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DNP Final Project Report

Evaluation of an Online LGBTQ Patient Care Education Module for Primary Care Providers

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University of Kentucky

College of Nursing

Spring, 2019

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Dedication

This DNP Project is dedicated to my husband, whose love and support is constant. Thank you for dragging me across the finish line. I love you.

Acknowledgements

I would like to express my special appreciation and thanks to my advisor Dr. Elizabeth Tovar, you have been a wonderful mentor and academic advisor. I would like to thank you for supporting my passion to pursue this study. I would also like to thank my committee members Dr. Lynne Jensen and clinical mentor Dr. Keisa Fallin-Bennett for taking the time to serve as my committee members. Dr. Jensen, I would never have gotten this project off and running without your help. Thank you for your dedication to your students, it is unmatched. Dr. Fallin-Bennett, I want to thank you for sharing your expertise, passion, and creativity for this project. I can think of no better person to collaborate on LGBTQ healthcare than you. Also, I want to extend my sincerest gratitude for providing me with grant funding for the project. Thank you to Kenneth Harris from University of Kentucky CE Central, for all of your help with the technology aspect online module. I would also like to extend a special thank you to Dr. Amanda Wiggins for her help with the data analysis of this project.

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Abstract

Purpose: The purpose of this pilot study was to evaluate the effectiveness of an online educational module about LGBTQ healthcare topics for primary care providers in Kentucky. The study focused on the changes in knowledge, attitudes and self-efficacy in topics related to LGBTQ patients.

Methods: This study was a one-group pre/post intervention design to evaluate the knowledge, attitudes and self- efficacy of providers regarding primary care topics for the LGBTQ community before and after completing a training module on LGBTQ healthcare topics. Subjects were recruited via the KCNPNM Listserv over a 2-week period to participate in the interactive, online audio/visual module. The module is an original presentation using evidenced based guidelines tailored to adapt to common primary care scenarios involving LGBTQ patients.

Results: There were statistically significant changes in participant (N=47) attitudes regarding LGBTQ patient discrimination in healthcare settings, and confidence in taking a comprehensive sexual history. There was also an increase in mean knowledge scores from pre (0.58) to post (0.71). There were improvements in other categories of attitudes and self-efficacy, but the results were not statistically significant.

Discussion: This effective training provides the opportunity for advancement in the cultural competency of primary care providers in Kentucky, which is desperately needed to improve the health outcomes of the selected vulnerable population. Future projects can focus on LGBTQ patient health outcomes and satisfaction of care following cultural competency implementation.

Introduction

Lesbian, gay, bisexual, transgender and queer/questioning (LGBTQ) patients experience worse health outcomes across many health domains, including increased mental health and suicide risk, substance abuse, victimization and discrimination, STIs and HIV transmission, and several cancers (Fredrickson-Goldsen, 2016). The LGBTQ patient population is also less likely to seek preventative care or have health insurance; in particular, rural LGBTQ people have poor access to healthcare (Fredrickson-Goldsen, 2016; Whitehead, Shaver & Stephenson, 2016). The healthcare needs of LGBTQ patients are not being met as a result of unconscious bias, discrimination, stigma, and the inadequate preparation and training of culturally competent healthcare providers. The continued lack of access to safe, culturally competent healthcare risks worsening health outcomes and continued healthcare disparities of LGBTQ patients (Kuzma, Pardee & Darling-Fisher, 2019). Cultural competency education is an effective evidence-based approach to improving the healthcare provider knowledge and attitudes surrounding LGBTQ care, improving patient satisfaction, and maintaining a welcoming healthcare environment for LGBTQ patients (HRC Foundation, 2018).

Current State of LGBTQ Health

Healthcare inequity, social determinants of health, social stigma and discrimination are reasons for health disparities of LGBTQ people. A health disparity is “a type of difference in health that is closely linked with social or economic disadvantage. Health disparities negatively affect groups of people who have systematically experienced greater social or economic obstacles to health. These obstacles stem from characteristics historically linked to discrimination or exclusion such as race or ethnicity, religion, socioeconomic status, gender, mental health, sexual orientation, or geographic location.” (CDC, 2016, parag.5). Health

disparities in the LGBTQ population include: increased mental health diagnoses, increased substance abuse (tobacco, drugs, and alcohol), more suicide and suicide attempts, increased sexually transmitted infections, HIV, obesity (in lesbian women), access/barriers to healthcare, depression, anxiety, certain cancers, violence and victimization (IOM, 2011).

The reasons for these inequities include stigma, discrimination, and internalized homophobia, and these social problems can lead to lifelong health consequences (Zaza, Kahn, & Barrios, 2016). For example, many bisexual and lesbian women do not get Pap screening tests at recommended intervals, often owing to fear of discrimination of sexual orientation in the healthcare setting. Lesbian and bisexual women have a high-risk profile for cervical cancer with increased rates of tobacco use and obesity compared to heterosexual women. However, they are ten times less likely to be regularly screened than heterosexual women (Tracy, Lydecker & Ireland, 2010). Men who have sex with men (MSM) without IV drug use still constitute 75% of all new HIV infections (CDC, 2010). Compared to heterosexual/cis-gender peers, LGBTQ youth are three times as likely to commit suicide (Hafeez, et al, 2017). Lesbian, gay, bisexual and transgender adults are more than twice as likely to have used an illicit drug in the last year, 1.5 times as likely to smoke tobacco, and LGBT persons have a greater likelihood of experiencing a substance use disorder in their lifetime and often enter treatment with more severe substance use disorders (Medley, et al, 2015). It is difficult to estimate the exact distribution of certain diseases and healthcare costs associated with LGBTQ patient care because sexual orientation, sexual behavior, and gender identity are inconsistently reported in national health surveys (Butler et al., 2016).

Transgender individuals have their own disproportionate amount of disparities according to the National Transgender Discrimination Survey (NTDS), which is a survey with the largest

representation of trans spectrum people in North American research. Thirty-nine percent of trans spectrum individuals face serious psychological distress compared to 5% of the population and 40% have contemplated suicide in their lifetime (compared to 4.6%). Trans spectrum people are living with HIV at a rate of five times that of the general population (1.4% versus 0.3%). Forty-six percent of trans spectrum people reported experiencing verbal harassment in the last year, 9% reporting physical attacks, and 47% report being sexually assaulted in their lifetime (Grant, Mottet, & Tannis 2010).

The Gap: Cultural Competency Training

Identifying as LGBTQ is a key determinant in less access to care because healthcare has historically been viewed through a cis-normative/hetero-normative lens (Alencar Albuquerque, et al, 2016). Lack of LGBTQ cultural competency among healthcare providers has negatively impacted health-seeking patterns and health outcomes among LGBTQ patients and risks creating a healthcare environment that is neither inclusive nor equitable (Makadon, Meyer, Potter, & Goldhammer, 2008). Past experiences with the healthcare system such as fear of victimization and stigma, feeling judged by a healthcare provider and experiences of providers lacking competence in addressing their health problems contribute to LGBTQ patients' barriers to accessing appropriate care (Hoffman, Freeman & Swann, 2009).

Provider education is a key strategy to improve health outcomes for LGBTQ patients (Beach, et al., 2005). Improving cultural competency is an effective evidence based approach to improving the knowledge and attitudes surrounding LGBTQ care (Ard & Makadon, 2012). The Institute of Medicine (IOM) advocates for LGBTQ cultural competency education for healthcare providers as an effective approach to reducing the severity of health disparities of the LGBTQ patient population (Lim, et al., 2013).

Healthcare cultural competency regarding LGBTQ patients is largely not required in healthcare professional programs (Human Rights Campaign, 2018). The American Association of Colleges of Nursing (AACN) recommends that all undergraduate and graduate nursing programs develop curricula that address diversity and culturally competent care (AACN, 2017). However, the recommendations are not specific for the needs of the LGBTQ patient population. The AACN also does not recommend specific guidance for LGBTQ specific content, or how nursing educators should incorporate the topic into the curriculum (Yingling, Cotler, & Hughes, 2017).

Competencies for LGBTQ competence revolve around the Healthcare Equality Index (HEI), which is a scoring system based on equitable treatment of LGBTQ patients, family and employees. The HEI assesses staff training on LGBTQ care, patient non-discrimination, LGBTQ patient services and support, transgender patient services and support, patient self-identification, and employment non-discrimination. In regards to this study, staff training competency is of particular importance (HRC, 2018). Currently, several organizations such as the CDC, IOM and the Fenway Institute offer healthcare training for LGBTQ competency through an online format, but they are not required education and depend on a healthcare provider's desire to improve their education on LGBTQ health (Kuzma, Pardee & Darling-Fisher, 2019). Cultural competency training has been shown to be effective as 92% of HEI participants achieving LGBTQ cultural competency standards through online interactive training (HRC, 2018). Even a small amount of LGBTQ content integrated into healthcare provider training and education has a positive impact on the knowledge and attitudes of care to this population (Kelley, Chou, Dibble, & Robertson, 2008).

Methods

Purpose

The purpose of this study was to evaluate the impact of an online educational module as an appropriate tool to improve provider knowledge, attitudes, and self-efficacy related to LGBTQ healthcare. The specific aims of the project were:

1. Evaluate the changes in provider knowledge related to case scenarios of LGBTQ healthcare in the primary care setting before and after an online training.
2. Evaluate the changes in provider attitudes related to LGBTQ patients before and after an online training.
3. Evaluate the changes in provider self-efficacy in healthcare skills related to LGBTQ patients before and after an online training.
4. Evaluate the impact of this online module as a pilot educational intervention for primary care providers based on participant feedback after completion.

Study Design

The design of this study was a quasi-experimental one-group pre/post survey intervention to evaluate the knowledge, attitudes and self-efficacy of providers regarding providing primary care for the LGBTQ community before and after completing a training module on LGBTQ healthcare topics. Approval from the University of Kentucky Institutional Review Board (IRB) was obtained prior to the intervention and collection of data.

Theoretical Framework

This online module was developed using principals of transformative learning theory (Mezirow, 1981). When teaching adults learners, adult learning theory is an effective approach to teaching adults new knowledge and skills. Transformative learning theory takes adult learning

even further because this theory challenges the way adults think about themselves and the world around them as they know it, as opposed to simply learning a new skill. Transformative learning is appropriate to use for this LGBTQ learning module because it focuses on changing both knowledge and attitudes in a topic that may be laden with bias or opinion (Mezirow, 1981).

Setting

The Kentucky Coalition of Nurse Practitioners and Nurse Midwives (KCNPNM) is a professional organization for Nurse Practitioners and Nurse Midwives in Kentucky. The survey was sent to the online listserv to all members (1426 subscribers) of the organization. The KCNPNM listserv is not moderated and all posts appear as written by the sender. Postings to the listserv are allowed and received by all members. The PI is a student member of the organization. The educational module and surveys are completely electronic and can be completed in any setting the subject chooses. The online module is housed and operated by the University of Kentucky CE Central.

Sample

The sample was a convenience sample from voluntary participants who are members of the KCNPNM. The first 15 providers to complete the entire module and surveys were rewarded with \$50 gift card incentive. Inclusion criteria were limited to primary care providers only. Providers excluded from participating included any participant practicing outside of primary care, nurse practitioner students, and nurse midwives. Participants must be able to read and write in English to complete the training and surveys.

Features of the Online Education Module

Educational topics: Educational topics in the module include LGBTQ terminology, history taking, health disparities and social determinants of health, HIV/AIDS discussion, mental

health considerations, primary care specific cases, transgender care basics, PrEP prescriptions and STI testing, and rural health considerations for LGBTQ patients.

Education methods: The module technology was developed in collaboration with the University of Kentucky CE Central. The Investigator and clinical faculty (Dr. Fallin-Bennett) co-wrote a script to accompany an automated PowerPoint module with evidence-based LGBTQ healthcare topics covered. The module was presented with audio narration of a script corresponding to the visual presentation. Participants were asked to take the pre-test survey with questions relating to demographics, attitudes, and self-efficacy. Knowledge pre-test questions were embedded throughout the module as the participant works through it in an effort to make the module interactive. Following completion of the module, the participants were asked to complete identical questions in a post-test survey with repeated questions in knowledge, attitudes, self-efficacy. The participants were then asked to evaluate the pilot version of the module and provide constructive feedback.

Case study questions: The knowledge assessment domain was developed from a collection of case study questions that were designed to present real-life scenarios seen in practice. These questions were created by Dr. Fallin-Bennett based on evidenced-based practice guidelines, and evidence adapted for LGBTQ patients specifically. Scenarios included: transgender patient screenings, epidemiology of HIV, proper STI workup, and creation of inclusive healthcare environments.

Data Analysis

The demographic characteristics were described using frequencies with percentages. Means with standard deviations were used to describe pre-and post- scores on knowledge of LGBTQ patient care. Independent-sample t-tests were used to examine pre-and post-intervention

differences on scores for attitudes about LGBTQ healthcare and patients and provider self-efficacy regarding LGBTQ skills. Independent sample T-tests were also used to compare attitudes toward LGBTQ care and provider self-efficacy in rural versus urban providers, and between heterosexual providers versus LGBTQ identifying providers. All data analysis was collected using SPSS version 25 with an alpha level of 0.05.

Results

Demographic Characteristics

In comparison of the pre- and post- test scores, 47 participants completed the pre- test and 37 completed the post- test. It is unknown why there was a difference in participant numbers between tests, but the most likely assumption is that 10 participants simply did not finish the full module and survey. The majority of participants were heterosexual (82.4%) cis-gender females (80.4%). The LGBTQ representation in the study included 11.8% of participants identified as homosexual and 5.88% of participants identified as bisexual. Years of experience as a nurse practitioner ranged from 0-5 as a primary care provider to over 20. The majority of participants had only been in practice 0-10 years (58.8%). Most participants were between 36-55 years old, with age range from 25 to over 65 years of age. See Table 1 for full description of age and years of experience in primary care. Rural and urban providers were almost evenly distributed among participants.

Provider Knowledge

Eight knowledge-based questions based on current evidenced based guidelines relevant to LGBTQ patient care were analyzed in both the pre- and post- tests. Each question had only one correct answer, and was coded accordingly with the score for any incorrect answer as 0 and the correct answer as 1.0, which created a range of 0-1.0.

The pre-test questions were integrated into the online education to make the module interactive for adult learners, but had lower participation than the post-test with variable participation numbers. Each pre-test version of the knowledge questions was in a single survey format for each question, as demanded by technological requirements of the online training software. Each pre-test question gave the participant 60 seconds to answer the question and press the blue Qualtrics “submit” arrow to log the response. After the timeframe expired, the narrator audibly told the participant the correct answer before the module continued. The post-test had 37 responses to the eight questions, which were housed in a single survey.

A comparison of means of each knowledge domain question pre-test versus post-test is presented in Table 2. There was an increase in knowledge based on mean scores, but it is unknown if this result is statistically significant due to data collection error in the pre-test which resulted in variable survey participant numbers (N= range from 20-36) and survey formatting of the pre-test survey compared to the single eight-question post-test. For these reasons, T-tests were unable to be run in this data set so a simple descriptive comparison of the mean scores was chosen.

The overall mean pre-test score was 0.58 and the score for the post-test was 0.71. Question 1 was a very easy, introductory question that was expected to have 100% correct responses, which was true for both the pre-test and the post-test. Questions 2-8 each had a higher mean score in the post-test than the corresponding question in the pre-test. Post-test scores ranged from 2/8 correct to 8/8 correct.

Provider Attitudes

There were statistically significant changes in how providers felt about LGBTQ patients facing stigma in the healthcare system before and after the education module ($p=0.032$). There

was a difference in means pre and posttest for how providers felt about demonstrating outward signs of welcoming to LGBTQ patients, but the results were not statistically significant ($p=0.394$; see Table 3).

There were no statistically significant differences between rural and urban providers in regards to attitudes toward LGBTQ patient healthcare. There were also no statistically significant changes related to provider sexual orientation in regards to attitudes toward LGBTQ patient healthcare (see Tables 5 and 6).

Provider Self-efficacy

There was a statistically significant improvement in confidence level of taking a comprehensive sexual history after taking the online training ($p=0.036$). There was also an improvement in confidence level of interviewing a patient with a minority gender identity, but it was not statistically significant ($p=0.051$). There were improvements in mean confidence score for providers interviewing patients with minority sexual orientations and for providing treatments to LGBTQ patients, but the results were not statistically significant (see Table 4).

Rural providers were on average lower in confidence in comparison to urban providers but the results were not statistically significant. There were no statistically significant changes in self-efficacy for heterosexual participants versus LGBTQ participants of the survey (see Tables 5 and 6).

Participant evaluation of the module

The post-test included four questions about participant evaluation of the online education module. The majority of the participants found the education module to be helpful (97.3%) and relevant to their practice (97.3%). Most participants (89.9%) found the module to be appropriate in length for the content provided, and 100% thought the module was clear and easy to

understand. A free text option was given to participants for any helpful recommendations to make the module better. Responses were largely positive and offered congratulatory remarks to the PI for a successful project and appreciation for offering information about an underserved community. Helpful suggestions included slower narration, shorter length of the module, and technological issues with the pre-test knowledge questions embedded in the software. Two respondents had issues with completing the education due to the integrated survey questions “freezing” the online software.

Conclusion

Discussion

LGBTQ patients need primary care providers to be able to address their specific needs. Most health disparities of minority health populations have a connection to socioeconomic status, race, geographic location, etc., but the LGBTQ community is unique. Many of the LGBTQ health disparities are a result of healthcare underutilization related to fear, perceived discrimination, and poor experiences with the healthcare system built on heteronormative standards and a lack of education of LGBTQ healthcare issues (Ard & Makadon, 2012; Butler, et al., 2016). Lack of cultural competence also negatively impacts treatment adherence and follow-up care in LGBTQ patients (Hannah & Carpenter-Song, 2013).

Increased knowledge of LGBTQ healthcare issues is an important step in the reduction of health disparities in this patient population and better prepares healthcare professionals to provide evidenced-based, sensitive, culturally competent healthcare (Kuzma, Pardee & Darling-Fisher, 2019). Healthcare professional training is an essential component of creating a healthcare environment that is inclusive and affirming of LGBTQ patients (HRC, 2018).

Nurse practitioners, as leaders in providing in evidenced-based care, are in a unique position to lead the way in mitigating LGBTQ health disparities. The Nursing Code of Ethics calls for the nurse practitioner to provide care with respect all patients despite personal attributes or type of health problems, which is an essential step in providing equitable care to LGBTQ patients (American Nurses Association, 2015).

Limitations

There were a few limitations to this study. There is an overall limitation of generalizability because of the small sample size, specific to one geographic area, and limited to one specific provider type. The sample size of this project is small as it was intended to be a pilot project. The participation goal of 15 participants was exceeded, but 47 participants still limits the generalizability and statistical power of this project. The goal of this project was to pilot the education module to see if any knowledge, attitudes, or self-efficacy improved. Based on feedback from participants, the online training is feasible and should be available to all primary care providers. All types of PCP are planned to be included in future trainings.

Another limitation was the data collection method of the knowledge section of the pre-test. In an attempt to make the module interactive and to minimize the test-taking burden for the participant the decision was made to embed the knowledge questions within the module rather than as a pre-test survey to be completed prior to the starting the educational module. While it was a strategy to facilitate learning, from a survey methodology perspective breaking the questions up and embedding it in the content likely yielded a lower response rate and variable numbers of responses in all 8 pre-test knowledge questions.

Implications for Future Practice

Knowledge, attitudes, and self-efficacy for LGBTQ care improved as a result of the LGBTQ educational module. Participant feedback was overwhelmingly positive and indicated that the module was well-received and much needed. As a result, this is an appropriate strategy to use to try to increase cultural competency related to LGBTQ healthcare needs and sensitivity to barriers to care. This educational module is needed because it is a comprehensive overview of LGBTQ healthcare in the primary care setting, and addresses rural health topics of LGBTQ patient. Rural health is of particular importance for the target audience of primary care providers in Kentucky.

Future studies should be expanded to all primary care providers and should also focus on the impact on LGBTQ health outcomes in the outpatient setting following cultural competency implementation. More research is needed on the topic of “implicit bias” and the relationship with LGBTQ healthcare. A recent study suggests that despite hours of training and increased knowledge, providers may not be demonstrating cultural competence to LGBTQ patients due to implicit bias (Stroumsa et al., 2019). There is little evidence currently regarding implicit bias towards LGBTQ patients, but there is demonstrated evidence in this topic in regards to other minority groups (Fallin-Bennett, 2015). Addressing this issue may improve the cultural competence of primary care providers in addition to knowledge-based trainings.

Conclusion

Improved knowledge scores, significant changes in attitudes and self-efficacy, and overwhelmingly positive response from the nurse practitioner participants demonstrated this study’s effectiveness in providing cultural competence training to health professionals. A unique feature of this online intervention was the inclusion of relevant LGBTQ rural health content,

which is not often discussed in the literature (Whitehead, Shaver & Stephenson, 2016). This online training should be utilized by primary care providers in Kentucky as a way to address the healthcare needs of the LGBTQ patient population they serve.

Table 1. Demographic Characteristics (N=47)

Variable	Parameter	Distribution
Sex assigned at birth	Male	19.61%
	Female	80.39%
Gender Identity	Male	19.61%
	Female	80.39%
	Transgender	0%
	Nonbinary	0%
	Other	0%
Sexual Orientation	Heterosexual	82.35%
	Homosexual	11.76%
	Bisexual	5.88%
	Pansexual	0%
	Asexual	0%
	Queer/Questioning	0%
Years in practice	(0-5)	33.33%
	(6-10)	25.49%
	(11-15)	19.61%
	(16-20)	3.92%
	(20+)	17.65%
Age	(25-35)	13.73%
	(36-45)	37.32%
	(46-55)	27.45%
	(56-65)	15.69%
	(65+)	5.88%
Rural or Urban practice setting	Rural	50.98%
	Urban	49.02%

Table 2. Comparison of knowledge questions pre versus post

Knowledge/topic*	Pre-test (N=varies)	Post-test (N=37)
Q1—General Inclusivity	1.0 (N=22)	1.0
Q2—STI screen case study for a “bottom”	0.67 (N=21)	0.70
Q3—STI screen case study for a married male	0.65 (N=20)	0.70
Q4—Screening case for Transgender woman	0.47 (N=20)	0.54
Q5—Screening case for Transgender man	0.48(N=21)	0.73
Q6—HIV incidence	0.43 (N=23)	0.70
Q7—Communication with gender minority	0.59 (N=36)	0.60
Q8—Rural health	0.32 (N=22)	0.57
Average score total	0.58	0.71

*Scores ranged from 0) incorrect answer to 1.0) correct answer

Table 3. Comparison of Attitudes pre versus post

	Pre (N=47)	Post (N=37)	<i>p</i>
Q1—Currently, LGBTQ people face significant stigma and/or discrimination within the health care system.	4.98 (1.57)	5.72 (1.49)	0.032
Q2—It is important that providers should demonstrate outward signs of welcoming of LGBTQ patients?	5.91 (1.59)	6.22 (1.6)	0.394

*responses ranged from 1) strongly disagree to 7) strongly agree

Table 4. Comparison of Self-Efficacy pre versus post

	Pre (N=47)	Post (N=37)	<i>p</i>
Q1—interviewing a patient with a minority sexual orientation	3.8 (1.003)	3.97 (0.91)	0.436
Q2—interviewing a patient with a minority gender identity	3.39 (1.125)	3.85 (1.03)	0.051
Q3—Taking a comprehensive sexual history	3.52 (1.110)	4.0 (0.882)	0.036
Q4—Providing treatments to LGBTQ patients	3.63 (1.142)	3.89 (0.966)	0.271

*Responses range from 1) Not confident at all to 5) Very confident

Table 5. Comparison of Attitudes and Self-Efficacy in Rural versus Urban respondents

	Rural providers (N=23)	Urban Providers (N=24)	<i>p</i>
Q1—Currently, LGBTQ people face significant stigma and/or discrimination within the health care system.	4.6 (1.52)	5.0 (1.65)	0.926
Q2—It is important that providers should demonstrate outward signs of welcoming of LGBTQ patients?	5.48 (2.11)	6.33 (0.70)	0.075
Q3—interviewing a patient with a minority sexual orientation	3.55 (1.143)	4.04 (0.806)	0.094
Q4—interviewing a patient with a minority gender identity	3.14 (1.207)	3.63 (1.013)	0.143
Q5—Taking a comprehensive sexual history	3.50 (1.02)	3.55 (1.224)	0.892
Q6—Providing treatments to LGBTQ patients	3.55 (1.335)	3.71 (.955)	0.634

Table 6. Comparison of Attitudes and Self-Efficacy in Heterosexual versus LGBTQ respondents

	Heterosexual Providers (N=40)	LGBTQ providers (N=7)	<i>p</i>
Q1—Currently, LGBTQ people face significant stigma and/or discrimination within the health care system.	4.97(1.51)	5.0 (2.0)	0.95
Q2—It is important that providers should demonstrate outward signs of welcoming of LGBTQ patients?	5.9 (1.499)	6.0 (2.236)	0.81
Q3—interviewing a patient with a minority sexual orientation	3.69 (1.030)	4.43 (0.535)	0.073
Q4—interviewing a patient with a minority gender identity	3.33 (1.155)	3.71 (0.951)	0.416
Q5—Taking a comprehensive sexual history	3.41 (1.141)	4.14 (0.69)	0.109
Q6—Providing treatments to LGBTQ patients	3.56 (1.165)	4.0(1.0)	0.358

Table 7. Participant evaluation of the online training (N=37)

	Parameter	Frequency
Q1—Was this module helpful?	Yes	97.3%
	No	2.7%
Q2—Was the module relevant to your practice?	Yes	97.3%
	No	2.7%
Q3—Was the module clear and easy to understand	Yes	100%
	No	0%
Q4—Was the length of the training appropriate for the content?	It was too short	5.41%
	It was too long	8.11%
	The content and time spent were appropriate	86.49%

Appendix A. Survey Instrument (Pre-Test)

Block1: Demographics

1. What is your sex assigned at birth?
 - Male (1)
 - Female (2)
2. What is your gender identity?
 - Male (1)
 - Female (2)
 - Transgender (3)
 - Non-Binary (4)
 - Other (4)
3. What is your Sexual Orientation?
 - Heterosexual (1)
 - Homosexual (2)
 - Bisexual (2)
 - Pansexual (3)
 - Asexual (4)
 - Queer (5)
 - Questioning or unsure (6)
4. What type of primary care provider are you?
 - MD (1)
 - MBBS (2)
 - DO (3)
 - PA (4)
 - Nurse Practitioner (5)
5. How many years have you been in practice?
 - 0-5 (1)
 - 6-10 (2)
 - 11-15 (3)
 - 16-20 (4)
 - 20 or more (5)
6. What is your age?
 - 25-35 (1)
 - 35-45 (2)
 - 46-55 (3)
 - 56-65 (4)
 - 66 and older (5)

Block 2: Knowledge domain

1. You want your patients to be included. Your patients are looking for:
 - Posted nondiscrimination statement (1)
 - An intake form with more than M/F for gender (2)
 - Being greeted by front desk staff with a preferred name and pronoun (3)
 - Open ended, nonjudgmental listening by all providers (4)
 - All of the above (5)
2. A 17 y/o male presents with concerns for STI's. He is a "bottom" (anal receptive), with 3 male partners in the last month. He uses condoms "most" of the time. He is concerned because one partner recently was diagnosed with gonorrhea. What screening or preventive care would you recommend?
 - Full STI screening & PrEP (1)
 - Full STI screening & PEP (0)
 - Rectal STI screening & PrEP (0)
 - Rectal STI screening & PEP (0)

3. A 34 y/o male presents for his physical. He has been married to his HIV negative male partner for 6 months and has no other partners for the last 9 mo. He has had about 50 partners lifetime. He is HIV negative and “vers” (both receptive and insertive partner). What screening or preventive care would you recommend?
 - HIV and Syphilis only (0)
 - HIV, Syphilis, and Hepatitis C (0)
 - HIV, Syphilis, Urine NAAT for Gonorrhea/Chlamydia (0)
 - HIV, Syphilis, G/C testing in urine, throat, rectum (1)
4. A transgender woman, age 52 is also a new patient. She has had full top surgery with breast implants and full bottom gender affirmation surgery. She has been on estrogen therapy for 12 years. Which of the following is the most appropriate testing?
 - Pap test with HPV (0)
 - Mammogram (1)
 - Pap/HPV and mammogram (0)
 - Prostate exam (0)
5. A transgender man, age 47, presents to establish care. He had a top surgery but never a hysterectomy. He has been on testosterone therapy for 10 years. Which of the following is the most appropriate testing?
 - Pap test with HPV (1)
 - Mammogram (0)
 - Pap/HPV and mammogram (0)
 - Neither Pap nor mammogram (0)
6. The group with the highest incidence (new cases) of HIV in the United States is:
 - MSM (1)
 - Women of color (0)
 - Latino men (0)
 - IV drug users (0)
7. A colleague’s patient is here for an acute visit for UTI symptoms. “Tyeisha,” age 19, has a goatee, very short cropped hair and male clothing. When discussing social history, the best question is:
 - Do you have sex with men, women or both? (0)
 - Are you a transsexual? (0)
 - What surgeries have you had? (0)
 - What name and pronouns do you prefer? (1)
8. Compared to the general LGBTQ community, which health disparity is more common in rural-dwelling LGBTQ people?
 - Suicide attempts (0)
 - Binge Drinking & Smoking (1)
 - Syphilis (0)
 - Heroin Use (0)

Block 3: Attitudes domain

1. Why is learning about LGBTQ healthcare important?
 - FREE TEXT RESPONSE (Open Ended)
2. Currently, LGBTQ* people face significant stigma and/or discrimination within the health care system.
 - Strongly Disagree (1)
 - Disagree (2)
 - Neither disagree or agree (3)
 - Agree (4)
 - Strongly Agree (5)
3. It is important that providers should demonstrate outward signs of welcoming of LGBTQ patients?
 - Strongly Disagree (1)
 - Disagree (2)
 - Neither disagree or agree (3)
 - Agree (4)

- Strongly Agree (5)

Block 4: Self-efficacy domain

For the following questions, please indicate your level of confidence in the following skills:

1. Interviewing a patient with a minority sexual orientation:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
2. Interviewing a patient with a minority gender identity:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
3. Taking a comprehensive sexual history:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
4. Providing treatments to LGBTQ patients:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)

Appendix B. Survey Instrument (Post-test)

Block 1: Knowledge domain

1. You want your patients to be included. Your patients are looking for:
 - o Posted nondiscrimination statement (1)
 - o An intake form with more than M/F for gender (2)
 - o Being greeted by front desk staff with a preferred name and pronoun (3)
 - o Open ended, nonjudgmental listening by all providers (4)
 - o All of the above (5)
2. A 17 y/o male presents with concerns for STI's. He is a "bottom" (anal receptive), with 3 male partners in the last month. He uses condoms "most" of the time. He is concerned because one partner recently was diagnosed with gonorrhea. What screening or preventive care would you recommend?
 - a. Full STI screening & PrEP (1)
 - b. Full STI screening & PEP (0)
 - c. Rectal STI screening & PrEP (0)
 - d. Rectal STI screening & PEP (0)
3. A 34 y/o male presents for his physical. He has been married to his HIV negative male partner for 6 months and has no other partners for the last 9 mo. He has had about 50 partners lifetime. He is HIV negative and "vers" (both receptive and insertive partner). What screening or preventive care would you recommend?
 - a. HIV and Syphilis only (0)
 - b. HIV, Syphilis, and Hepatitis C (0)
 - c. HIV, Syphilis, Urine NAAT for Gonorrhea/Chlamydia (0)
 - d. HIV, Syphilis, G/C testing in urine, throat, rectum (1)
4. A transgender woman, age 52 is also a new patient. She has had full top surgery with breast implants and full bottom gender affirmation surgery. She has been on estrogen therapy for 12 years. Which of the following is the most appropriate testing?
 - a. Pap test with HPV (0)
 - b. Mammogram (1)
 - c. Pap/HPV and mammogram (0)
 - d. Prostate exam (0)
5. A transgender man, age 47, presents to establish care. He had a top surgery but never a hysterectomy. He has been on testosterone therapy for 10 years. Which of the following is the most appropriate testing?
 - a. Pap test with HPV (1)
 - b. Mammogram (0)
 - c. Pap/HPV and mammogram (0)
 - d. Neither Pap nor mammogram (0)
6. The group with the highest incidence (new cases) of HIV in the United States is:
 - a. MSM (1)
 - b. Women of color (0)
 - c. Latino men (0)
 - d. IV drug users (0)
7. A colleague's patient is here for an acute visit for UTI symptoms. "Tyeisha," age 19, has a goatee, very short cropped hair and male clothing. When discussing social history, the best question is:
 - a. Do you have sex with men, women or both? (0)
 - b. Are you a transsexual? (0)
 - c. What surgeries have you had? (0)
 - d. What name and pronouns do you prefer? (1)
8. Compared to the general LGBTQ community, which health disparity is more common in rural-dwelling LGBTQ people?
 - a. Suicide attempts (0)
 - b. Binge Drinking & Smoking (1)

- c. Syphilis (0)
- d. Heroin Use (0)

Block 2: Attitudes domain

9. Why is learning about LGBTQ healthcare important?
 - a. FREE TEXT RESPONSE (Open Ended)
10. Currently, LGBTQ* people face significant stigma and/or discrimination within the health care system.
 - a. Strongly Disagree (1)
 - b. Disagree (2)
 - c. Neither disagree or agree (3)
 - d. Agree (4)
 - e. Strongly Agree (5)
11. It is important that providers should demonstrate outward signs of welcoming of LGBTQ patients?
 - a. Strongly Disagree (1)
 - b. Disagree (2)
 - c. Neither disagree or agree (3)
 - d. Agree (4)
 - e. Strongly Agree (5)

Block 3: Self-efficacy domain**For the following questions, please indicate your level of confidence in the following skills:**

12. Interviewing a patient with a minority sexual orientation:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
13. Interviewing a patient with a minority gender identity:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
14. Taking a comprehensive sexual history:
 - Weak confidence (1)
 - Somewhat unconfident (2)
 - Not sure (3)
 - Confident (4)
 - Very confident (5)
15. Providing treatments to LGBTQ patients:
 - a. Weak confidence (1)
 - b. Somewhat unconfident (2)
 - c. Not sure (3)
 - d. Confident (4)
 - e. Very confident (5)

Block 4: Feedback

16. Was this module helpful?
 - a. Yes (1)
 - b. No (2)
17. Was the module relevant to your practice?
 - a. Yes (1)

- b. No (2)
18. Was the module clear and easy to understand?
- a. Yes (1)
 - b. No (2)
19. Was the length of the module appropriate for the content?
- a. It was too long (1)
 - b. It was too short (2)
 - c. It was appropriate for stated objectives (3)
20. Please provide your thoughts, relevant information, and helpful recommendations on how to improve this module for Primary Care Providers. What did you like? What didn't you like? Any feedback is appreciated.
- a. Free Text (open ended)

Appendix C. Recruitment Cover Letter

Dear Kentucky Coalition of Nurse Practitioners and Nurse-Midwives staff,

My name is Anthony Carney, BSN-RN, and I am a member of UK College of Nursing DNP class of 2019. I would greatly appreciate your perspectives about your professional experience with regard to LGBTQ* (lesbian, gay, bisexual, transgender, queer/questioning inclusive) healthcare in primary care settings. This research is part of a pilot project in improving care for LGBTQ* patients.

Your participation is voluntary. It requires the completion of a 30-minute online educational module with a pre & post survey. The IRB-reviewed survey will take less than 10 minutes and is conducted with full confidentiality through Qualtrics. Please complete the entire survey, but you may choose to quit the survey at any time.

The first 15 participants will be compensated with a \$50 Amazon gift card. The information gathered will be used only for scientific purposes. Information for gift card delivery is voluntary and sent to a separate database entirely unconnected to survey responses.

Your response to the survey is anonymous which means no names will appear or be used on research documents, or be used in presentations or publications. The research team will not know that any information you provided came from you, nor even whether you participated in the study.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your assistance with this important project.

Please contact me with any questions,

Anthony Carney, RN, BSN
502-939-2149
acca227@uky.edu
he/his/him

Appendix D. Recruitment reminder email

Subject line: Reminder to complete LGBTQ healthcare module and survey

Dear Kentucky Coalition of Nurse Practitioners and Nurse-Midwives staff,

This is a reminder to complete an online module and survey regarding professional experience with regard to LGBTQ* (lesbian, gay, bisexual, transgender, queer/questioning inclusive) healthcare in primary care settings. This research is part of a pilot project in improving care for LGBTQ* patients.

If you have not completed the module and survey yet, please see the link in this email to complete it. As a reminder, your responses will be anonymous.

If you have already completed the module and survey, thank you. Your time and opinions are very valuable to us.

Link: <https://cecentral.com/justfund>

Thank you in advance for your assistance with this important project.

Please contact me with any questions,

Anthony Carney, RN, BSN

502-939-2149

acca227@uky.edu

he/his/him

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