

**TITLE PAGE**

Primary care providers' attitudes, practices, and knowledge in treating LGBTQ communities

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## ABSTRACT

**Introduction:** Cultural competency in lesbian, gay, bisexual, transgender, and queer (LGBTQ) healthcare has been found to be lacking within various medical specialties, but no studies have compared competency among primary care providers.

**Methods:** The authors compared 127 primary care providers' cultural competency regarding LGBTQ health using a survey that assessed providers' attitudes, practices, and knowledge.

**Results:** Overall, 78.0% of respondents agreed that they were comfortable treating LGBTQ patients. Yet many providers did not feel well informed on specific LGBTQ health needs, on clinical management of LGBTQ care, nor on referring patients with LGBTQ issues. Overall accuracy on LGBTQ knowledge questions was 51%. There were significant differences in attitudes, practices, and knowledge across medical specialties.

**Conclusions:** This study revealed a lack of cultural competency among primary care providers. There is a need for greater LGBTQ-specific education to increase providers' comfortability and competency in the needs, management, and referrals within LGBTQ healthcare.

**Key words:** LGBTQ healthcare, cultural competency, healthcare providers, primary care, attitudes, practices, knowledge

## **INTRODUCTION**

The lesbian, gay, bisexual, and transgender (LGBT) community comprises 2-3% of the United States population (Flores, Herman, Gates, & Brown, 2016; Ward, Dahlhamer, Galinsky, Joestl, & Division of Health Interview Statistics, 2014). Social and medical inequality pervades LGBT communities as evidenced by barriers that include lower incomes (Jackson, Agenor, Johnson, Austin, & Kawachi, 2016; Lee Badgett, Durso, & Schneebaum, 2013), lower rates of insurance (Buchmueller & Carpenter, 2010; Krehely, 2009), limited number of culturally-competent providers (Dahlhamer, Galinsky, Joestl, & Ward, 2016; Hutchinson, Thompson, & Cederbaum, 2006; Mayer et al., 2008), lack of nondiscriminatory policies (Institute of Medicine, 2011), stigmatization (Daniel, Butkus, & Health and Public Policy Committee of the American College of Physicians, 2015), and even direct refusal of care (Grant et al., 2010; James et al., 2016). In relation to these individual and systemic barriers, numerous studies have revealed that LGBT people are more likely to identify themselves with poorer health conditions than their heterosexual counterparts (Daniel et al., 2015; Grant et al., 2010; Institute of Medicine, 2011; Jackson et al., 2016; James et al., 2016; McNamara & Ng, 2016). For example, LGBT individuals are 1.5 times more likely to suffer from anxiety and depression, lesbian women are 3 times more likely to have alcohol and substance use disorders, gay men are 1.6 times more likely to develop drug-use disorders (McNamara & Ng, 2016), and 40% of transgender adults have attempted suicide (Grant et al., 2010; James et al., 2016).

### **Medical education**

The health inequalities within the LGBT population are in part due to a lack of LGBT-specific educational content at all levels of medical training. This gap results in medical students,

residents, and physicians feeling underprepared to provide adequate patient care in their clinical years and beyond (Khalili, Leung, & Diamant, 2015; Parameshwaran, Cockbain, Hillyard, & Price, 2017). Despite an emphasis by organizations such as the Association of American Medical Colleges (2014), the Joint Commission (2011), and the American College of Physicians (Daniel et al., 2015) to provide culturally-competent care to LGBT patients, little progress has been made over the past twenty years by medical schools to integrate these recommendations into their curricula. Several surveys of U.S. and Canadian medical schools indicate that an alarming proportion of programs devote little or no time toward LGBT-specific healthcare topics. For example, medical schools in 1991 provided an average of 3.5 hours of LGBT-specific education over four years of undergraduate medical training compared to 5 hours given in 2011 (Kelley, Chou, Dibble, & Robertson, 2008; Obedin-Maliver, et al., 2011; Tesar & Rovi, 1998; Wallick, Cambre, & Townsend, 1992). In addition, Obedin-Maliver et al. (2011) revealed that 33% of medical schools provided zero hours of LGBT education during clinical years and 6.8% provided zero hours during preclinical years. This lack of education is not limited to undergraduate medical students. Only 33% of Emergency Medicine residency programs report incorporation of LGBT content into their curriculum with an average of 45 minutes spent on LGBT materials per year (Moll et al., 2014). Additionally, a survey (Khalili et al., 2015) assessing Liaison Committee on Medical Education (LCME)-accredited medical institutions found that 52% had no LGBT competency training. These aforementioned studies serve to highlight the lack of LGBT-specific education among U.S. medical providers at all levels. Without formal training, education, or exposure to LGBT healthcare, students and providers are likely to feel uncomfortable when addressing LGBT needs (Parameshwaran et al., 2017; Obedin-Maliver, et al., 2011), maintain explicit and implicit biases (Burke et al., 2015; Sabin, Riskind, & Nosek, 2015), and display

outward homophobia (Dorsen, 2012; Kosenko, Rintamaki, Raney, & Maness, 2013). Even among medical professionals, discriminatory or disparaging behavior towards LGBT clinicians is not uncommon, as many LGBT medical students and residents themselves experience discrimination (Lee, Kelz, Dube, & Morris, 2014; Ramos, Tellez, Palley, Umland, & Skipper, 1998). This environment consequently puts LGBT patients at risk of receiving substandard care and being subjected to similar discriminatory behaviors.

### **Cultural competency**

Cultural competency in LGBT healthcare is a direct product of LGBT-specific education and a key component in providing quality care and building trust within the LGBT patient population. It is characterized as the having the awareness and knowledge of how cultural factors affect health and includes the ability to provide informed, educated care to patients regardless of race, religion, sexual orientation, gender identity, socioeconomic status, or other social classifications. Providers have a professional responsibility to create a safe environment for patients that facilitates the sharing and discussion of their concerns regardless of their social history. Despite this obligation, many providers admit that they are not that well informed of or consistently practice appropriate standards in LGBT healthcare. For instance, Shetty et al. (2016) revealed that a mere 28% of oncology providers felt that they were informed on the health needs of LGBT patients. Additionally, Kitts (2010) noted similar findings: only 29% of clinicians interviewing sexually active adolescents regularly ask questions about sexual orientation while taking sexual histories. This insufficient information gathering persists despite statements by the Joint Commission, Healthy People 2020, and the Institute of Medicine recommending routine screening of sexual orientation and gender identity (Bovicini, 2017). As evidence has shown,

brief formal education, curricular reform, and greater cultural competency can translate into improved communication skills with patients, less stigmatization, and subsequent improvement in patient outcomes and satisfaction with care (Kelley et al., 2008; Khalili et al., 2015; Parameshwaran et al., 2017; Shetty et al., 2016).

### **Competency within primary care**

As previously discussed, LGBT cultural competency has been found to be lacking within various medical specialties (Kitts, 2010; Lee et al., 2014; Shetty et al., 2016). However, to our knowledge, no studies have compared LGBT competency among primary care specialties such as family medicine, internal medicine, and obstetrics/gynecology (OB/GYN). These specialties often serve as patients' first point-of-contact when seeking care. In order to acquire a broader understanding of primary care providers' baseline in LGBT healthcare, this study focuses on providers' attitudes, practices, and knowledge across medical specialties. To elucidate differences in types of primary care providers, we distributed a survey to physicians. We hypothesized that providers would admit a lack of cultural competency and display a deficiency of knowledge about LGBT health topics. Likewise, we speculated that these shortcomings would vary by medical specialty.

## **METHODS**

### **Instrument**

A lesbian, gay, bisexual, transgender, and queer (LGBTQ)-specific survey was adapted from several past studies that analyzed healthcare providers' attitudes, practices, and knowledge regarding LGBTQ health (Kelley et al., 2008; McNamara & Ng, 2016; Sanchez, Rabatin,

Sanchez, Hubbard, & Kalet, 2006; Shetty et al., 2016). This survey is a self-reporting, anonymous battery of demographics, measures, and experimental questions. Ten demographic items concern specialty, age, gender, sexual orientation, race/ethnicity, licensure, city of practice, sphere of medicine, sector of medicine, and percent of patients who identify as LGBTQ. Five survey items are specific for attitudes (Kelley et al., 2008; Shetty et al., 2016). Ten survey items assess what providers do in their practices (Shetty et al., 2016 ). Twelve survey items evaluate fund of knowledge (Kelley et al., 2008; McNamara & Ng, 2016; Sanchez et al., 2006; Shetty et al., 2016). All items consist of 5-point Likert scales (e.g., “strongly disagree” to “strongly agree”) with a value of 3 representing neutrality (“neither agree nor disagree”).

### **Procedure**

Because participants could not be identified directly or through identifiers, this study was deemed exempt by the Indiana University Institutional Review Board. The survey was distributed to healthcare providers in Indiana between March and May 2016. Advertisement was through the Indiana University School of Medicine and Eskenazi Health outlets via listservs and newsletters. Responses were collected for four months until a total of 100 participants was reached. Participation was voluntary and anonymous, and completion of the survey constituted consent of participation. Data was then evaluated by the principal investigator.

### **Analysis**

We analyzed results using SPSS Statistics 23 (IBM Corp., Armonk, NY). We computed frequencies for demographic items and means for survey items. We collapsed providers who were not of a family medicine, internal medicine, or OB/GYN specialty into a miscellaneous

'other' category. We analyzed differences in item response frequencies across specialty, age, gender, sexual orientation, race, licensure, city of practice, sphere of medicine, and sector of medicine using Fisher's exact tests. For statistically significant items across medical specialty, frequencies were expanded upon given the emphasis of the study to elucidate differences in primary care providers. We computed mean accuracies for knowledge items across medical specialty; accuracy was defined as percent correct with responses of "agree" or "strongly agree" when items were correctly worded (for incorrectly worded items, accuracy was defined by responses of "disagree" or "strongly disagree"). We then compared accuracies to the probability of chance correctness (i.e., 40%) using one-sample *t*-tests. We analyzed differences in mean accuracies across medical specialty using one-way analyses of variance (ANOVAs) and Tukey's post-hoc tests when statistically significant. For all analyses, statistical significance was set at  $\alpha=0.01$ . Excluded responses were those of missing data.

## **RESULTS**

### **Respondent demographics**

A total of 127 healthcare providers completed the survey (Table 1). Respondents practiced in family medicine (40.2%), internal medicine (21.3%), OB/GYN (16.5%), and several other specialties (22.0%). They varied widely in age: 27.6% were between 20-29 years old, 31.5% between 30-39 years old, 13.4% between 40-49 years old, 17.3% between 50-59 years old, and 10.2% over 60 years old. There were slightly more females (52.8%) than males (47.2%). The majority identified as straight (90.6%), were Caucasian (73.2%), had an M.D. licensure (83.5%), practiced in Indianapolis (74.0%) within academic or community medicine (45.7% and 51.2%,



respectively) and the public or private sector (71.4% and 25.4%, respectively). Most respondents indicated that 1-10% of their patient population identifies as LGBTQ (86.6%).

### **Means of survey items**

Survey item means generally trended in expected manners above and below neutrality, i.e. a mean of 3 (Table 2). Of the five attitude items, all had means that were anticipated: four were positively worded with means greater than 3 (means ranging from 3.74 to 4.13) and one was negatively worded with a mean less than 3 ( $M = 2.72$ ). Of the ten practice items, eight were positively worded and two were negatively worded. Five of the positive-directed items had means below 3: "I am well informed on specific LGBTQ health needs." ( $M=2.96$ ), "I am well informed on clinical management of specific LGBTQ health needs." ( $M=2.81$ ), "I am well informed on referring patients with specific LGBTQ health needs to Indiana resources." ( $M = 2.55$ ), "I actively inquire about a patient's gender identity when taking a history." ( $M = 2.72$ ), and "Among diseases I most commonly treat, being LGBTQ is an important risk factor." ( $M = 2.82$ ). The other three positively worded and two negatively worded items had means as expected ( $M = 3.27-3.96$  and  $M = 1.75-2.92$ , respectively). Of the twelve knowledge items, eight were correctly worded and four were incorrectly worded. One correctly worded knowledge item had a mean less than 3: "There is a higher risk of breast cancer among lesbian women compared to heterosexual women" ( $M = 2.82$ ). The other correctly worded knowledge items had means that were anticipated ( $M = 3.16-4.29$ ). All incorrectly worded knowledge items had means more than 3: "Access to healthcare is the same for LGBTQ persons as for other members of the population." ( $M = 3.20$ ), "Bisexual men have similar rates of depression and anxiety as heterosexual men." ( $M = 3.25$ ), "Gender reassignment surgery is easily available and covered by

most insurance policies.” (M = 3.38), and “LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts.” (M = 3.05).

### **Differences in attitude item responses**

Two attitude items were statistically significant across medical specialty (Table 3). For the item “I am comfortable treating LGBTQ patients.”, all specialties had favorable results (an agree/strongly agree response rate ranging from 70.6% in family medicine to 85.7% in OB/GYN), yet internal medicine had the highest disagree/strongly disagree rate (18.5%). The item “There should be more education in health professional schools on LGBTQ health” showed similar results: a 59.3% agree/strongly agree rate in internal medicine to 95.2% in OB/GYN, and internal medicine having the highest disagree/strongly disagree rate (14.8%). There were significant differences across gender for the items “There should be more education in health professional schools on LGBTQ health.” (p-value = 0.002) and “There should be mandatory educational events at the Indiana University School of Medicine.” (p-value = 0.006) as well (data not shown). There were no significant differences across age, sexual orientation, race, licensure, city of practice, sphere of medicine, or sector of medicine.

### **Differences in practice item responses**

One practice item was statistically significant across medical specialty (Table 3). For the item “It is important to know the sexual orientation of my patients to provide the best care.”, agree/strongly agree rates varied from 70.4% in internal medicine to 100% in OB/GYN. Internal medicine had the highest disagree/strongly disagree rate of 18.5%. There was a significant difference across licensure for the item “It is important to know the gender identity of my

patients to provide the best care.” (p-value = 0.002) as well (data not shown). There were no significant differences across age, gender, sexual orientation, race, city of practice, sphere of medicine, or sector of medicine.

### **Differences in knowledge item responses**

Three knowledge items were statistically significant across medical specialty (Table 3). The “Access to healthcare is the same for LGBTQ persons as for other members of the population.” item revealed that 66.7% in OB/GYN answered correctly, while only 22.2% in internal medicine did. Likewise, 52.4% in OB/GYN answered the item “Bisexual men have similar rates of depression and anxiety as heterosexual men.” correctly compared to 18.5% in internal medicine. Internal medicine had a 3.7% accuracy for the item “Gender reassignment surgery is easily available and covered by most insurance policies.”, while OB/GYN obtained an 85.7% accuracy. There were no significant differences across age, gender, sexual orientation, race, licensure, city of practice, sphere of medicine, or sector of medicine.

### **Knowledge item accuracies**

Accuracies of knowledge items were in general poor (Table 4). Only four of the twelve knowledge items had an overall accuracy of more than 50%. Six items had accuracies under 40% and two of these items were statistically less than chance: “There is a higher risk of breast cancer among lesbian women when compared to heterosexual women.” (23.6% accuracy) and “LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts.” (22.8% accuracy). When stratified by medical specialty, every type of provider except OB/GYN scored significantly less than chance on at least one item. Family

medicine providers scored less than chance on one item (“LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts.”, 23.5% accuracy). Internal medicine providers scored less than chance on three items (“Bisexual men have similar rates of depression and anxiety as heterosexual men.”, 18.5% accuracy; “Gender reassignment surgery is easily available and covered by most insurance policies.”, 3.7% accuracy; and “LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts.”, 7.4% accuracy). Other specialty providers scored less than chance on four items (“There is a higher risk of breast cancer among lesbian women when compared to heterosexual women.”, 7.1% accuracy; “Bisexual men have similar rates of depression and anxiety as heterosexual men.”, 14.3% accuracy; “Bisexual women are more likely to suffer from obesity than heterosexual women.”, 7.1% accuracy; and “Gender reassignment surgery is easily available and covered by most insurance policies.”, 10.7% accuracy).

ANOVAs and Tukey’s post-hoc tests revealed statistically significant differences in overall accuracy and specifically in four knowledge item accuracies (Table 4, Figure 1). There was a significant effect of medical specialty on overall accuracy [ $F(3, 123) = 7.78, p = <0.001$ ] such that overall accuracy for OB/GYNs ( $M = 65.5, SD = 16.3$ ) was significantly higher than for internal medicine ( $M = 45.7, SD = 14.5$ ) and other specialties ( $M = 42.9, SD = 12.6$ ). For the item “Access to healthcare is the same for LGBTQ persons as for other members of the population.”, there was a significant effect [ $F(3, 123) = 4.87, p = 0.003$ ] such that OB/GYNs ( $M = 66.7, SD = 48.3$ ) scored significantly higher than internal medicine ( $M = 22.2, SD = 42.4$ ) and other specialty providers ( $M = 21.4, SD = 41.8$ ). The item “Bisexual men have similar rates of

depression and anxiety as heterosexual men.” revealed a significant effect of medical specialty on accuracy [ $F(3, 123) = 4.12, p = 0.008$ ] but no differences between two specialties reached statistical significance at  $\alpha=0.01$ . The item “Bisexual women are more likely to suffer from obesity than heterosexual women.” showed that there was a significant effect of medical specialty on accuracy [ $F(3, 123) = 5.08, p = 0.002$ ] with family medicine providers ( $M = 49.0, SD = 50.5$ ) scoring significantly higher than other specialty providers ( $M = 7.1, SD = 26.2$ ). For the item “Gender reassignment surgery is easily available and covered by most insurance policies.”, there was a significant effect of medical specialty on accuracy [ $F(3, 123) = 22.15, p = <0.001$ ] as OB/GYNs ( $M = 85.7, SD = 35.9$ ) had significantly higher accuracy than family medicine, internal medicine, and other specialty providers ( $M = 33.3, SD = 47.6; M = 3.7, SD = 19.2; M = 10.7, SD = 31.5$ , respectively) and family medicine providers had significantly higher scores than internal medicine providers.

## **DISCUSSION**

### **Providers' attitudes and practices within LGBTQ care**

This study reveals significant disparities between providers' attitudes and clinical practices.

While providers reported that they feel comfortable treating LGBTQ patients and recognized that LGBTQ populations have unique health risks and needs, they nonetheless did not feel well informed on specific LGBTQ health needs, on clinical management of LGBTQ care, nor on referring patients with LGBTQ issues. This lack of self-confidence demonstrates an unfamiliarity with the needs, management, and referral options relevant to the LGBTQ population.

Additionally, a disconnect between intention and practice is illustrated by providers' opinions concerning the importance of sexual orientation and gender identity information gathering and

their actual acquisition of this data. Providers agreed that it was important to elicit this information for the best care, but agreed significantly less that they actively inquire about sexual orientation and gender identity [sexual orientation:  $t(126) = 7.086$ ,  $p < 0.001$ ; gender identity:  $t(126) = 12.464$ ,  $p < 0.001$ , data not shown]. Furthermore, only 51.2% of providers' agreed they actively inquire about sexual orientation, while only 22.8% agreed they actively inquire about gender identity (data not shown). This inconsistent information gathering resembles the work done by Kitts (2010), who found that only 29% of physicians regularly ask sexually active adolescents about sexual orientation and only 8.5% regularly ask about gender identity. Maheux, Haley, Rivard, & Gervais (1999) also showed that merely 20% of OB/GYN and internal medicine physicians ask patients about sexual orientation. Because significant health disparities exist within the LGBTQ population, acquiring specific information about sexual orientation and gender identity is extremely valuable for culturally-competent care. Providers appear to understand the usefulness of such practice, yet often fail to practice what they teach.

### **Differences in attitudes & practices**

When there were statistically significant differences in attitudes and clinical practices across medical specialty, obvious imbalances existed. In particular, internal medicine providers consistently had sharp disagree/strongly disagree rates. Nearly 15% disagreed that there should be more LGBTQ education and 18% did not value the importance of ascertaining patients' sexual orientations, yet approximately 20% did not feel comfortable treating LGBTQ patients. How these entities are interrelated is difficult to explain. Perhaps internal medicine providers do not perceive any value in LGBTQ education and therefore do not routinely seek sexual orientation information, ignore their biases, and overlook their discomfort as a professional issue.

Alternatively, internal medicine providers may feel uncomfortable with LGBTQ patients (for a variety of internal and external reasons) resulting in subsequent disregard of proper care standards at both clinical practice and educational levels. Ascertaining the nuances of internal medicine providers' attitudes and practices is of extreme importance, despite how biased and deficient they may be, if cultural competency is to be achieved within this medical specialty.

### **Providers' knowledge About LGBTQ care**

This study also discloses a general lack of provider knowledge concerning LGBTQ healthcare. Overall accuracy for the twelve knowledge items was low at 51%. Eight of these questions had accuracies less than 50%. This mediocre performance reflects a general lack of LGBTQ-specific health issue awareness. Such deficiency echoes the general sentiment of previous studies that collectively express a lack of provider cultural competence (Khalili et al., 2015; Kitts, 2010; Lee et al., 2014; Shetty et al., 2016). In particular, the lowest scoring (20% correct) items concerned increased breast cancer risk in lesbian women and less physical activity in LGBTQ youth. Both of these questions were significantly less than chance, implying that a random choice would fare better than provider responses. Moreover, both gay-specific and bisexual-specific questions had accuracies less than 50%. Variations in accuracy may thus represent a deficiency in population-specific education. For example, providers know that in general LGBTQ patients avoid healthcare and that there is an association between LGBTQ and suicide, but their knowledge base often fails to account for precise details such as breast cancer risk, anal cancer screening, gender reassignment surgery availability, and rates of domestic violence, depression and anxiety, and obesity. Ideally, cultural competency includes both general as well as population-specific proficiencies. Because there appears to be a stark difference between general and population-

specific funds of knowledge, training and education about LGBTQ care should focus on both with a strong emphasis on the details.

### **Differences in knowledge**

When considering knowledge across medical specialty, several group-specific gaps were apparent. Although several other specialties were collapsed into a miscellaneous category, we do not discuss their differences here in order to avoid generalizations of the many other specialties within medical care. OB/GYN providers by far performed at much higher accuracies. Having the highest overall average at 65%, OB/GYNs scored less than 40% in only three questions, and scored better than all other providers in six questions. In comparison, family medicine providers had a 52% overall average and seven questions with less than 40% accuracy (with one significantly less than chance). Internal medicine providers had a 45.7% overall accuracy and six questions with less than 40% accuracy (three were significantly less than chance). Of further note, internal medicine providers had some of the lowest accuracies at 3.7% and 7.4%, signifying that only one and two providers out of 27, respectively, could answer these questions correctly. Likewise, knowledge concerning access to healthcare, depression and anxiety rates, obesity rates, and gender reassignment surgery availability were answered less correctly by internal medicine providers. Exact causes for these knowledge differences across medical specialty is unclear. Conceivably, these specialties have varying degrees of diversity training (e.g., sampled OB/GYNs could have received LGBTQ education at required events such as at grand rounds, seminars, etc.). However, sampling did not come from medical groups, and the majority of the respondents are older than providers at the graduate medical education level and practice within the community so group-specific training is improbable. The most plausible reasoning involves



an interrelation of the attitudes, practices, and knowledge sets. As noted above, internal medicine providers showed negative attitudes, biases, lack of comfortability, and inconsistencies in clinical practice more often. These beliefs and incorrect assumptions could possibly be obscuring providers' understanding of the certain LGBTQ health risks. This effect could inadvertently result in substandard care and reinforce the health disparities that the LGBTQ community faces.

### **Encouraging better care through education**

Although providers in general displayed shortcomings in LGBTQ knowledge, they did agree that there should be more education, including mandatory events, at health professional institutions. As previous studies have shown, there has historically been little time spent on LGBT education at all levels of clinician training, including a current average of only 5 hours throughout undergraduate medical education (Kelley et al., 2008; Obedin-Maliver, et al., 2011; Tesar & Rovi, 1998; Wallick et al., 1992). This represents a significant opportunity for improvement. For medical students, efforts in the preclinical years might include panels with LGBTQ individuals and guest speakers who are comfortable sharing their stories and fielding questions. Cultural competency training by local LGBTQ organizations could be scheduled at regular intervals to reinforce important concepts. In the clinical years, dedicated clerkship time at sexual health or transgender clinics should be made available in addition to lecture content covering LGBTQ-specific health topics. In summary, this sanction to increase LGBTQ education offers an opportunity for students and providers to become more comfortable and competent in the needs, management, and referrals within LGBTQ healthcare. By increasing the amount of time spent on education in medical school and continuing medical education credits, providers would likely

develop a greater awareness and sensitivity to the distinct needs of this population thereby enabling them to provide better care.

### **Limitations**

There are a few notable limitations of this study. For example, although the survey used in this study was adapted from previous studies, this study's instrument has not yet been validated across many studies. This study is also limited by subject recruitment which relied on convenience sampling in Indiana, small sample size per medical specialty, and collapsing several types of specialties within the miscellaneous "other" category. While this study provides valuable information concerning providers' attitudes, practices, and knowledge about LGBTQ healthcare, these results should not can be extended or generalized to every type of primary care provider across the country. Future studies should consider extending these results to larger sample sizes, incorporating other primary care specialties such as mental health and pediatrics, and assessing attitudes, practices, and knowledge pre- and post-cultural competency training and education.

### **CONCLUSIONS**

Finding concrete solutions for LGBTQ disparities is challenging. However, the academic medical community is in an ideal position to improve attitudes and knowledge about LGBTQ care, which could translate into better clinical practice and health outcomes. Here we show that there is much need for improvement as primary care providers endorse negative attitudes, biases, inconsistencies in clinical practice, and deficiencies in medical knowledge in specialty-specific ways. Reassuringly, there is a foundational understanding of the importance for LGBTQ

education in providers. Yet providers do not translate this appreciation into attainment of knowledge and cultural competency. Efforts should entail modernizing medical education to effectively integrate LGBTQ topics, increasing LGBTQ education hours at both the provider and student level, and creating an open dialogue for awareness and mitigation about the specific biases and assumptions that providers uphold concerning the LGBTQ population in general and its subcultures. Only then, through acknowledgement of these pressing issues of biases and knowledge deficits, can we start to deconstruct the health disparities of the LGBTQ population.

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### **Ethical approval**

Because participants could not be identified directly or through identifiers, this study was deemed exempt by the Indiana University Institutional Review Board (Date: 03/02/17, Study #: 1701831603).

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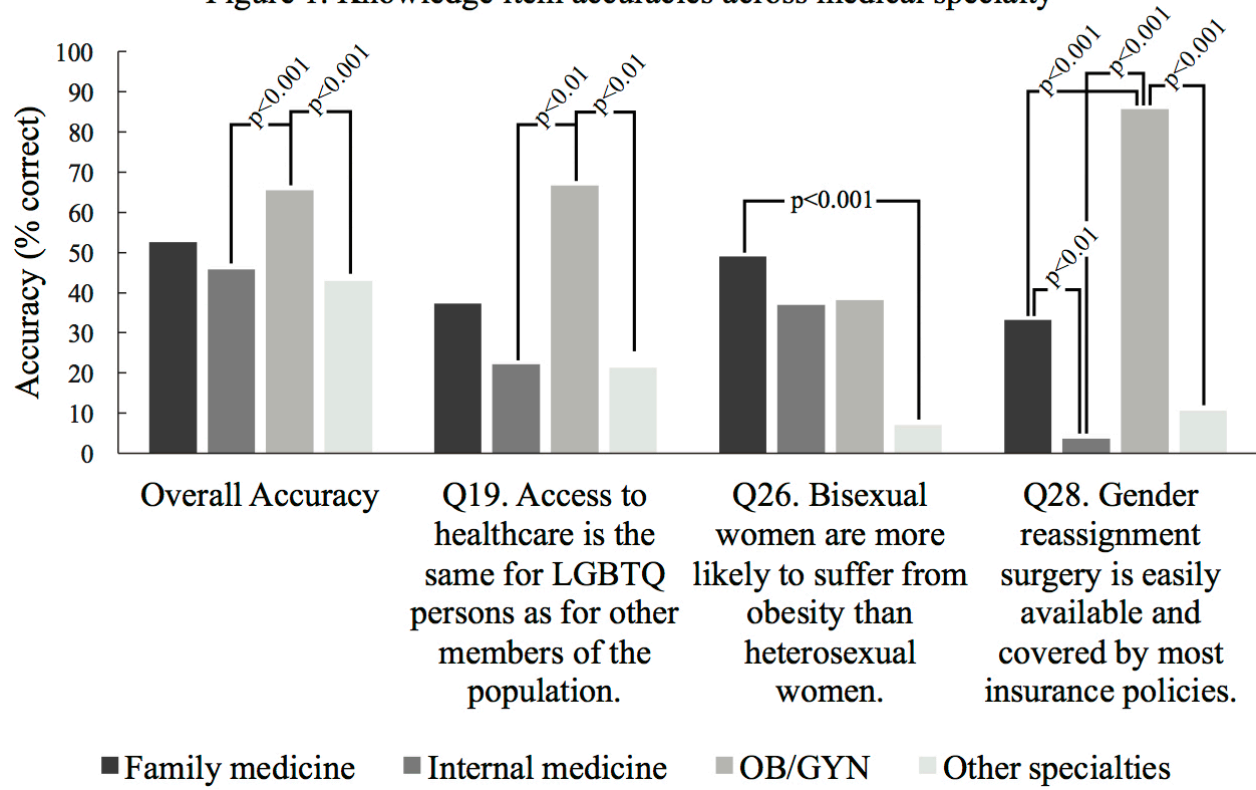
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Figure 1. Knowledge item accuracies across medical specialty



**Table 1.** Respondent demographics (*N* = 127)

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	<i>n</i> (%)
<u>Specialty</u>	
Family Medicine	51 (40.2)
Internal Medicine	27 (21.3)
OB/GYN	21 (16.5)
Other <sup>a</sup>	28 (22.0)
<u>Age</u>	
20-29	35 (27.6)
30-39	40 (31.5)
40-49	17 (13.4)
50-59	22 (17.3)
60+	13 (10.2)
<u>Gender</u>	
Male	60 (47.2)
Female	67 (52.8)
<u>Sexual Orientation</u>	
Straight	115 (90.6)
LGBT	12 (9.4)
<u>Race/Ethnicity</u>	
Caucasian	93 (73.2)
Other <sup>b</sup>	34 (26.8)
<u>Licensure</u>	
M.D.	106 (83.5)
Other <sup>c</sup>	21 (16.5)
<u>City of Practice</u>	

Indianapolis	94 (74.0)
Other <sup>d</sup>	33 (26.0)
<u>Sphere of Medicine</u>	
Academic	58 (45.7)
Community	65 (51.2)
Other	4 (3.1)
<u>Sector of Medicine</u>	
Public	90 (70.9)
Private	32 (25.2)
Other	4 (3.1)
Missing	1 (0.8)
<u>Percent LGBTQ patients</u>	
0%	4 (3.1)
1-10%	110 (86.6)
11-25%	11 (8.7)
26-50%	2 (1.6)
51-75%	0 (0.0)
76-100%	0 (0.0)

<sup>a</sup>Other specialties: Anesthesiology ( $n = 1$ ), Emergency medicine ( $n = 2$ ), Endocrinology ( $n = 3$ ), Gastroenterology ( $n = 1$ ), Geriatrics ( $n = 1$ ), Infectious disease ( $n = 2$ ), Medicine/pediatrics ( $n = 5$ ), Mental health ( $n = 1$ ), Neurology ( $n = 1$ ), Other ( $n = 6$ ), Pain ( $n = 1$ ), Pediatrics ( $n = 3$ ), Pulmonology ( $n = 1$ )

<sup>b</sup>Other races/ethnicities: Asian/Asian American ( $n = 14$ ), African/African American ( $n = 6$ ), Latino/Hispanic ( $n = 7$ ), Other ( $n = 7$ )

<sup>c</sup>Other licensures: D.O. ( $n = 12$ ), Ph.D. ( $n = 1$ ), Other ( $n = 8$ )

<sup>d</sup>All other cities of practice were within Indiana.

**Table 2.** Survey item means ( $N = 127$ )<sup>a</sup>

	<i>M (SD)</i>		<i>M (SD)</i>		<i>M (SD)</i>
<u>Attitude items</u>		<u>Practice items</u>		<u>Knowledge items</u>	
Q11. I am comfortable treating LGBTQ patients.	3.92 (0.91)	Q16. I am well informed on specific LGBTQ health needs.	2.96 (1.00)	Q19. Access to healthcare is the same for LGBTQ persons as for other members of the population. <sup>b</sup>	3.20 (1.20)
Q12. LGBTQ populations have unique health risks and needs.	4.13 (0.62)	Q17. I am well informed on clinical management of specific LGBTQ health needs.	2.81 (0.92)	Q20. LGBTQ patients avoid accessing healthcare due to difficulty communicating with providers.	3.86 (0.73)
Q13. There should be more education in health professional schools on LGBTQ health needs.	4.04 (0.86)	Q18. I am well informed on referring patients with specific LGBTQ health needs to Indiana resources.	2.55 (1.04)	Q21. HPV-associated cervical dysplasia can be found in lesbians with no history of heterosexual intercourse.	4.02 (0.62)
Q14. There should be mandatory educational events at the Indiana University School of Medicine on LGBTQ health needs.	3.74 (1.09)	Q31. I actively inquire about a patient's sexual orientation when taking a history.	3.27 (1.06)	Q22. There is a higher risk of breast cancer among lesbian women when compared to heterosexual women.	2.82 (0.88)
Q15. LGBTQ populations are often more difficult to treat. <sup>b</sup>	2.72 (0.93)	Q32. It is important to know the sexual orientation of my patients to provide the best care.	3.96 (0.79)	Q23. Among coupled gay male households, rates of domestic violence are similar to those of the population at large.	3.16 (0.92)
		Q33. I actively inquire about a patient's gender identity when taking a history.	2.72 (0.93)	Q24. Regularly screening gay and bisexual men for anal cancer through anal pap testing can increase life expectancy.	3.42 (0.77)
		Q34. It is important to know the gender identity of my patients to provide the best care.	3.96 (0.89)	Q25. Bisexual men have similar rates of depression and anxiety as heterosexual men. <sup>b</sup>	3.25 (1.10)

Q35. I would prefer not to treat patients with gender identity issues. <sup>b</sup>	1.75 (0.88)	Q26. Bisexual women are more likely to suffer from obesity than heterosexual women.	3.23 (0.89)
Q36. Among the diseases I most commonly treat, being LGBTQ is an important risk factor.	2.82 (0.98)	Q27. Rates of attempted suicide among transgender people are higher than those of lesbian, gay, and bisexual people.	4.08 (0.74)
Q37. Upon first encounter I assume a patient is heterosexual. <sup>b</sup>	2.92 (1.04)	Q28. Gender reassignment surgery is easily available and covered by most insurance policies. <sup>b</sup>	3.38 (1.32)
		Q29. LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts. <sup>b</sup>	3.05 (0.78)
		Q30. There is an association between being an LGBTQ adolescent and suicide.	4.29 (0.70)

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<sup>a</sup>All items were of 5-point Likert scales (1='strongly disagree' to 5='strongly agree').

<sup>b</sup>Negatively worded (Q15, Q35, Q37) or incorrectly worded (Q19, Q25, Q28, Q29) items.

**Table 3.** Statistically significant differences in item response frequencies across medical specialty<sup>a</sup>, *n* (%)

	Overall	Family medicine	Internal medicine	OB/GYN	Other	p-value <sup>b</sup>
Q11. I am comfortable treating LGBTQ patients.						0.001
Strongly disagree	1 (0.7)	0 (0.0)	1 (3.7)	0 (0.0)	0 (0.0)	
Disagree	12 (9.4)	5 (9.8)	4 (14.8)	1 (4.8)	2 (7.1)	
Neither agree nor disagree	15 (11.8)	10 (19.6)	0 (0.0)	2 (9.5)	3 (10.7)	
Agree	67 (52.8)	30 (58.8)	7 (25.9)	13 (61.9)	17 (60.7)	
Strongly agree	32 (25.2)	6 (11.8)	15 (55.6)	5 (23.8)	6 (21.4)	
Q13. There should be more education in health professional schools on LGBTQ health.						0.001
Strongly disagree	3 (2.4)	1 (2.0)	2 (7.4)	0 (0.0)	0 (0.0)	
Disagree	2 (1.6)	0 (0.0)	2 (7.4)	0 (0.0)	0 (0.0)	
Neither agree nor disagree	20 (15.7)	8 (15.7)	7 (25.9)	1 (4.8)	4 (14.3)	
Agree	64 (50.4)	34 (66.7)	8 (29.6)	6 (28.6)	16 (57.1)	
Strongly agree	38 (29.9)	8 (15.7)	8 (29.6)	14 (66.7)	8 (28.6)	
Q19. Access to healthcare is the same for LGBTQ persons as for other members of the population.						0.010
Strongly disagree	10 (7.9)	3 (5.9)	2 (7.4)	5 (23.8)	0 (0.0)	
Disagree	35 (27.6)	16 (31.3)	4 (14.8)	9 (42.9)	6 (21.4)	
Neither agree nor disagree	18 (14.2)	6 (11.8)	6 (22.2)	1 (4.8)	5 (17.9)	
Agree	48 (37.8)	23 (45.1)	7 (25.9)	5 (23.8)	13 (46.4)	
Strongly agree	16 (12.6)	3 (5.9)	8 (29.6)	1 (4.8)	4 (14.3)	
Q25. Bisexual men have similar rates of depression and anxiety as heterosexual men.						0.002
Strongly disagree	4 (3.1)	1 (2.0)	0 (0.0)	3 (14.3)	0 (0.0)	
Disagree	36 (28.3)	19 (37.3)	5 (18.5)	8 (38.1)	4 (14.3)	
Neither agree nor disagree	27 (21.3)	7 (13.7)	3 (11.1)	6 (28.6)	11 (39.3)	
Agree	44 (34.6)	20 (39.2)	11 (40.7)	4 (19.0)	9 (32.1)	
Strongly agree	16 (12.6)	4 (7.8)	8 (29.6)	0 (0.0)	4 (14.3)	



Q28. Gender reassignment surgery is easily available and covered by most insurance policies.

<0.001

Strongly disagree	12 (9.4)	6 (11.8)	0 (0.0)	6 (28.6)	0 (0.0)
Disagree	27 (21.3)	11 (21.6)	1 (3.7)	12 (57.1)	3 (10.7)
Neither agree nor disagree	20 (15.7)	13 (25.5)	3 (11.1)	1 (4.8)	3 (10.7)
Agree	37 (29.1)	13 (25.5)	12 (44.4)	1 (4.8)	11 (39.3)
Strongly agree	31 (24.4)	8 (15.7)	11 (40.7)	1 (4.8)	11 (39.3)

Q32. It is important to know the sexual orientation of my patients to provide the best care.

0.003

Strongly disagree	1 (0.7)	0 (0.0)	1 (3.7)	0 (0.0)	0 (0.0)
Disagree	8 (6.3)	1 (2.0)	4 (14.8)	0 (0.0)	3 (10.7)
Neither agree nor disagree	12 (9.4)	4 (7.8)	3 (11.1)	0 (0.0)	5 (17.9)
Agree	80 (63.0)	40 (78.4)	13 (48.1)	11 (52.4)	16 (57.1)
Strongly agree	26 (20.5)	6 (11.8)	6 (22.2)	10 (47.6)	4 (14.2)

<sup>a</sup>Statistically significant set at  $\alpha=0.01$ .

<sup>b</sup>p-values were calculated using Fisher's exact tests.

**Table 4.** Knowledge item accuracies across medical specialty<sup>a</sup>, *M (SD)*

	Overall	Family medicine	Internal medicine	OB/GYN	Other	F (3,123)	p-value
Q19. Access to healthcare is the same for LGBTQ persons as for other members of the population. <sup>b</sup>	35.4 (48.0)	37.3 (48.8)	22.2 (42.4)	66.7 (48.3)	21.4 (41.8)	4.87	0.003
Q20. LGBTQ patients avoid accessing healthcare due to difficulty communicating with providers.	80.3 (39.9)	78.4 (41.5)	74.1 (44.7)	95.2 (21.8)	78.6 (41.8)		
Q21. HPV-associated cervical dysplasia can be found in lesbians with no history of heterosexual intercourse.	87.4 (33.3)	94.1 (23.8)	77.8 (42.4)	95.2 (21.8)	78.6 (41.8)		
Q22. There is a higher risk of breast cancer among lesbian women when compared to heterosexual women.	<b>23.6</b> <b>(42.6)<sup>d</sup></b>	27.5 (45.1)	29.6 (46.5)	28.6 (46.3)	<b>7.1</b> <b>(26.2)<sup>d</sup></b>		
Q23. Among coupled gay male households, rates of domestic violence are similar to those of the population at large.	40.2 (49.2)	37.3 (48.8)	44.4 (50.6)	42.9 (50.7)	39.3 (49.7)		
Q24. Regularly screening gay and bisexual men for anal cancer through anal pap testing can increase life expectancy.	48.0 (50.2)	37.3 (48.8)	59.3 (50.1)	52.4 (51.2)	53.6 (50.8)		
Q25. Bisexual men have similar rates of depression and anxiety as heterosexual men. <sup>b</sup>	31.5 (46.6)	39.2 (49.3)	<b>18.5</b> <b>(39.6)<sup>c</sup></b>	52.4 (51.2)	<b>14.3</b> <b>(35.6)<sup>d</sup></b>	4.12	0.008
Q26. Bisexual women are more likely to suffer from obesity than heterosexual women.	35.4 (48.0)	49.0 (50.5)	37.0 (49.2)	38.1 (49.8)	<b>7.1</b> <b>(26.2)<sup>d</sup></b>	5.08	0.002
Q27. Rates of attempted suicide among transgender people are higher than those of lesbian, gay, and bisexual people.	83.5 (37.3)	82.4 (38.5)	81.5 (39.6)	90.5 (30.1)	82.1 (39.0)		
Q28. Gender reassignment surgery is easily available and covered by most insurance policies. <sup>b</sup>	30.7 (46.3)	33.3 (47.6)	<b>3.7</b> <b>(19.2)<sup>d</sup></b>	85.7 (35.9)	<b>10.7</b> <b>(31.5)<sup>d</sup></b>	22.15	<0.001
Q29. LGBTQ youth report exercising similar hours of moderate/vigorous physical activity per week as heterosexual counterparts. <sup>b</sup>	<b>22.8</b> <b>(42.1)<sup>d</sup></b>	<b>23.5</b> <b>(42.8)<sup>c</sup></b>	<b>7.4</b> <b>(26.7)<sup>d</sup></b>	38.1 (49.8)	25.0 (44.1)		
Q30. There is an association between being an LGBTQ adolescent and suicide.	93.7 (24.4)	90.2 (30.0)	92.6 (26.7)	100 (0.0)	96.4 (18.9)		
Overall	51.0 (18.8)	52.5 (21.2)	45.7 (14.5)	65.5 (16.3)	42.9 (12.6)	7.78	<0.001

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<sup>a</sup>Accuracy defined as percent correct with responses of “agree” or “strongly agree” for correctly worded items, or “disagree” or “strongly disagree” for incorrectly worded items. Accuracies were compared to chance (40%) with one-sample *t*-tests. Bolded items are statistically less than chance at  $\alpha=0.01$ .

<sup>b</sup>Incorrectly worded items.

<sup>c</sup> $p<0.01$

<sup>d</sup> $p<0.001$