS	10	12.66

ADMINISTRATIVE/OPERATIONS STAFF	3	3.80
NURSING STAFF	3	3.80
PROVIDERS	3	3.80
OTHER/LOW-FREQUENCY ROLES	3	3.80
MISSING/UNSPECIFIED	35	44.30

Note. Due to rounding errors, percentages may not equal 100%.

Table I4

Frequency Table for Ordinal Variables Related to Length of Employment.

Length of Employment	*n*	%
LESS THAN 1 YEAR	23	29.11%
1-2 YEARS	20	25.32%
3–5 YEARS	13	16.46%
6–10 YEARS	7	8.86%
MORE THAN 10 YEARS	3	3.80%
MISSING/UNSPECIFIED	13	16.46%

Appendix J

Summary Statistics

Table J1

Summary Statistics Table for Interval and Ratio Variables of Total Clinical Skills Score

Variable	*M*	*SD*	*n*	Min	Max
Pre-Test Clinical Skills	96.88	14.63	79	66.00	126.00
Post-Test Clinical Skills	104.34	16.08	79	50.00	126.00

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

Table J2

Summary Statistics Table for Interval and Ratio Variables of Sub-Scales

Variable	*M*	*SD*	*n*	Min	Max
Pre-Test Attitudes	43.83	6.68	79	16.00	49.00
Post-Test Attitudes	43.31	8.07	79	18.00	49.00
Pre-Test Clinical Preparedness	33.54	8.35	79	10.00	49.00
Post-Test Clinical Preparedness	38.38	7.95	79	14.00	49.00
Pre-Test Knowledge	19.51	5.77	79	4.00	28.00
Post-Test Knowledge	22.65	4.76	79	12.00	28.00

Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.

Appendix K

Inferential Statistics

Table K1

Pearson Correlation Between Pre-Test & Post-Test Clinical Skills Scores

Variable Pair	*r*	95% CI	*n*	*p*
Pre-Post Clinical Skills	.61	[.45, .73]	79	<.001

Note. *r* = Pearson correlation coefficient. CI = confidence interval. A large effect size is indicated per Cohen's (1988) criteria.

Table K2

Pearson Correlation Between Pre-Test & Post-Test Clinical Preparedness Scores

Variable Pair	*r*	95% CI	*n*	*p*
Pre-Post Clinical Preparedness	.58	[.41, .71]	79	<.001

Note. *r* = Pearson correlation coefficient. CI = confidence interval. A large effect size is indicated per Cohen's (1988) criteria.

Table K3

Pearson Correlation Between Pre-Test & Post-Test Attitudes Scores

Variable Pair	*r*	95% CI	*n*	*p*
Pre-Post Attitudes	.77	[.67, .85]	79	<.001

Note. *r* = Pearson correlation coefficient. CI = confidence interval. A large effect size is indicated per Cohen's (1988) criteria.

Table K4

Pearson Correlation Between Pre-Test & Post-Test Attitudes Scores

Variable Pair	*r*	95% CI	*n*	*p*
Pre-Post Knowledge	.46	[.27, .62]	79	<.001

Note. *r* = Pearson correlation coefficient. CI = confidence interval. This correlation reflects a moderate effect size as defined by Cohen (1988).

Figure K1

Two-Tailed Wilcoxon Signed Rank Values of Pre-Test & Post-Test Clinical Skills Scores

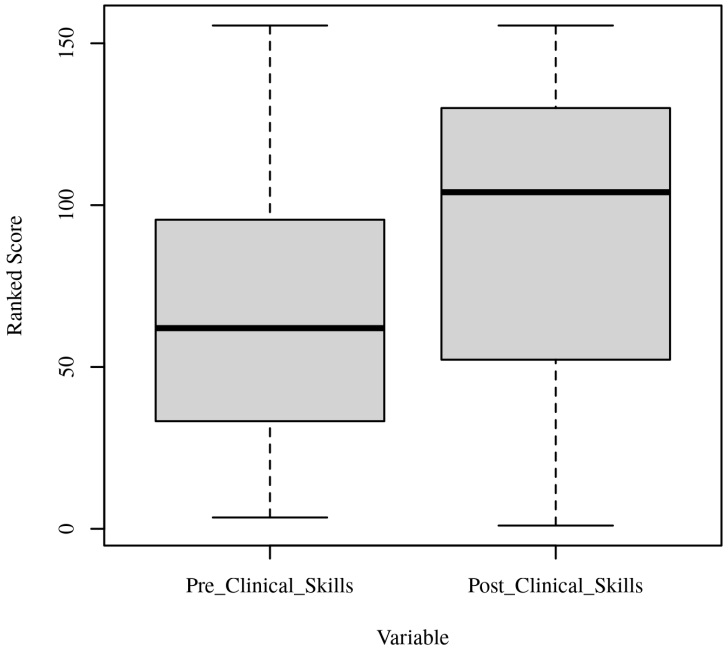


Figure K2

Scatterplot Showing the Relationship Between Pre- and Post-Test Clinical Skills Scores

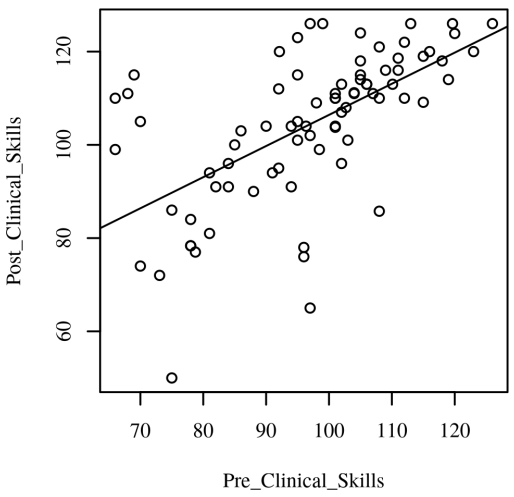


Figure K3

Scatterplot Showing the Relationship Between Pre- and Post-Test Clinical Preparedness Scores

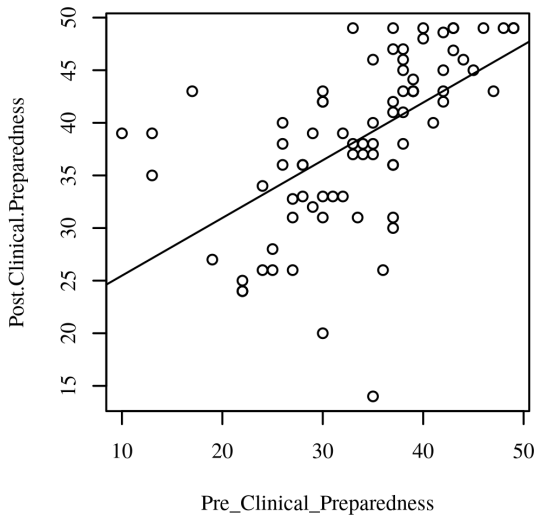


Figure K4

Scatterplot Showing the Relationship Between Pre- and Post-Test Attitudes

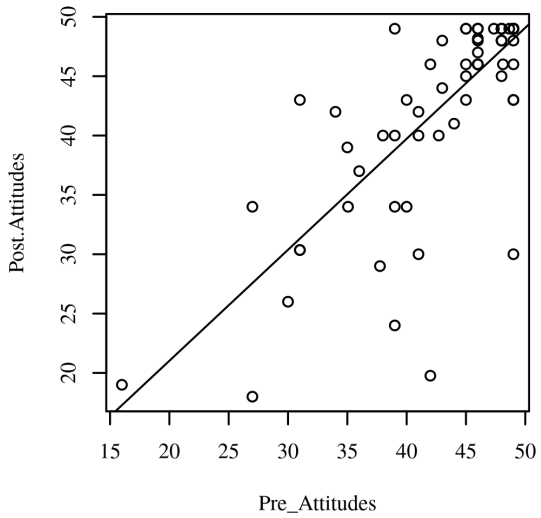
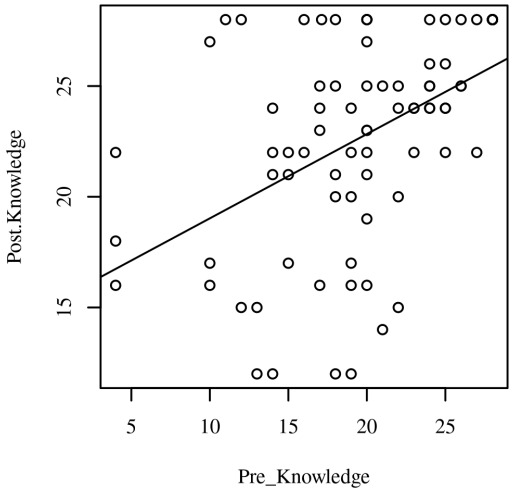


Figure K5

Scatterplot Showing the Relationship Between Pre- and Post-Test Knowledge


Post.Knowledge
15
20
25
5
10
15
20
25
Pre_Knowledge