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Implementation of an Evidence-Based, Electronic Clinical Algorithm to Improve Screening, Evaluation, and Referral of College Students for Depressive Symptoms and an Evaluation of Differences Based on Sexual Orientation and Gender Identity Data

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Implementation of an Evidence-Based, Electronic Clinical Algorithm to Improve Screening,

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Differences Based on Sexual Orientation and Gender Identity Data

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DNP Scholarly Project

Abstract

        The purpose of this project was to improve the screening, evaluation, and referral of

college students (LGBTQ+/Heterosexual) for depressive symptoms through the implementation

of an evidence-based, electronic clinical algorithm. There is evidence in the literature indicating

that there are increased mental health disparities among college students and the LGBTQ+

population. The prevalence of depressive symptoms among university students is higher than the

general population, requiring university student health centers to implement enhanced screenings

for depressive symptoms and identification of depression predictors. Prior to implementation of

this project, a student health clinic in the Southeastern part of the United States used a

paper/pencil Patient Health Questionnaire 2 (PHQ-2) scale, followed by a paper/pencil Patient

Health Questionnaire 9 (PHQ-9), when appropriate, to screen for depressive symptoms. The

specific aims of this project were to: (1) assess the effectiveness of an evidence-based electronic

clinical algorithm to improve the evaluation of depressive symptoms among college students; (2)

identify university students who self-report as Lesbian, Gay, Bisexual, Transgender,

Queer/Questioning + (LGBTQ+); and (3) assess knowledge and attitudes of healthcare providers

toward the LGBTQ+ community. An evidence-based electronic clinical algorithm was created to

improve screening of depressive symptoms for students seeking campus health services, a self-

report question related to Sexual Orientation and Gender Identity (SOGI) was added to the

electronic intake form, and pre-post provider surveys of knowledge and attitudes toward the

LGBTQ+ community were administered. The project was evaluated by assessing self-reported

SOGI data; quantifying compliance with PHQ-2 and subsequent PHQ-9 screenings, when

appropriate; and measuring knowledge and attitudes of healthcare providers pre and post-

completion of a learning module. Data was collected for February through April, 2018 visits

(pre-implementation) and February through April, 2019 visits (post-intervention). The pre-

implementation of the electronic data form revealed that PHQ-2 screenings were offered to clinic students 44.3% of the time, with no follow-up of PHQ-9, when appropriate (0.0%); no SOGI data was requested; and no estimate was available for the prevalence of students who belonged to the LGBTQ+ community. Post implementation of the electronic data form, 93.2% of the students meeting inclusion criteria, received the PHQ-2 screening; all students scoring a positive score on the PHQ-2 were given the PHQ-9. The difference in PHQ-2 scores for heterosexual students and those self-reporting as members of the LGBTQ community, was insignificant. Students who self-reported as LGBTQ+ was 15.6%, compared to an estimated 4.5% of adults nationwide. A third assessment of provider knowledge and attitude toward the LGBTQ+ community showed no significant difference in scores pre and post completion of an LGBTQ+ teaching module.

Background and Significance

Screening for Depressive Symptoms in College-Aged Students

The United States Preventative Services Task Force (USPSTF) recommends depression screening among all adolescents (12-18) and the general adult population (USPSTF, 2016; USPSTF, 2019). Taliaferro & Muehlenkamp (2015) reported in a study of over 16,000 undergraduates that greater than 3% reported non-suicidal self-injury, with one third of those had attempted suicide. This same study reported that students who reported non-suicidal self-injury or suicide attempts included those with depressive symptoms, non-heterosexual orientation, eating disorder/extreme weight control behavior and a diagnosis of internalizing disorders (Taliaferro & Muehlenkamp, 2015). Akincigil & Matthews (2017) reported from a study of primary care practices that those clinics using electronic health records had increased depression screening compliance compared to those still using paper methods of screening.

Sexual Identity and Depressive Symptoms

The Lesbian, Gay, Bisexual, Transgender & Questioning/Queer (LGBTQ+) population has largely been invisible in healthcare data collection and research. This invisibility represents a disservice to the community. While data collection on the specific number of individuals who identify as LGBTQ+ in the United States has been sparse, it is estimated that over 14 million (4.5%) Americans identify as Lesbian, Gay or Bisexual (LGB), with an additional one million identifying as transgender (The Williams Institute, 2019). The Williams Institute (2011) conducted one of the first large scale analyses to estimate the number of LGBT individuals in the United States. Prior to this initiative, there were few surveys and studies that included questions about sexual orientation and gender identity (SOGI), making estimates of the LGBTQ+ population speculative.

While collecting SOGI data has been scant, research including the LGBTQ+ population has also been historically missing in healthcare. Prior to 2010, research findings that did include the LGBTQ+ population commonly failed to include transgender individuals. One argument for this invisibility includes a difficulty in defining the transgender population. Definitions would likely need to include both gender identities, gender expression and terms such as transgender, queer and genderqueer (Gates, 2011). While this population has faced discrimination and invisibility among population-based surveys and research, they have also faced discrimination among healthcare providers (HCP), as the majority of HCPs have not collected SOGI information on their clients. This failure to collect SOGI data warranted the Institute of Medicine's 2011 report on LGBT health, making them one of the first organizations to recommend SOGI data collection (Institute of Medicine, 2011).

The LGBTQ+ community faces a myriad of population-specific health concerns; these disparities earn the healthcare provider's attention. Appropriate screening for related health care issues must be provided. Perhaps the most alarming health concern in this community is increased mental health illness. Research continues to show an alarmingly high rate of mental health illness in the adolescent and college-aged LGBTQ+ population. In a study conducted in a large university, Garlow, Rosenberg, Moore, Haas, Koestner, Hendin & Nemeroff (2008) found that 16.5% of respondents had a history of attempted suicide or self-harm. Garlow et al. (2008) noted that 84% of those with suicidal ideations (SI) and 85% with a known diagnosis of depression were receiving no psychiatric treatment. These findings are alarming. While this study did not specifically ask participants about sexual orientation, data from the Substance Abuse and Mental Health Services Administration's 2016 report suggested that members of the LGBTQ+ community were twice as likely to have a mental illness when compared to the heterosexual majority (SAMHSA, 2016). Although there has been an increase in the number of schools and universities showing support for LGBTQ+ students with over 200 LGBTQ+ centers/offices and staff on campuses nationally, data is scarce on the percentages of LGBTQ+ students utilizing campus health services (PNPI, 2018). The American College Health Association (2016) noted that 10% of students seeking higher education reported being LGBTQ+ (American College Health Association, 2016).

A report from the CDC (2016) found that gay men and bisexual men accounted for eight of ten new HIV diagnoses among youth. The adult LGBTQ+ population (including college-aged individuals), reported multiple health disparities. Among the adult LGBTQ+ population, the CDC reported higher rates of Sexually Transmitted Infections (STIs), tobacco and substance use, and mental health concerns, including depression and suicide (CDC, 2016). The American

College of Obstetricians and Gynecologists (2012) reported higher rates of obesity, tobacco, alcohol and other drug use among bisexual and lesbian women; these behaviors are known risks associated with breast and ovarian cancers. They also reported increased barriers to healthcare within this specific population and recommended screening and routine exams for all women.

Healthcare Provider Knowledge & Attitudes Towards the LGBTQ+ Community

Healthcare Provider reluctance to collect SOGI data has also hindered this population. One 2016 study found that only 26% of providers asked their clients about their sexual orientation, and that the majority of providers felt their clients' sexual orientation was not important to the care they were providing (Shetty, Sanchez, Lancaster, Wilson, Quinn & Schabath, 2016). Haider et al. (2017) focused on Emergency Room providers, finding that nearly 80% of them did not ask SOGI related questions in fear of offending the client or assuming the client would not disclose the information (Haider et al., 2017). That same study also reported that most clients were willing to disclose their SOGI data as they felt it relevant to their medical care (Haider et al., 2017).

Grasso & Makadon (2016) emphasized the importance of HCPs knowing their clients' SOGI data to avoid assumptions. Specifically, they reported a case of a 59-year-old woman presenting with fever and chills. Without asking SOGI-related information, the HCP may completely miss the fact that this is a transgender female and that the diagnosis for this visit is prostatitis (Grasso & Makadon, 2016).

The world has failed to gather and use LGBTQ+ data. The prevalence of those who identify as LGBTQ+ is unknown. Healthcare professionals have been reluctant to discuss sexual orientation and identity with their clients (Shetty et al., 2016; Haider et al., 2017). The probability of increased depression and anxiety in the targeted population is acknowledged, as

well as the failure of primary care providers to address their LGBTQ+-specific health problems.

A CINAHL search of literature using keywords sexual orientation, gender identity and data

collection yielded 38 articles from 2001-2019. This stark lack of information and apparent

failure to address the special needs of the LGBTQ+ community compelled the implementation of

the following pilot project.

Purpose

The purpose of this project was to improve the screening, evaluation, and referral of

college students (LGBTQ+/Heterosexual) for depressive symptoms through the implementation

of an evidence-based, electronic clinical algorithm. The specific aims were to: (1) assess the

effectiveness of an evidence-based electronic clinical algorithm to improve the evaluation of

depressive symptoms among college students; (2) identify university students who self-report as

LGBTQ+; and (3) assess knowledge and attitudes of healthcare providers toward the LGBTQ+

community. Madeline Leininger's Sunrise Model was used as a theoretical framework to help

guide this project. The sunrise model recognizes that there are many aspects that impact one's

health status. Some of the recognized aspects of the model are social views, political agendas,

worldviews, educational factors, religious, and cultural factors. Leininger recognizes that the

client, as well as the healthcare system and the providers, all hold unique views that can impact

health outcomes. This project recognizes that self-report of students' SOGI data could be related

to their mental health and ultimately, their overall health outcomes.

Methods

An evidence-based clinical algorithm was created in the electronic health record to

automatically collect self-reported PHQ-2 and SOGI data for students visiting the university

health clinic. In addition, the clinical algorithm was created to automatically collect PHQ-9 data

when triggered by the PHQ-2 score. An I-pad was purchased and utilized as a check-in kiosk to

collect self-reported data. Healthcare provider knowledge and attitudes toward the LGBTQ+

community were collected electronically prior to implementation of the evidence-based clinical

algorithm. Healthcare providers then completed an online learning module titled *Achieving*

Health Equity for LGBT People provided by the National LGBT Health Education Center

(https://www.lgbthealtheducation.org). Healthcare provider knowledge and attitudes were re-

assessed electronically post-implementation of the learning module. All data for this project were

collected via retrospective chart audit. Approval from the appropriate Institutional Review

Board was received prior to implementation of the project.

Chart Audits

Chart audits were conducted for visits during a 10-week period, February through April

2018 (pre-implementation) and for the same period in 2019 (post-implementation). Inclusion

criteria included actively enrolled students with an appointment to see one of three nurse

practitioners (NPs) in the student health clinic. Data assessed for this project included the

students' initial visit only. Faculty and staff data, subsequent student visits during the study

timeframe, and registered nurse (RN) only visits were excluded.

Initial Screening for Depressive Symptoms

The PHQ-2 survey was used for initial screening of depressive symptoms. The PHQ-2 is

made up of 2 questions from the PHQ-9. The PHQ-2 survey has been used to screen for

depressive symptoms in a variety of populations (Kroenke, Spitzer & Williams, 2003; Maurer,

2012; Gilbody, Richards, Brealey & Hewitt, 2007; Zhang et al., 2013). Internal consistency

ranges from 0.854 to 0.727, and test-retest reliability scores range from 0.873 to 0.829 (Zhang et

al., 2013). The survey is considered a valid screening tool among college students with

sensitivity and specificity reported as 0.80 and 0.92 respectively (Gilbody et al, 2007). The PHQ-

2 is available to the public and permission is not required for use. For purposes of this project, a

positive PHQ-2 score was classified as a score of 1-6. Compliance for the PHQ-2 was measured

as either completed (compliant) or not completed (non-compliant) pre and post-implementation.

Follow-Up Screening for Depressive Symptoms

The PHQ-9 is made up of 9 questions with scores ranging from 0 to 3 on each question,

with a maximum score of 27. If the PHQ-2 had a positive screening, guidelines recommend

implementation of the Patient Health Questionnaire-9 (PHQ-9) (Kroenke et al., 2003). A

positive response (1-6) on the PHQ-2 automatically triggered a student to complete the PHQ-9.

PHQ-9 compliance was measured as either completed when triggered (compliant) or not

completed when triggered (non-compliant), both pre and post-intervention.

SOGI Data

Utilizing recommendations from the National LGBT Health Education Center, A

program of the Fenway Institute, sexual orientation and gender identity categorical fields were

added to the electronic clinical algorithm in the electronic medical chart (Table 2) (https://

www.lgbthealtheducation.org/topic/sogi/, 2018).

Provider LGBTQ+ Attitudes and Knowledge

Sanchez, Rabatin, Sanchez, Hubbard & Kalet (2006) developed a tool to assess medical

students' ability to care for LGBT clients. Portions of the tool were utilized in this project to

assess healthcare providers' knowledge and attitudes toward the LGBTQ+ community (Table 1).

Permission to use portions of the tool was obtained from the corresponding author (Sanchez et.

al., 2006). Reliability and validity are not established for these tools. A Search of CINHAL and

Pubmed resulted in no available tools with proven validity and reliability for measuring provider

knowledge and attitudes at the time of this project.

Results

Initial Screening of Depressive Symptoms

A total of 194 charts met the inclusion criteria for the pre-implementation chart audit. Of the 194 charts reviewed, 86 students were screened with the PHQ-2 assessment, representing a 44.3% compliance rate. Post-implementation chart audits yielded 206 charts that met the inclusion criteria. Of the 206 charts reviewed, 192 students were screened with the PHQ-2 assessment, representing a 93.2% compliance rate. The compliance rate improved 48.9% between pre and post-implementation.

Follow-Up Screening of Depressive Symptoms

Of the 86 students who completed the PHQ-2 assessment pre-implementation, 19 scored positive (1-6) and none of those students received appropriate follow-up screening for depressive symptoms with the PHQ-9. Of the 192 students screened with the PHQ-2 tool post-implementation, 41 scored positive (1-6) and 100% of those students received appropriate follow up screening for depressive symptoms with the PHQ-9. A Chi-Square Test of independence was performed to examine the relationship between groups (Pre and Post) and compliance with the administration of the PHQ-9 screening tool. The relationship between these variables was significant, X^2 (2, N = 381) = 61.11, $p < .001$.

SOGI Data and Depressive Symptoms

SOGI data was collected using the guidelines published by the National LGBT Health Education Center. The data revealed 15.6% (n = 32) of the clinic population self-reported as lesbian, gay, bisexual, something else, or did not know their sexual orientation. A T-test was performed to compare PHQ-2 scores of the self-identified heterosexual students to the self-

identified LGBTQ+ students. There was no significant difference between their scores, ($t = -1.84(31.85)$, $p = .075$).

Healthcare Provider Knowledge and Attitudes Toward the LGBTQ+ Community

Correct responses on the provider knowledge questions ranged from 0% to 100% both pre and post-implementation. Healthcare providers scored an average of 63% on the pre-implementation knowledge questions, and an average of 75% post-implementation (Table 1). Healthcare provider attitudes were assessed on a 5-point Likert scale (1-5), with 5 being the most favorable attitude toward the LGBTQ+ community and 1 being the most negative attitude toward the LGBTQ+ community. The attitude items were reverse scored during the calculation of the overall attitude score to control for negative and positive statements. The healthcare providers had a pre-implementation attitude score of 3.9 and post-implementation attitude score of 4.1 (Table 1).

Discussion

Implementation of an evidence-based, electronic clinical algorithm using an I-Pad kiosk registration system in a student health clinic resulted in a 48.9% improvement in the initial screening of depressive symptoms (PHQ-2). This is a noteworthy outcome given that college students often fail to receive adequate care for depression (Eisenburg & Chung, 2012). Further, the clinical algorithm recognized positive PHQ-2 scores, automatically triggering administration of the PHQ-9. The subsequent outcome was a 100% compliance rate with follow-up screening of depressive symptoms (PHQ-9) post-implementation, compared to 0% compliance rate pre-implementation. The electronic clinical algorithm removed the requirement for healthcare providers to identify the need for administering the PHQ-9, likely contributing to the significant improvement in follow-up screening compliance post-implementation. These findings are

consistent with findings from Fann et al. (2009) that resulted in a 96% PHQ-9 compliance rate using automated follow-up screenings for depressive symptoms utilizing an electronic clinical algorithm in outpatient cancer clinic waiting areas.

This project showed no significant difference between PHQ-2 scores of heterosexual students compared to LGBTQ+ students. This finding is not consistent with national data supporting higher rates of mental health concerns, including depression, among the LGBTQ+ community (CDC.gov, 2016; LGBT Youth, 2017). This finding could be due in part to the small size of the university, the inclusivity and focus on social justice of the university, or the higher socioeconomic status of students attending the university where the project was implemented.

The implementation of the electronic student information form allowed the clinic, for the first time, to collect SOGI demographics. Of the 15.6% of the clinic population identifying as LGBTQ+, 50% identified as bisexual. This finding correlates with the American College Health Association's 2016 report with the LGBT population comprised of more self-identified bisexuals than other SOGI groups. This baseline information is useful for healthcare providers to better understand the needs of the population they serve. These findings will allow healthcare providers to explore services that may better meet the individual healthcare needs of university students who seek health clinic services. The students who identified as LGBTQ+ at this clinic (15.6%) represent a higher percentage than the 10% of LGBTQ+ students seeking higher education nationally as reported by the American College Health Association (2016).

Healthcare provider (n=3) knowledge and attitudes did not show substantial changes, though scores did increase slightly (Table 1). The healthcare providers in the clinic were an integral part of the project planning process. Their close relationship with the project coordinator in planning the clinic changes provided them insight into the LGBTQ+ health

concerns up to one year prior to project implementation. This could have impacted the minimal

changes seen in knowledge and attitude scores pre and post-implementation, including the

educational learning module. Healthcare providers' knowledge and attitudes scores were lowest

for questions related to definitions and terminology describing the LGBTQ+ community, as well

as their opinions on the naturality of same sex attraction and behavior.

Limitations

One limitation of the project was the use of self-reported SOGI demographics. Students

may not have felt comfortable disclosing their LGBTQ+ orientation given the size of the

university (3,369 students, Fall 2018), its private institution status, and its foundation and ties to

Catholicism. The findings from this study are generated from one site and cannot be generalized

to other sites. A second limitation was the small number (n=3) of healthcare providers in the

student health clinic. The small number of providers did not allow for statistical significance to

be determined on provider pre and post-implementation knowledge and attitudes of the LGBTQ+

community. The close relationship the healthcare providers had with the project coordinator and

their involvement in project implementation could have led to the marginal improvement in

knowledge attitudes found in this project. The learning module completed by the providers also

may not have referenced all questions asked on the screening tools which could have contributed

to the small improvement in pre and post-implementation scores. Screening tools were used to

assess provider knowledge and attitudes; however, the tools utilized for this project were not

proven reliable or valid given the limited tools available in the current literature.

Conclusion

This project enabled the student health clinic to meet national recommendations

regarding screening of depressive symptoms and the collection of SOGI demographics. The

implementation of the evidence-based, electronic clinical algorithm utilizing an I-Pad Kiosk

increased depressive symptom screening compliance and allowed appropriate collection of SOGI

data in an effort to identify LGBTQ+ specific health concerns. Although the project did not

show a significant difference in scores between heterosexual and LGBTQ+ students, the

increased depressive symptoms screening compliance will aid in the detection of students at risk

for depression and allow for improved evaluation and referral for mental health services. The

data collected from this project will help inform care and services provided to the LGBTQ+

population in this student health clinic, many of whom may have been previously invisible in the

healthcare setting. The findings from this project are important because they add to the body of

knowledge that exists regarding the prevalence of LGBTQ+ students utilizing student health

services and the types of services that may need to be added given their unique health needs. As

Leininger described in the Sunrise Model, knowing all aspects of the client, which includes

SOGI data, allow for better individualized care and improved health outcomes. Healthcare

providers must become comfortable collecting SOGI information and exploring sexual health

histories with their clients. In the long term, it is imperative that improved SOGI data collection

and subsequent SOGI awareness leads to the enriched delivery of health care for the LGBTQ+

community and attainment of population specific needs.

     Future research could explore SOGI data collection, provider knowledge and attitudes,

and client outcomes among different types of healthcare providers. It is important that Medical

Doctors (MDs), Nurse Practitioners (NPs) and Physician Assistants (PAs) all understand the

importance of SOGI data collection and healthcare needs of the LGBTQ+ community.

Continued research should also explore if early identification of SOGI data affects health

outcomes of conditions known to occur at higher rates among the LGBTQ+ community.

References

Akincigil, A & Matthews, E. (2017). National Rates and Patterns of Depression Screening in

Primary Care: Results From 2012 and 2013. *Psychiatric Services, 68(7)*, 660-666.

American College Health Association (2016). *Undergraduate Student Reference Group Executive

Summary Spring 2016*. Retrieved from https://www.acha.org/documents/ncha/NCHA-

II%20SPRING%202016%20UNDERGRADUATE%20REFERENCE%20GROUP%20EXECU

TIVE%20SUMMARY.pdf

Eisenberg, D. & Chung, H. (2012). Adequacy of depression treatment among college students in the

United States. *General Hospital Psychiatry, 34*(3), 213-220.

Fann, J. R., Berry, D. L., Wolpin, S., Austin-Symour, M., Bush, N., Halpenny, B…McCorkle, R.

(2009). Depression screening using the patient health questionnaire-9 administered on a touch

screen computer. *Pychooncology, 18*(1), 14-22.

Garlow, S. J., Rosenberg, J., Moore, J. D., Haas, A. P., Koestner, B., Hendin, H., & Nemeroff, C. B.

(2008). Depression, desperation, and suicidal ideation in college students: Results from the

American Foundation for Suicide Prevention College Screening Project at Emory

University. *Depression and Anxiety,25*(6), 482-488. doi:10.1002/da.20321

Gates, G. (2011, April). How many people are lesbian, gay, bisexual, and transgender? Retrieved

February 2, 2019, from https://williamsinstititue.law.ucla.edu/wp-content/uploads/Gates-How-

Many-People-LGBT-April-2011.pdf

Gilbody, S., Richards, D., PhD, Brealey, S., Phil, & Hewitt, C., PhD. (2007). Screening for

depression in medical settings with the patient health questionnaire (phq): A diagnostic meta-

analysis. *Journal of General Internal Medicine, 22*(11), 1596-1602. doi:10.1007/s11606-007-0333-y

Grasso, C., Makadon, H. (2016, April 4). Do Ask, Do Tell! Collecting Data on Sexual Orientation and Gender Identity in Health Centers [Webinar]. Retrieved from

https://www.lgbthealtheducation.org/wp-content/uploads/Collecting-SOGI-Data-Webinar-Final.pdf

Haider, A. H., Schneider, E. B., Kodadek, L. M., Adler, R. R., Ranjit, A., Torain, M., . . . Lau, B. D. (2017). Emergency Department Query for Patient-Centered Approaches to Sexual Orientation and Gender Identity. *JAMA Internal Medicine,177*(6), 819. doi:10.1001/jamainternmed.2017.0906

Institute of Medicine (U.S.). Committee on Lesbian, Gay, Bisexual, and Transgender Health Issues and Research Gaps and Opportunities. (2011). *The health of lesbian, gay, bisexual, and transgender people : Building a foundation for better understanding*. Washington, DC: National Academies Press.

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2003, November). The Patient Health Questionnaire-2: Validity of a two-item depression screener. Retrieved February 2, 2018, from https://www.ncbi.nlm.nih.gov/pubmed/14583691

LGBT Demographic Data Interactive. (January 2019). Los Angeles, CA: The Williams Institute, UCLA School of Law

Maurer, D. (2012). Screening for depression. *American Family Physician, 85*(2), 139-44

Postsecondary National Policy Institute (2018). "Factsheets LGBT Students in Higher Education." Retrieved June 2, 2019, from https://pnpi.org/lgbtq-students-in-higher-education/

Sanchez, N., Rabatin, J., Sanchez, J., Hubbard, S., & Kalet, A. (2006). Medical students' ability to

    care for lesbian, gay, bisexual, and transgendered patients. *Family Medicine, 38*(1), 21-7.

Shetty, G., Sanchez, J. A., Lancaster, J. M., Wilson, L. E., Quinn, G. P., & Schabath, M. B. (2016).

    Oncology healthcare providers' knowledge, attitudes, and practice behaviors regarding LGBT

    health. *Patient Education and Counseling,99*(10), 1676-1684. doi:10.1016/j.pec.2016.05.004

Substance Abuse and Mental Health Services Administration, & Center for Behavioral Health

    Statistics. (2016, October). Retrieved from

    https://www.samhsa.gov/data/sites/default/files/NSDUH-SexualOrientation-2015/NSDUH-

    SexualOrientation-2015/NSDUH-SexualOrientation-2015.htm

Taliaferro, L., & Muehlenkamp, J. (2015). Risk factors associated with self-injurious behavior

    among a national sample of undergraduate college students. *Journal of American College

    Health, 63*(1), 40-48. doi:10.1080/07448481.2014.953166

The American College of Obstetricians and Gynecologist. (2012). Health Care for Lesbians and

    Bisexual Women. Retrieved from https://www.acog.org/Clinical-Guidance-and-

    Publications/Committee-Opinions/Committee-on-Health-Care-for-Underserved-Women/Health-

    Care-for-Lesbians-and-Bisexual-Women?IsMobileSet=false

The Centers for Disease Control and Prevention (2017). Lesbian, Gay, Bisexual, and Transgender

    Health. Retrieved from https://www.cdc.gov/lgbthealth/youth.htm

The Centers for Disease Control and Prevention (2016). Gay and Bisexual Men's Health. Retrieved

    from https://www.cdc.gov/msmhealth/index.htm.

The National LGBT Health Education Center (n.d.). "Achieving Health Equity for Lesbian, Gay,

Bisexual, and Transgender (LGBT) People" [PowerPoint Presentation]. Retrieved from

https://www.lgbthealtheducation.org/wp-content/uploads/Achieving-Health-Equity-for-LGBT-People-

1.pdf

The National LGBT Health Education Center (2018). "Collecting and Reporting Sexual Orientation

and Gender Identity Data: Stories from the Field." [Webinar] Retrieved from: https://

www.lgbthealtheducation.org/topic/sogi/

U.S. Preventive Services Task Force (2016). *Final Update Summary: Depression in Children and

Adolescents: Screening*. Retrieved from

https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/depressio

n-in-children-and-adolescents-screening1

U.S. Preventive Services Task Force (2019). *Final Recommendation Statement: Depression in

Adults: Screening*. Retrieved from

https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal

/depression-in-adults-screening1

Zhang, Y., Liang, W., Chen, Z., Zhang, H., Zhang, J., Weng, X., . . . Zhang, Y. (2013). Validity and

reliability of Patient Health Questionnaire-9 and Patient Health Questionnaire-2 to screen for

depression among college students in China. *Asia-Pacific Psychiatry, 5*(4), 268-275.

doi:10.1111/appy.12103

Table 1.

Healthcare Provider Knowledge and Attitudes Questions

Knowledge	Pre	Post	Attitudes	Pre	Post
	% correct			**Mean; Range**	
1. Prevalence of cervical cancer and dysplasia has been demonstrated to be equivalent among lesbians and heterosexual women (TRUE)	33%	33%	Lesbian and gay patients deserve the same level of quality care from medical institutions as heterosexual patients?	3.6;1-5	5;5-5
2. Lesbians are more likely to suffer from obesity than heterosexual women (TRUE)	66%	100%	Gay and lesbian patients should only seek health care from gay and lesbian health clinics	4.6;4-5	4.6;4-5
3. Lesbians are less likely to abuse alcohol than heterosexual women (FALSE)	66%	66%	Physicians in private practice have a responsibility to treat LGBT patients	3.6;1-5	4.3;4-5
4. The incidence of depression in older gays and lesbians is greater than the general population (TRUE)	100%	100%	I would be comfortable if I become known among my professional peers as a provider that cares for LGBT patients	4.3;4-5	4.3; 4-5
5. During male-to-female sex reassignment surgery, the prostate gland is removed (FALSE)	66%	66%	I am concerned that if my heterosexual patients learned that I was caring for LGBT patients, they will no longer seek my care	5;5-5	5;5-5
6.Heterosexual women are more likely to be smokers than lesbian women (FALSE)	66%	100%	I would be comfortable telling my intimate partner that I cared for LGBT patients	5;5-5	4.3;3-5
7. Breast cancer can still occur after bilateral reductive surgery for female-to-male transition (TRUE)	100%	100%	It is more challenging to gather an oral history from a homosexual patient than a heterosexual patient	2.3;2-3	4.3;4-5

8. When taking a sexual history on an adolescent, it is important to ask about sexual activity before questions about sexual attraction (FALSE)	0%	66%	It is more challenging to conduct a physical exam on a homosexual patient than on a heterosexual patient	3.3;2-4	4;4-4
9. The fastest growing demographic of new HIV infections is (BLACK MEN WHO HAVE SEX WITH MEN)	100%	100%	It is more challenging to conduct a genitourinary exam on a homosexual patient than on a heterosexual patient	4;2-5	3.3;2-4
10.Which of the following statements most accurately describes the term *transgender* (TRANSGENDER REFERS TO INDIVIDUALS WHO HAVE A STRONG SENSE OF INCONGRUITY BETWEEN THEIR BIRTH SEX AND GENDER IDENTITY)	33%	66%	Homosexual patients should disclose their sexual orientation to their physician	4.3;3-5	3.6;3-5
11. Among LGBTQ+ youth, suicide attempts are (2-3x HIGHER)	66%	33%	Same-sex sexual attraction is a natural expression of sexuality in humans	3.6;3-5	3.3;2-5
12.			Same-sex sexual behavior is a natural expression of sexuality in humans	3.6;3-5	3.3;2-5
			Scoring: 1-strongly disagree, 2-disagree, 3-neutral, 4-agree, 5-strongly agree		

Table 2.

Depression Screening Results for SOGI Groups

Sexual Orientation	N (%)	PHQ-2 Positives N (%)	Average PHQ-9
Heterosexual	158 (39.5)	31 (21)	6.8
Lesbian/Gay/Homosexual	10 (2.5)	2 (2.2)	9.5
Bisexual	16 (4.0)	7 (4.6)	11.5
Something Else	4 (1.0)	1 (3.3)	13
Don't Know	2 (0.5)	0 (0)	0
Transgender	0 (0)		