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Outcome and Impact Evaluation of a Transgender Health Course for Health Profession Students

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Abstract

Purpose: Being transgender is associated with numerous health disparities, and transgender individuals face mistreatment and discrimination in healthcare settings. At the same time, healthcare professionals report inadequate preparation to care for transgender people, and patients often have to teach their own medical providers about transgender care. Our study aimed to evaluate the impact of an elective course for health profession students in transgender health that was implemented to address these gaps in provider knowledge.
Methods: Students participated in a 10-session, lunch-hour elective course during the spring of 2015. To evaluate impact, course participants completed pre-, immediately post-, and 3-month postcourse questionnaires, including a previously validated nine-item transphobia scale, to determine the course's effect on knowledge, attitudes, and beliefs about transgender health.
Results: Forty-six students completed the pre- and immediately postelective questionnaire (74% response rate). Compared with pre-elective surveys, immediately postelective scores demonstrated increased knowledge in most domains and reduced transphobia. Specific knowledge domains with improvements included terminology, best practices for collecting gender identity, awareness of the DSM-V gender dysphoria diagnosis, medications used for gender affirmation, and relevant federal policies. A previously validated transphobia scale was found to have good reliability in the current sample.
Conclusion: This elective course led to positive short-term changes in measures of multiple knowledge domains and reduced measures of transphobia among health profession students. Further study is needed to assess the long-term impact. Our methods and findings, including the demonstration of reliability of a previously validated nine-item transphobia scale, serve as formative data for the future development of theory-based transgender medicine curricula and measures.

Keywords: gender dysphoria, health disparities, health education/training programs, transgender/transsexual

Introduction

An estimated 0.5%–0.6% of the US population identifies as transgender.[1,2] Transgender people have a gender identity that differs from the sex that they were assigned at birth.[3] Being transgender is associated with a number of health disparities.[4] Barriers to care include limited availability of providers with clinical and cultural competence in transgender care as well as avoidance of care due to prior negative experiences with the healthcare system.[4–8] These barriers underlie low healthcare utilization rates among transgender people, particularly among transgender people of color,[6] and result in transgender people often delaying care until urgent or emergency situations arise or seeking hormones and/or surgeries from unmonitored sources.[9,10] For those transgender people who do access care, one in three people report postponing care due to perceived or actual discrimination in a healthcare setting.[11]

Provider discomfort in interacting with transgender people or feeling poorly prepared to treat transgender patients may play a significant role in these disparities. Healthcare professionals have reported limited opportunities to learn about transgender health topics.[6,7] In a survey of providers of adolescent healthcare with a 22% response rate, only 62% of

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providers felt comfortable providing transgender-related medical services to transgender youth; participants cited lack of training as a principal barrier along with the lack of mental health providers and insurance reimbursement.[12] A 2011 study found that allopathic and osteopathic medical school curricula in the United States and Canada dedicate a mean of 5 hours total to sexual and gender minorities (SGMs), with most content focused on sexual health. Approximately two of three schools in this same study reported no content at all on the topic of gender transition.[7] These 2011 findings represent only a modest improvement over a 1991 study of just sexual minority content in US medical schools, which found a mean of 3.5 hours total time dedicated to such content.[13] A similar assessment of US pharmacy schools, in which only one in five schools responded, found that fewer than half of participating pharmacy schools had any SGM content in their required curriculum; time spent ranged from 1 to 10 hours among pharmacy schools that did cover SGM topics.[14] In one study of registered nurses, 79% reported having no specific SGM training.[15] Unfortunately, outside of these studies, little evidence exists on transgender or broader SGM content in health profession curricula. Given this educational landscape, it is unsurprising that half of transgender respondents in a national study report having to teach their own medical provider about transgender care.[4,11]

Educating healthcare providers is a key step toward reducing health disparities encountered by transgender people. Exposure of medical students to SGM patients results in improved history taking, knowledge of health needs, and attitudes about caring for this population.[16] Recognizing that transgender people face unique health disparities, the Institute of Medicine, in 2011, specifically identified provider attitudes and education as a research area essential for building a solid evidence base in SGM health.[17] In 2011, the Joint Commission and the US Department of Health and Human Services (HHS) also highlighted the need for cultural competency and expanded provider education on SGM health.[18] Other key medical professional organizations such as the Association of American Medical Colleges recommend training healthcare professionals in SGM health.[19] However, all too often, SGM content focuses more on topics such as HIV or sexually transmitted infections, with little gender identity content.[20]

As a response to these documented gaps in health professional education, a 10-session, lunch-hour course open to all students in any of the University of California, San Francisco (UCSF) graduate health profession programs (medicine, pharmacy, dentistry, advanced practice nursing, and physical therapy) was developed by a group of student leaders under the guidance of a faculty advisor with expertise in transgender health and medicine. Reported here are the results of a formative evaluation of the impact of this course on participant knowledge, attitudes, and beliefs in selected areas of transgender health. Standardized measures to assess the impact of transgender health curricula are lacking; as such, we also report the findings of an assessment of the reliability in the sample of a previously validated transphobia scale.[21]

Methods

The Transgender Health course at UCSF had begun some years prior as an effort by students to address gaps in education on transgender health within the existing curriculum structure. In 2014, the students began working formally under the guidance of a faculty mentor with 10 years of experience and expertise in transgender medical care, education, and research, who oversaw all aspects of curriculum development and analysis and served as the principal investigator for the current study. The curriculum was developed to fit various scheduling and resource constraints. As no funds were available to support course development or presenter honoraria, the curriculum and outcome measures (besides the nine-item transphobia scale) were developed based on the faculty advisor's extensive experience in developing and coordinating live and asynchronous training activities on this topic and made use of invited faculty and lecturers. The 10-week, 1 hour per week lunchtime format was selected to fit with the University's academic calendar and general framework for elective courses. The curriculum was refined using analyses of gaps in prior years' course content as well as based on quantitative and narrative feedback provided by prior years' students through course evaluations. Individual lecturers were recruited from among local content experts both within and outside of the UCSF community and developed their specific lecture content based on objectives provided to them by the course leadership team.

The course sought to introduce students to basic demographics and terminology, review health disparities faced by transgender patients, and improve trainee knowledge of medical and surgical options for transgender patients, with an overarching goal of reducing transphobia, improving the quality of transgender healthcare, and encouraging positive attitudes toward transgender patients. Between January and March 2015, the class met for 10 sessions. Specific learning objectives for the course are listed in Table 1. Half of the instructors were themselves transgender. Students had access to an online drive with reference materials.

All elective participants were asked to complete a pre-, immediately post-, and 3-month postelective questionnaire. All three questionnaires were identical, consisting of the following:

1. A nine-item transphobia scale previously validated in a group of US undergraduate psychology students ($\alpha = 0.82$; Table 2).[21] Each of the nine items is a five-point likert scale, with higher values indicating higher levels of transphobia, for a maximum score of 45. This scale may be more feasible than 23- or 32-item in-depth transphobia scales, which have been described previously in studies of medical providers.[22,23]
2. Content-based questions measuring transgender-specific medical knowledge, cultural awareness, and knowledge of healthcare disparities and health policy (Supplementary Table S1; Supplementary Data are available online at www.liebertpub.com/lgbt). As standardized measures for evaluating transgender health curricula do not exist, questionnaire items were developed based on mixed-methods feedback from prior years' courses, the faculty advisor's expertise and experience, and input from course student leaders.

While participation in the pre- and immediately postelective survey was required to receive elective credit, all participants had the option to have their responses excluded from

Table 1. Transgender Health Elective—Learning Objectives and Lecture Content

Learning objectives	1. Describe demographics and define appropriate terminology. 2. Identify and describe the health disparities that transgender populations face. 3. Characterize the unique primary care needs of transgender patients. 4. Identify transgender-specific factors that influence the populations' access to and experiences with the US healthcare system, including quality of care and the patient–provider relationship. 5. Name support services available to transgender patients. 6. Identify sources of quality information on the care of transgender patients. 7. Describe ongoing and upcoming research questions in transgender healthcare.
Lecture content	• Week 1: Introduction: definitions, core concepts, local resources • Week 2: Epidemiology, health disparities, and general primary care • Week 3: Psychiatry and transgender care • Week 4: Transgender care for the gynecologist, gender-affirming surgical options • Week 5: Care for gender-nonconforming and transgender youth and adolescents • Week 6: Primary care needs, hormone replacement therapy, and surgical options • Week 7: Patient panel—the patient experience • Week 8: Policy and health insurance reform • Week 9: Urologic surgical care for transgender patients • Week 10: History of transgender medicine

the analysis. Informed consent was obtained online from all participants. Study methods were approved by the UCSF Committee on Human Research.

Statistical analyses

Study data were collected and managed using REDCap electronic data capture tools hosted at UCSF.[24] Baseline questionnaires were collected using pen-and-paper surveys before the start of the first class lecture and were then manually abstracted into the REDCap interface. Immediately post- and 3-month postelective questionnaires were collected directly into REDCap, using a link e-mailed to students, within the first 2 weeks after the course, and between 3 and 4 months after completion of the course, respectively. Data were then exported to Microsoft Excel (Microsoft Corporation, Redmond, WA) and Stata IC-12 (StataCorp LLC, College Station, TX) for analysis. Some variables were recoded and some continuous data were converted into ordinal categories. Statistical tests for paired analysis were used. Continuous variables were reported using means and standard deviations and were compared using the paired *t*-test in the case of normally distributed data. Non-normally distributed data were reported using medians and interquartile range and were compared using the Wilcoxon sign-rank or Mann–Whitney test. McNemar's exact test was used to compare categorical data due to the presence of categories with fewer than five responses. Scale reliability was evaluated using Cronbach's alpha.

Because of a low 3-month response rate resulting in a lack of power for analyses at that time point, an adequately powered and detailed analysis was performed comparing pre- and immediately postelective scores ($N=46$) as well as a direct comparison between the immediately post- and 3-month postelective scores for those who also responded to the 3-month assessment ($N=14$). Repeated measures analysis was not performed as the outcome of interest was long-term impact as indicated by 3-month responses.

Results

In total, informed consent to participate in the survey was obtained from 62 students, 46 (74%) of whom completed both the pre- and immediately postelective survey; 14 students (23%) completed all three surveys, including the 3-month retention questionnaire. Table 3 describes participant demographics. Of the 46 students who completed the course

Table 2. Items for the Transphobia Scale

Validated transphobia scale[21]	1. I don't like it when someone is flirting with me and I can't tell if they are a man or woman. 2. I think there is something wrong with a person who says they are neither a man nor a woman. 3. I would be upset if someone I'd known a long time revealed to me that they used to be another gender. 4. I avoid people on the street whose gender is unclear to me. 5. When I meet someone, it is important for me to be able to identify them as a man or a woman. 6. I believe the male/female dichotomy is natural. 7. I am uncomfortable around people who don't conform to traditional gender roles, for example, aggressive women or emotional men. 8. I believe that a person can never change their gender. 9. A person's genitals define what gender they are, for example, a penis defines a person as being a man, a vagina defines a person as being a woman

All items ranked 1 (strongly disagree) to 5 (strongly agree).

Table 3. Participant Characteristics

Characteristic	*No. of students (n = 46)*	*Percentage*
Gender identity (regardless of transgender status)[a]		
Female	35	76
Male	8	17
Transgender female	1	2
Unknown	1	2
Decline to state	1	2
Sex assigned at birth		
Female	37	80
Male	9	20
Transgender, any gender identity	2	4
Race/Ethnicity[a]		
Asian	11	24
Hawaiian/Pacific Islander	1	2
White	26	57
Unknown	2	4
Other category	6	13
Hispanic/Latino of any race	6	13
Course of study		
Pharmacy	22	48
Medicine	11	24
Advanced Practice Nursing	8	17
Doctorate of Nursing	3	7
Sociology (housed within the School of Nursing)	1	2
Dentistry	1	2
Year in program		
First year	36	78
Second year	7	15
Third year	2	4
Fourth year	1	2

[a]Participants could select multiple options.

and pre- and immediately postelective surveys, 76% ($N = 35$) identified as female; overall, 4% ($N = 2$) of students identified as transgender or gender nonconforming. The most commonly reported racial identities were White ($N = 26$; 57%) and Asian ($N = 11$; 24%); 13% ($N = 6$) of the sample identified as Hispanic/Latino of any race. Most students were in the pharmacy ($N = 22$), medicine ($N = 11$), or advanced practice nursing ($N = 8$) programs and a majority were first-year students ($N = 36$).

Knowledge of various transgender health topics (Table 4) and measures of transphobia (Table 5) improved after the course. While baseline knowledge varied across categories, measures of knowing where to find more information increased significantly ($P < 0.01$), as did knowledge of specific medications used for gender affirmation ($P < 0.01$). Additionally knowledge areas with improvement include best practices for the collection of gender identity ($P < 0.01$), terminology ($P < 0.01$), awareness of the gender dysphoria diagnosis in the DSM-V ($P < 0.01$), and federal policies regarding transgender health ($P < 0.01$). Most students felt that their professional school fell short of their expectations on training in transgender health ($P < 0.01$).

Immediately postelective transphobia scores decreased from a baseline median of 14.5 to 12 (nine-item scale; $P < 0.01$). The nine-item transphobia scale showed good reliability at baseline, immediately postelective, and 3-month follow-up (Cronbach's $\alpha = 0.877$, 0.797, and 0.777, respectively) and was also reliable at baseline among those who dropped out of the course before completion (Cronbach's $\alpha = 0.837$).

Of the 46 students who completed the course and pre-/immediately postelective survey, 14 (30.4%) also completed the 3-month follow-up assessment measuring longer term impact and retention. There were increases in knowledge from the immediately postelective survey in three categories: cultural competency (median increased from 4.5/5 to 5/5, $P = 0.015$), state policy (median increased from 3/4 to 4/4, $P = 0.026$), and federal policy (median increased from 1/4 to 2/4, $P = 0.06$). There were no statistically significant decreases in knowledge in any category. Transphobia scores did not change significantly from the immediately postelective survey.

Discussion

This 10-hour lunchtime elective in transgender health and medicine shows promise and feasibility for improving health profession students' knowledge of key transgender health topics and in reducing measures of transphobia. Improvements in measures of knowledge were observed at the immediately postelective assessment in all knowledge domains, with the exception of cultural competency, health disparities, and California policies. With respect to cultural competency and health disparities, this lack of difference may be explained by a very high baseline median score in both categories (five of a possible five). The observed minimal change in knowledge of California state policy, in the context of otherwise diffuse improvements, suggests this area as a shortcoming in the course content or delivery. While improvement in federal policy knowledge was statistically significant, the low median score after the course suggests a need for more training in a range of policy issues. The observed reduction in transphobia scores was both statistically significant and relevant with respect to effect size, with an 18% reduction in scores using a previously validated nine-item scale. The lack of a difference between baseline transphobia scores for course completers compared with course dropouts suggests that students may have dropped the course for reasons unrelated to aversion to the subject matter. Given that the course was advertised as a transgender medicine course, it is unlikely that someone would register for and attend at least one class session only to then develop more negative attitudes toward transgender people, which would then drive them to drop the class.

The demographics of the sample were skewed toward female gender identity (76%) and the number of transgender people ($N = 2$, 4%) was over five times the estimate of 0.5%–0.6% of the US population identifying as transgender.[1,2] Both of these findings suggest that efforts are needed to engage more male and nontransgender people in transgender health and cultural competency educational activities. Nearly half of all students who completed the course were pharmacy students, possibly reflecting that program encouraging students to take approximately twice as many elective credits as does the medical school at UCSF. Nonetheless, it suggests great interest among pharmacy students in this topic, perhaps

Table 4. Response Data for Both Baseline and Immediately Postelective Assessment Questionnaires ($N = 46$)

Measure	*Percentage (*N*) correct, baseline*	*Percentage (*N*) correct, immediately post*	P
Identified the two-step method as best practice for collection of gender identity data	50 (23)	89 (41)	<0.01*
Knows that gender dysphoria is listed as a diagnosis in the DSM-V	15 (7)	59 (27)	<0.01*
Knows that the World Professional Association for Transgender Health publishes the Standards of Care	52 (24)	76 (35)	0.01*
Knows that not all transgender people seek surgery	78 (36)	100 (46)	<0.01*
Correctly identified prevalence of HIV among transgender women	26 (12)	61 (28)	<0.01*
Knowledge subject area (maximum number of possible correct answers in that area)	*Median no. of correct answers (mean) at baseline*	*Median no. of correct answers (mean), immediately post*	P
Cultural competency and history (5)	5 (4.50)	5 (4.50)	NS[#]
Terminology (6)	5 (4.67)	5 (5.21)	<0.01[##]
Primary care of transgender people (6)	3 (3.39)	5 (4.85)	<0.01[#]
Medications used for gender affirmation (8)	4 (3.78)	4 (4.65)	<0.01[##]
California policies (4)	4 (3.09)	4 (3.41)	NS[#]
Federal policies (4)	1 (1.04)	1 (1.37)	<0.01[#]
Health disparities (5)	5 (4.35)	5 (4.52)	NS[#]
Domain (1–5 Likert scale)	*Median (mean), baseline*	*Median (mean), immediately post*	P
Knows where to access information on transgender health	2 (2.41)	4 (3.95)	<0.01[#]
Believes school curriculum adequately covers transgender health	2 (1.78)	2 (2.54)	<0.01[#]

*Exact McNemar's test; [#]Wilcoxon sign-rank test; [##]paired *t*-test. Note that paired testing of continuous variables using the WSR test may result in a statistically significant difference in the distribution of scores between groups without an observed change in the median.

due to the central theme of hormone prescribing and management in this discipline.

The initial planned analysis was to compare 3-month postelective assessment scores with baseline to measure longer term impact. Unfortunately, there were not enough 3-month respondents to support an adequately powered study; possible causes include a lack of funding for incentives and the timing of the course, which placed the 3-month follow-up time window during summer break. As such, the main analysis was conducted using the immediately postelective assessment. An additional direct comparison between the 3-month and immediately postelective assessments in the 14 participants for whom the longer term data were available found no difference or slight improvements in all measures, suggesting that the course impact was retained in the longer term.

The primary limitation of this study is the lack of longer term follow-up for most of the participants. While improved retention over time may not necessarily translate to improved health outcomes for transgender patients, the measures reported here represent reasonable surrogates for improved health outcomes given that lack of provider knowledge and cultural competency are barriers to transgender healthcare. It is also possible that unmeasured variables such as individual instructor or topic curriculum quality, scheduling conflicts with other desirable student electives, or even secular trends of increasing awareness of transgender health and cultural issues during the study (former US Olympian Caitlyn Jenner came out as transgender on national television during the time between the end of the course and the 3-month follow-up) may have played an unmeasured role. We did not collect information on sexual orientation of students

Table 5. Transphobia Scale Scores

	Median (mean) baseline	*Median (mean) immediately post*	*Pair-wise* N	P
Nine-item transphobia scale score	14.5 (15.9)	12 (14.1)	44	0.0021*
Nine-item scale, dropouts	16 (17)	Vs. completer baseline		0.374[#]

Each item scored 1 through 5 (minimum score = 9; maximum score = 45; higher scores indicate higher levels of transphobia).
*Wilcoxon sign-rank test.
[#]Mann–Whitney *U*-test.

until the 3-month follow-up survey, at which point response rates were too low to allow inclusion of these data in the analysis. Resource and funding limitations, as well as a lack of prior work and research on this topic, limited our ability to develop theory-based interventions and measures or validation of the measures used; it is our hope that our findings will serve as formative data for future more in-depth study of this topic. Finally, the study lacked adequate power to adjust for differences by gender identity, transgender status, race/ethnicity, program of study, or year of study. Nonetheless, our findings represent important formative data suggesting that inclusion of transgender health topics in a health profession curriculum can improve knowledge, attitudes, and beliefs. Our study is also novel, in that it involved students at each stage of the curriculum development and analysis and that half of the course instructors, including the supervising faculty advisor/principal investigator, are themselves transgender.

Conclusion

Many of the barriers to healthcare experienced by transgender people arise due to providers who are uninformed on transgender healthcare and needs and who may be uncomfortable or unfamiliar with transgender culture and terminology. Our formative analysis of a 10-hour multidisciplinary elective course in transgender health oriented toward health profession students suggests that such curricular exposure has a positive impact on knowledge, attitudes, and beliefs. As fewer than half of medical school curricula include content related to transgender health, our methods and findings, including the demonstration of reliability of a previously validated nine-item transphobia scale, serve as formative data for the future development of theory-based curricula and measures in this subject area.

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Author Disclosure Statement

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