

# Knowledge and Attitudes about Transgender Healthcare: Exploring the Perspectives of Hispanic Medical Students

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**Objectives:** The aim of this study was to explore the knowledge and attitudes about transgender care in Hispanic medical students at the University of Puerto Rico School of Medicine (UPR SOM).

**Methods:** Medical students at the UPR SOM were invited to participate in a questionnaire to assess their attitudes and knowledge about the healthcare of transgender patients. The data were analyzed as percentages and averages using Stata version 14.

**Results:** A total of 141 medical students completed the survey. The majority of the students (52.5%) reported that they needed to learn more about transgender health issues. Most of the students (60.3%) were not familiar with the hormonal regimens used for gender reassignment and transition and were not knowledgeable about the requirements an individual must fulfil prior to undergoing gender-reassignment surgery. The Likert scale scores for how comfortable students felt about working with transgender patients and becoming known among peers as a doctor that cares for transgender patients were 4.0 (95% CI: 4.0-4.2) and 4.7 (95% CI: 4.6-4.8), respectively. Almost all the medical students (97.9%) thought that transgender patients deserved the same quality of care from medical institutions as heterosexual patients receive. Most of the medical students (87.3%) believed physicians are responsible for the treatment of transgender patients.

**Conclusion:** Our study revealed that even though UPR SOM medical students tend to be willing to treat transgender patients, there are limitations to their knowledge and training regarding this specific healthcare topic. Strategies to improve medical student knowledge about and training on these topics must be considered.

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Transgender individuals are characterized by having a gender identity and/or expression that is different from their sexual anatomy at birth (1–3). It has recently been estimated that from 1 to 1.4 million adults in the United States (US) are transgender (4,5). Transgender people exhibit high rates of substance abuse, mental disorders, and HIV infection (3,4). Furthermore, chronic medical comorbidities appear to be more common among transgender individuals with mental disorders (6). Thus, transgender individuals have particular healthcare needs.

Despite current guidelines about the proper clinical management of this population, health disparities based on sexual orientation and gender identity are still present (7–11). Transgender individuals have perceived discrimination and mistreatment as well as deficient cultural competencies and transgender medical knowledge in healthcare providers (3,9,11,12). The scarcity of transgender-specific health

education and training in medical schools' curriculums are possible contributors to these healthcare barriers (3,8,13–17).

In 2014, the Association of American Medical Colleges (AAMC) created the first guidelines about training medical students to provide care to lesbian, gay, bisexual, and transgender (LGBT) patients (18). However, Dubin et al. (2018) reported

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that 52% of Liaison Committee on Medical Education (LCME)-accredited schools still do not offer LGBT and queer (Q) training as part of their curriculums (13). Furthermore, medical students have reported that the LGBTQ, especially transgender, health training they receive is inadequate, with gender-affirming clinical care among the least frequently taught subjects at medical schools (13,14,17,19,20).

Literature focusing on transgender-specific knowledge and attitudes among medical students remains scarce (13). The available reports highlight the need for transgender-specific training, inclusive curriculums, and appropriately trained medical providers to properly address the health needs of transgender patients (13,19). Thus, this study aimed to describe the self-reported knowledge and attitudes about transgender healthcare among Hispanic medical students at the University of Puerto Rico School of Medicine (UPR SOM). We hope this information helps in the development of transgender-specific educational strategies to improve the academic training, knowledge, and attitudes of medical students (8,14,15).

### Methodology

The UPR SOM is an LCME-accredited institution that remains the only public medical school in PR since the school's establishment in 1950 (21). It is formally affiliated with several public teaching hospitals that provide care to a great proportion of the population of PR. As a result, the medical students at the UPR SOM are exposed to a great diversity of patients and clinical scenarios (21). We conducted a descriptive cross-sectional study to better understand the knowledge and attitudes of these students regarding transgender healthcare. This study was approved by the University of Puerto Rico Medical Sciences Campus Institutional Review Board (IRB) in December 2018.

### Recruitment

In February 2019, we sent an e-mail to all the medical students at the UPR SOM, inviting them to participate in an online, anonymous, 37-question survey to assess their attitudes and knowledge about the healthcare of transgender patients. The e-mail included information about the study and instructions on how to access the online survey; students who participated were eligible for a \$100 raffle. After indicating their willingness to participate in the online survey, the interested students were directed to an informed-consent form. We required the participants to answer several assessment questions about the contents of the informed consent to confirm their understanding. Once a participant provided consent via the consent form, that individual was directed, further, to the online questionnaire. Only students that were 21 years of age or older and currently enrolled at the UPR SOM were eligible to participate.

### Questionnaire and variables

We constructed the 37-question survey using the "Google Forms" platform. We incorporated questions from

questionnaires created by Sanchez et al. (2006), Hayes et al. (2015), Parameshwaran et al. (2016), and Liang (2017) (3,14,17,22). The survey included questions that solicited sociodemographic information (age, year of study, highest level of education prior to beginning the Doctor of Medicine [MD] program, gender, and sexual orientation), as well as those that explored the academic experiences, knowledge, and attitudes regarding transgender patient healthcare of the respondent. Both true or false and multiple-choice questions as well as a 5-point Likert scale were used on the survey. No open-ended questions were included in the survey.

### Data analysis

We summarized data as absolute (N) and relative (%) frequencies and as means with 95% CIs. The statistical software package used to carry out all analyses was Stata version 14 (StataCorp. 2015. Stata Statistical Software: Release 14. College Station, TX: StataCorp LP). The threshold probability for statistical significance was set at 0.05.

## Results

The questionnaire was sent to the 445 medical students currently enrolled at UPR SOM. A total of 141 students completed the questionnaire. The response rate was 31.7%. The majority of the respondents were second-year medical students (41.8%) from 21 to 25 years of age (82.3%). Most of the students were heterosexual (87.9%) and all had completed a bachelor's degree prior to beginning the MD program (93.6%) (Table 1).

### Curriculum

As depicted in Table 2, the majority of the participating medical students (86.5%) reported that the care of transgender patients was part of their curriculum. Most of these students (84.4%) believed that the faculty members were educated on transgender-related topics. Most of the students (82.3%) reported having been and/or currently being exposed to transgender patients. Most of the medical students who participated (69.5%) had received some training on how to take the sexual history of a transgender patient; 13.5% of them thought that this training was inadequate.

### Knowledge

The self-reported knowledge of the participating medical students with respect to transgender healthcare is summarized in Table 3. The majority of the medical students (52.5%) reported that they had some awareness of transgender health issues but needed to learn more. However, most of the students who took part (60.3%) reported being well informed about the differences between sex, gender, and sexual orientation. Overall, the students regarded themselves as not being knowledgeable about the requirements that transgender patients must meet prior to undergoing gender-reassignment surgery (mean: 2.3; 95% CI: 2.1-2.5). The students reported not being familiar with

**Table 1.** Sociodemographic characteristics of the 141 medical students that completed the questionnaire, based on frequency analysis (2019).

Characteristic	N = 141 (%)
<i>Year of study</i>	
Pre-clinical (n = 103)	
Year 1	44 (31.2)
Year 2	59 (41.8)
Clinical (n = 38)	
Year 3	23 (16.3)
Year 4	11 (7.8)
More than 4 years	3 (2.1)
Prefer not to say	1 (0.7)
<i>Age</i>	
21–25 years	116 (82.3)
26–30 years	21 (14.9)
>30 years	4 (2.8)
<i>Gender</i>	
Male	69 (48.9)
Female	72 (51.1)
Other	0 (0)
<i>Sexual orientation</i>	
Heterosexual	124 (87.9)
Lesbian	0 (0)
Gay	10 (7.1)
Bisexual	6 (4.3)
Not sure	1 (0.7)
Other	0 (0)
<i>Education prior to beginning the MD program</i>	
Started bachelor's degree but did not complete it	3 (2.1)
Completed bachelor's degree	132 (93.6)
Completed master's degree	6 (4.3)

**Table 2.** Descriptions of the academic curriculum and experiences of the 141 medical students that completed the questionnaire, based on frequency analysis (2019).

Question	N = 141 (%)
<i>Curriculum included transgender patient care:</i>	
Yes	112 (86.5)
No	19 (13.5)
<i>Faculty members educated on transgender topics:</i>	
Yes	119 (84.4)
No	22 (15.6)
<i>Number of times students were exposed to transgender patients:</i>	
One time	87 (61.7)
Two times	7 (4.9)
Three or more times	10 (7.1)
None	20 (14.2)
Not answered	17 (12.1)
<i>Description of exposure to transgender patients:</i>	
I have been exposed to standardized transgender patients.	84 (59.6)
I have been exposed to transgender patients.	28 (19.9)
I attended a lecture about transgender patients.	25 (17.7)
I have not been exposed to transgender patients.	0 (0)
I have been exposed to both standardized and real patients.	4 (2.8)
<i>Training on how to take a transgender patient's sexual history:</i>	
No training	19 (13.5)
Some training	98 (69.5)
Some training, but inadequate	20 (14.2)
Extensive training	4 (2.8)

**Table 3.** Description of self-reported knowledge of medical students that completed the questionnaire (N = 141) about transgender healthcare, based on frequency analysis (2019).

Survey question	I don't know anything N (%)	I need to learn more N (%)	I know some facts but need to learn more N (%)	I am well informed N (%)	I am an expert N (%)	Mean (95% CI)
Rate knowledge of transgender health issues.	8 (5.7)	33 (23.4)	74 (52.5)	24 (17)	2 (1.4)	2.85 (2.8-3.0)
Differences between sex, gender, and sexual orientation.	1 (0.7)	3 (2.3)	19 (13.5)	85 (60.3)	33 (23.4)	4.04 (3.9-4.2)

  

Survey question	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)	Mean (95% CI)
Knowledgeable about requirements prior to gender-reassignment surgery.	31 (22.0%)	54 (38.3%)	41 (29.1%)	12 (8.5%)	3 (2.1%)	2.3 (2.1-2.5)
Familiar with the hormonal regimens for transgender reassignment and transition.	35 (24.8)	50 (35.5)	46 (32.6)	8 (5.7)	2 (1.4)	2.2 (2.1-2.4)
It is challenging to take a history from a transgender patient.	11 (7.8)	29 (20.6)	37 (26.2)	40 (28.4)	24 (17)	3.3 (3.1-3.5)
It is challenging to discuss sexual behavior with a transgender patient.	22 (15.6)	40 (28.4)	40 (28.4)	28 (19.9)	11 (7.8)	2.8 (2.6-3.0)
It is challenging to conduct a physical examination of a transgender patient.	24 (17)	35 (24.8)	39 (27.7)	31 (22)	12 (8.5)	2.8 (2.6-3.0)

the hormonal regimens transgender patients use for gender reassignment and transition (mean: 2.2; 95% CI: 2.1-2.4). A great proportion of the responding students (45.4%) thought that it was more challenging to take a history from a transgender

patient than from a heterosexual patient. However, many of them (44.0%) did not think it was more challenging to discuss sexual behavior with transgender patients compared to heterosexual patients.

**Attitudes**

The attitudes (self-reported) of the participating medical students with respect to transgender healthcare are summarized in Table 4. Overall, the students felt comfortable working with transgender patients (mean: 4.0; 95% CI: 4.0-4.2). A great proportion of them felt comfortable taking the sexual histories of transgender patients and initiating discussions about safe sexual practices with those patients (44.7% and 39.7%, respectively). The majority (79.4%) of these students proclaimed that they would be very comfortable if they became known by friends, family, and professional peers as a physician who cares for transgender patients. Almost all the students (97.9%) strongly agreed that transgender patients deserve the same quality of care as heterosexual patients. Most of the students who took the survey (80.9%) strongly disagreed that transgender patients should seek healthcare only from LGBTQ health clinics. In general, our respondents believed that physicians had a responsibility to treat transgender patients (mean: 4.8; 95% CI: 4.4-5.2).

**Discussion**

The lack of LGBTQ+ healthcare training within medical curriculums is a possible contributor to the healthcare disparities that revolve around sexual orientation and gender identity (3,7,9,11-17). Furthermore, few studies have explored the

competencies of medical students regarding transgender-specific healthcare (13). To our knowledge, this is the first study to explore the knowledge and attitudes about transgender healthcare among Puerto Rican medical students.

Most of the pertinent literature reports have focused on exploring the LGBTQ+ healthcare-related attitudes of medical students in general. White et al. (2015) found that the majority of the students in their study felt comfortable or somewhat comfortable caring for LGBT patients (20). Likewise, Nama et al. (2017) found that most of the students who participated in their study felt comfortable providing care to patients, irrespective of the gender identity and/or sexual orientation of those patients (8). However, Liang et al. (2017) found that the responding medical students were less comfortable with transgender patients than with LGB patients (3). In general, the UPR SOM students who participated in our study had positive attitude scores regarding transgender healthcare. Most of these students felt comfortable treating transgender patients and being known as physicians who provide care for patients and the majority of them believed that physicians had the responsibility to treat transgender patients. These positive attitudes could be explained by the prevalent reported exposure of these students to transgender patients, which exposure has been previously suggested as a teaching strategy that may improve attitude scores (3,13,20). However, the recent increase in the visibility of the transgender community could also be positively influencing these attitudes (3,13), though, despite them, the literature

**Table 4.** Description of self-reported attitudes about transgender healthcare by the medical students that completed the questionnaire (N = 141), based on frequency analysis (2019).

Survey question	Very uncomfortable N (%)	Uncomfortable N (%)	Neutral N (%)	Comfortable N (%)	Very comfortable N (%)	Mean (95% CI)
Degree of comfort working with transgender patients	0 (0)	3 (2.1)	34 (24.1)	60 (42.6)	44 (31.2)	4.0 (4.0-4.2)
Degree of comfort taking a sexual history from a transgender patient	2 (1.4)	9 (6.4)	27 (19.2)	63 (44.7)	40 (28.4)	3.9 (3.8-4.1)
Degree of comfort discussing safe sexual practices with transgender patients	3 (2.1)	11 (7.8)	29 (20.6)	56 (39.7)	42 (29.8)	3.9 (3.7-4.0)
Degree of comfort telling friends and family that I care for transgender patients	1 (0.7)	2 (1.4)	7 (5)	19 (13.5)	112 (79.4)	4.7 (4.6-4.8)
Degree of comfort with being known among peers as a doctor of transgender patients	1 (0.7)	0 (0)	7 (5)	21 (14.9)	112 (79.4)	4.7 (4.6-4.8)

  

Survey question	Strongly disagree N (%)	Disagree N (%)	Neutral N (%)	Agree N (%)	Strongly agree N (%)	Mean (95% CI)
Transgender patients deserve the same quality care as heterosexual patients do.	1 (0.7)	0 (0)	2 (1.4)	0 (0)	138 (97.9)	4.9 (4.9-5.0)
Transgender patients should seek healthcare only at LGBTQ health clinics.	114 (80.9)	21 (14.9)	4 (2.8)	0 (0)	2 (1.4)	1.3 (1.2-1.4)
Physicians have a responsibility to treat transgender patients.*	1 (0.7)	4 (2.8)	12 (8.5)	18 (12.8)	105 (74.5)	4.8 (4.4-5.2)
Transgender patients should disclose sexual orientation to physicians.	9 (6.4)	6 (4.3)	28 (19.9)	45 (31.9)	53 (37.6)	3.9 (3.71-4.1)

\*Only 140 medical students answered this question (N = 140)

**Appendix: Table 5.** Description of self-reported clinical knowledge about transgender individuals of medical students that completed the questionnaire (N = 141), based on frequency analysis (2019).

Survey question	N = 141 (%)
<i>The prevalences of cervical cancer and dysplasia have been demonstrated to be equivalent in both transgender and heterosexual women.</i>	
True	46 (32.6)
False	94 (66.7)
Not answered	1 (0.71)
<i>Transgender individuals are more likely to suffer from obesity than heterosexual individuals are.</i>	
True	60 (42.6)
False	81 (57.5)
Not answered	0 (0)
<i>Transgender individuals are less likely to abuse alcohol than heterosexual individuals are.</i>	
True	14 (9.9)
False	127 (90.1)
Not answered	0 (0)
<i>Transgender individuals are less likely to abuse tobacco than heterosexual individuals are.</i>	
True	16 (11.4)
False	125 (88.7)
Not answered	0 (0)
<i>Transgender individuals are less likely to abuse drugs than heterosexual individuals are.</i>	
True	10 (7.1)
False	131 (92.9)
Not answered	0 (0)
<i>The incidence of depression in transgender individuals is greater than it is in the general population.</i>	
True	133 (94.3)
False	7 (5.0)
Not answered	1 (0.7)
<i>Heterosexual women are more likely to be smokers than transgender women are.</i>	
True	29 (20.6)
False	112 (79.4)
Not answered	0 (0)
<i>During male-to-female sex reassignment surgery, the prostate gland is removed.</i>	
True	47 (33.3)
False	91 (64.5)
Not answered	3 (2.1)
<i>Breast cancer can still occur in female-to-male transsexuals after bilateral reductive surgery.</i>	
True	133 (94.3)
False	7 (5.0)
Not answered	1 (0.7)
<i>Of the following statements, which one best describes a person who is said to be transgender:</i>	
Individuals whose sex characteristics (including genitals, gonads, and chromosome patterns) do not fit typical binary notions of male or female bodies.	18 (12.8)
Individuals who always undergo transitioning from one sex to another.	14 (9.9)
Individuals who have a strong sense of incongruity regarding their birth sex and gender identity.	99 (70.2)
None of the above is an accurate definition of a transgender individual.	10 (7.1)
<i>Male-to-female patients on estrogen therapy are at risk for which of the following:</i>	
Breast cancer	108 (76.6)
Liver dysfunction	6 (4.3)
Colon cancer	1 (0.7)
Myocardial infarction	2 (1.4)
Has no effects	1 (0.71)
Did not know	23 (16.3)

has reported that there are deficiencies in transgender healthcare-related knowledge among medical students (13,14,17,19,20).

Dubin et al. (2018) recently found that gender-affirming clinical management is among the least frequently addressed LGBTQ+ topics in medical schools (13). Furthermore, Chan et al. (2016) found that only 24% of the surveyed students who received the transgender curricula felt it was proficiently taught (19). Chan et al. (2016) also found that many of these students did not know that screening mammograms were not needed for transgender female patients who were receiving hormones but had not undergone gender-affirming surgery (19). Furthermore, the Centers for Disease Control and Prevention currently acknowledges the lack of healthcare-provider knowledge as a barrier for transgender people to receive quality treatment (4). Likewise, Madera et al. (2019) recently found that most physicians in Puerto Rico lack transgender health training (23). As expected, many of the UPR SOM medical students in our study were not knowledgeable about transgender-specific healthcare topics, such as the requirements prior to undergoing gender-affirming surgeries and the hormonal regimens used for transitioning patients.

Consistent with previous research findings, those of our study revealed that although UPR SOM medical students tend to be willing to treat transgender patients, there are limitations to their knowledge regarding transgender-specific healthcare. However, the recent literature reports that didactic strategies such as going on grand rounds and taking additional basic science courses about hormone therapy improved the confidence of medical students by the time they were presented to transgender patients (24). Likewise, new guidelines on undergraduate medical education suggest that future physicians must also learn about pubertal suppression and gender-affirming procedures (25). Research reports have also shown that the lack of knowledge in healthcare providers is detrimental to transgender individuals (12,26,27). Streed et al. (2017) found that transgender individuals were more likely to, among other things, report poor health, lack insurance, and refrain from needed healthcare due to costs

(28). This is consistent with the 2015 U.S. Transgender Survey, which also found that one-third of respondents reported at least 1 negative experience with a healthcare provider due to being transgender, which experiences included being subjected to verbal harassment, being refused treatment, and having to teach said provider about transgender healthcare needs (27). Thus, medical students must have the appropriate competencies to manage transgender-specific healthcare needs, as these students are very likely to have transgender patients in their future careers (5,13,19,29).

Medical schools have the responsibility to train students with the appropriate competencies to care for transgender patients (13). Constant community engagement and updated lecturing on transgender-specific healthcare are essential to combat hetero- and cis-normative biases in medicine and create an inclusive clinical environment (24,30,31). The findings of this study will be provided to the UPR SOM faculty with the aim of improving the curriculum of the school.

### Limitations

Our study presents some limitations. Our sample may not have been representative of all the UPR SOM students, as only 31.7% of the medical students at the school completed the questionnaire. In addition, our study was conducted at a single institution and did not assess for differences in knowledge based on years of training. Future multi-institutional studies with larger samples should be conducted.

### Resumen

**Objetivos:** El objetivo de este estudio fue explorar el conocimiento y las actitudes sobre la atención transgénero entre estudiantes de medicina hispanos de la Escuela de Medicina de la Universidad de Puerto Rico (EDM UPR). **Métodos:** Los estudiantes de medicina fueron invitados a participar en un cuestionario para evaluar sus actitudes y conocimientos sobre la atención de pacientes transgénero. Los datos se analizaron como porcentajes y promedios utilizando STATA versión 14. **Resultados:** Un total de 141 estudiantes de medicina completaron la encuesta. La mayoría de los estudiantes (52.5%) informaron que necesitaban aprender más sobre problemas de salud transgénero. Muchos estudiantes (60.3%) no estaban familiarizados con los regímenes hormonales utilizados para la reasignación y transición de género y no conocían los requisitos antes de someterse a cirugías de reasignación de género. Los puntajes de la escala Likert para cuán cómodos que se sienten los estudiantes al trabajar con pacientes transgénero y darse a conocer entre sus compañeros como un médico que atiende a pacientes transgénero fueron 4.0 (IC 95%: 4.0-4.2) y 4.7 (IC 95%: 4.6-4.8), respectivamente. Casi todos los estudiantes (97.9%) pensaron que los pacientes transgénero merecen el mismo nivel de atención de calidad de las instituciones médicas que pacientes heterosexuales. La mayoría de los estudiantes (87.3%) creyó que los médicos son responsables del tratamiento

de pacientes transgénero. **Conclusión:** Nuestro estudio reveló que, aunque existe la voluntad de tratar pacientes transgénero entre los estudiantes de medicina de EDM UPR, existen limitaciones en su conocimiento y capacitación sobre temas específicos de atención médica. Estrategias para mejorar el conocimiento y la capacitación de los estudiantes de medicina deben ser consideradas.

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