

MESTRADO INTEGRADO EM MEDICINA

Portuguese Medical Students’ Approach To Sexual And Gender Minorities (LGBTQIA+ Community)

Gonçalo Miguel Sousa Fernandes Castro

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Gonçalo Miguel Sousa Fernandes Castro

up201200035@icbas.up.pt

Mestrado Integrado em Medicina

Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto

Orientadora:

Ana Margarida Antunes Cruz

Assistente convidada de Medicina Geral e Familiar I e Medicina Geral e Familiar II no Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto

Co-Orientadora:

Joana da Costa Baptista Gomes Barrocas

Professora Auxiliar no Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto

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Resumo

O impacto da globalização nas atitudes em relação às minorias sexuais e de género tem aumentado a aceitação em todo o mundo, mas desigualdades e discriminações persistem. Pessoas LGBTQIA+ estão constantemente em stress, o que resulta em riscos para a saúde. Os profissionais de saúde deveriam investir na equidade na saúde, através de treino, formação clínica e ética relacionada com a comunidade LGBTQIA+.

Este estudo teve como objetivo avaliar o conhecimento, as atitudes e a competência cultural de estudantes de medicina portugueses na prestação de cuidados de saúde a pessoas LGBTQIA+. Foi realizado um questionário anónimo online aos estudantes de medicina do 6º ano (N=161) da Faculdade de Medicina e Ciências Biomédicas da Universidade do Porto, utilizando o LGBT-DOCSS para medir conhecimento, atitudes e práticas relacionadas com saúde de pessoas LGBTQIA+. Os dados dos 51 participantes indicam que os estudantes possuem conhecimento moderado e atitudes geralmente positivas em relação a pessoas LGBTQIA+, no entanto, há lacunas notáveis nas suas práticas de saúde. Os estudantes de medicina demonstraram maior consciência das barreiras institucionais enfrentadas por pessoas transgénero em comparação com pessoas LGB, mas relataram menor competência na avaliação de utentes transgénero. A orientação sexual mostrou-se associada a pontuações de competência cultural, com estudantes lésbicas/gays obtendo pontuações mais altas em comparação com estudantes heterossexuais.

Os resultados destacam a necessidade de mais educação e formação prática para aprimorar a competência em cuidados de saúde LGBTQIA+ dos futuros médicos. Incorporar tópicos de saúde LGBTQIA+ nos currículos médicos e a exposição a utentes LGBTQIA+ durante a formação podem aumentar a preparação clínica e melhorar a competência cultural. O estudo ressalta a importância de criar um ambiente de aprendizagem inclusivo e fornecer orientação e apoio aos estudantes de medicina nas suas interações com utentes LGBTQIA+. Esforços para melhorar a educação em saúde LGBTQIA+ contribuirão para reduzir disparidades nos cuidados de saúde e melhorar os resultados de saúde para pessoas LGBTQIA+.

Palavras-chave: Estudantes de Medicina; Educação Médica de Pré-graduada; Minorias Sexuais e de Género; Populações Vulneráveis; Competência Cultural.

Abstract

The impact of globalization on attitudes towards sexual and gender minorities has increased acceptance worldwide, yet disparities and discrimination persist. LGBTQIA+ people face chronic stress, leading to health risks. Healthcare providers should strive for health equity through LGBTQIA+ clinical competence, training, and ethical care.

This study aimed to evaluate the knowledge, attitudes, and cultural competency of Portuguese medical students in providing healthcare to LGBTQIA+ people. An anonymous online survey was conducted among 6th-year medical students (N=161) from the School of Medicine and Biomedical Sciences at the University of Porto, using the LGBT-DOCSS to measure knowledge, attitudes, and practice related to LGBTQIA+ healthcare. Data from 51 participants indicate that the participants possess moderate knowledge and hold generally positive attitudes towards LGBTQIA+ people. However, there are notable gaps in their LGBTQIA+-inclusive healthcare practices. Medical students demonstrated higher awareness of institutional barriers faced by transgender people compared to LGB people but reported lower competencies in evaluating transgender patients. Sexual orientation was found to be associated with cultural competency scores, with lesbian/gay students scoring higher compared to heterosexual students.

The findings highlight the need for further education and training to enhance the LGBTQIA+ healthcare competency of future physicians. Incorporating LGBTQIA+ health topics into medical curricula and providing exposure to LGBTQIA+ patients during training can enhance clinical preparedness and improve cultural competency. The study highlights the importance of creating an inclusive learning environment and providing mentorship and support to medical students in their interactions with LGBTQIA+ patients. Efforts to improve LGBTQIA+ healthcare education will contribute to reducing healthcare disparities and improving health outcomes for LGBTQIA+ people.

Keywords: Medical Students; Undergraduate Medical Education; Sexual and Gender Minorities; Vulnerable Populations; Cultural Competency.

Abbreviations List

df: degrees of freedom

DOCSS: Development of Clinical Skills Scale (DOCSS)

H: Kruskal-Wallis Test

ICBAS: School of Medicine and Biomedical Sciences (ICBAS)

LGB: Lesbian, Gay and Bisexual

LGBT: Lesbian, Gay, Bisexual and Transgender

LGBTQIA+: Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual plus others sexual and gender minorities

M: Mean

p: p-value

Q: Friedman test

SD: Standard Deviation

SGM: Sexual and Gender Minorities

SOGI: Sexual Orientation and Gender Identity

U: Wilcoxon-Mann-Whitney Test

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Introduction

The impact of globalization on societal attitudes towards sexual and gender minorities has been significant in recent decades.^[1] Sexual Orientation and Gender Identity (SOGI) started to be more discussed and the diversity to be more accepted worldwide.^[2] However, people who identify themselves as Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual plus (LGBTQIA+) other Sexual and Gender Minorities (SGM) still experienced multiple disparities in their daily lives. Discrimination and stigma are even so a problem that the LGBTQIA+ community have, exposing them to a chronic stress in all their relationship with themselves and others, influencing health behaviors and outcomes, what increases their health risks.^[1, 3] It's known that in this group of people is more likely to be cigarette smoking users, to have depression and anxiety, to have substance abuse disorders, with higher rates of poor physical health, activity limitations and chronic disease compared to their heterosexual and cisgender peers.^[2]

Historically, health care providers have played a major role in policy, theory, research, and clinical treatment. By identifying the SGM as mentally ill or disordered individuals in the Diagnostic and Statistical Manual of Mental Disorders first edition (DSM-I), started the stigmatization since they were compared to sociopathic personality disorders. The "homosexuality" was removed from DSM-III, and then started to be transgender people included, the name changed over the years (from disorder to dysphoria), however for many LGBTQIA+ people, still propagates the idea of transgender people have a mental illness, remaining the stigma, marginalization, and discrimination.^[2] Nevertheless, the intention to destigmatize and depathologize transgender people, the health care coverage for hormone therapies and surgical procedures are the biggest barrier. Now the health care providers have a more supportive role to throw SGM patients, that's a positive way to health equity.^[2, 4]

Health providers should be able to provide health equity, for that explore and development LGBTQIA+ clinical competence, professional training, and ethical care.^[5] Knowing that Lesbian and Bisexual women and Transgender men are less likely to access screenings for cervical and breast cancer and Gay and Bisexual men and Transgender women are more likely to have sexual transmitted infections including HIV. Those facts in addition to the social pressure, perpetuate and exacerbate the health disparities in the LGBTQIA+ community, and that's why the health care providers should play an important role to diminish those differences.^[6] LGBTQIA+ people tend to delay medical services, in order to avoid more stigma and discrimination, becoming a clinical barrier.

^[1] Sexual history taking is a screening that takes time and training and for some is uncomfortable

and not comprehensive, being shown that clinician knowledge of their SOGI makes a positive engagement in care, for that are some recommendations that indicates capturing SOGI patient data in electronic health records helps to physicians' clinical decision, patient-physician relationship as well as health equity. [2, 3]

Most literature indicates that training of the health care providers is the most important way to reduce health care disparities and bias among the SGM, for that the providers should be culturally competent in LGBTQIA+ health, and many different models on how it be integrated into medical education exist (for medical schools and residency programs). A few studies also demonstrated a desire by residents to receive additional LGBT-related educational hours.[4, 7] Despite the fact that training is a major part for cultural competency, the practices and environment are as well essential for the patient to strengthen in care and improve health care experiences and outcomes, like gender-inclusive language, nondiscrimination policies and even visual stimuli (LGBTQIA+ inclusive stickers, pictures). [1, 4, 7]

Overall, the purpose of this work is to understand if medical students have the knowledge and feel comfortable dealing with patients who identify as a LGBTQIA+ person. The specific objectives are: (1) To evaluate the knowledge acquired during medical training and practice; (2) To evaluate the attitudes of medical students towards LGBTQIA+ people; (3) To identify difficulties when approaching SGM patients on clinical training; (4) To assess the SGM cultural competency among the future physicians.

Methods

An anonymous, voluntary, self-reporting Google Forms survey^[4] was emailed to all the 6th year medical students of School of Medicine and Biomedical Sciences (ICBAS) of University of Porto (N=161) in February 2023, with two reminders separated by a week each, and the data were collected until March 2023, then a informational sheet was created, stored by the researcher on his own device, protected by password, only accessible to the researcher. Data will be used for this research only. The database will be kept for the time necessary for the finalization of the final report and its evaluations. To ensure the non-replication of the answers it was necessary to log in to a Google's account, but the email was not collected. Replying students guaranteed to be enrolled in the 6th grade and accepted to participate in the study.

The survey consisted of two parts, a demographic section collecting information such as age, region, gender identity, sexual orientation and religion, and a LGBTQIA+-specific section, using the LGBT-Development of Clinical Skills Scale (DOCSS) developed for health care providers ^[8], translated to Portuguese to be used. The LGBT-DOCSS is 18-items Likert scale, from 1 ("strongly disagree") to 7 ("strongly agree"), eight of them with inverted score (questions 3, 4, 5, 7, 9, 12, 17 and 18), assessing three different factors such as clinical preparedness, basic knowledge and attitudes. Higher scores are a positive indicator of training and clinical practice with LGBT people, LGBT health consciousness and less prejudice and more awareness, skills needed to have competency to work with a multiculturally diverse people. ^[6, 7, 8]

The analyses of these work were computed using the R software 4.2.3 and The Jamovi Project 2.3. For the demographic items frequencies were calculated. The age item was grouped in two categories (23 years old and >23 years old), because of its distribution. For the Religion question, Catholics and Evangelicals were included in Christian's category. To calculate the LGBT-DOCSS scores, the questions' means were added and then divided by the number of questions used, for the Total Score the 18 questions were used, for the practice subscale score were used the questions 4, 10, 11, 13, 14, 15 and 16, for the attitudes subscale score were used the questions 3, 5, 7, 9, 12, 17 and 18 and for the knowledge subscale score were used the questions 1, 2, 6 and 8. Using the Friedman test we compared 3 subscale scores together, and Wilcoxon-Mann-Whitney test were determined the differences between each scores, and, in the same way to comparable question that differentiate lesbian, gay and bisexual (LGB) people from transgender people were used Wilcoxon-Mann-Whitney test and Kruskal-Wallis test. Then Shapiro-Wilk test was calculated for all the questions of the LGBT-DOCSS and their scores, to evaluate the distribution. Therefore, to analyze possible associations, non-parametric statistics were use. Whenever there were two groups,

if there was homogeneity of variances (using the Fligner-Killeen test), a Wilcoxon-Mann-Whitney test was performed and if there is no homogeneity a Kruskal-Wallis test was used. The Kruskal-Wallis test was used, as well, when there were more than two groups. This work statistical significance was set at $\alpha = 0.05$, to all the analyses.

Results

Fifty three students (N=53) completed the survey, two participants were excluded for not being at 6th year medical students from ICBAS. At the end were 51 eligible participants corresponding to 31.7% of the overall population (Table I). The majority of the medical students were 23 years old (66.7%), Portuguese (98%), who identify as cisgender females (74.5%) heterosexual (78.4%), from the northwest ("Entre Douro e Minho") of Portugal (56.9%) and are Christians (62.7%).

Medical students had a Global Score 4.85 (in 7), however the subscale scores were not consistent, with a Practice Score of 3.25, an Attitude Score of 6.50, and a Knowledge Score of 4.77 (Table II). It was observed that the Attitudes Score of Medical Students was significantly higher than both Practice Score ($Q=13.0$; $p<0.001$) and Knowledge Score ($Q=1274.5$; $p<0.001$). In addition, Medical Students demonstrated a significantly higher level of Knowledge Score as compared to Practice Score ($Q=154.5$; $p<0.001$) (Fig 1). Medical Students evinced significantly greater awareness concerning institutional barriers ($p=0.067$) that transgender people encounter comparing to LGB people, but they reported significantly lower competences ($p=0.002$) in evaluating transgender people in contrast to LGB people. Even though results were not significant, medical students had lower scores clinical training and supervision ($p=0.104$) and experiences ($p=0.548$) approaching transgender people (Fig 2).

The results Shapiro-Wilk test for the 18 questions and scores (all $p<0.05$), showed that the answers didn't follow a normal distribution (Table III). Accordingly, Fligner-Killeen test of homogeneity of variances reveal that the only non-homogeneity was verified between Attitude Score and Religion ($p = 0.010$). From the associations investigated between the demographic variables and the LGBT-DOCSS (Table IV), there were significant difference between Sexual Orientation and the Global Score ($H=8.65$; $df=3$; $p=0.034$), showing that Lesbian/Gay students had a higher score, follow by Bisexual students and then Heterosexual and "Don't Know" students (Table I).

Discussion

The present study aimed to evaluate medical students' knowledge and attitudes towards LGBTQIA+ people and their cultural competency in providing healthcare to sexual and gender minorities. The findings shed light on the current state of medical education in terms of LGBTQIA+ inclusivity and highlight areas that require improvement to ensure equitable and culturally competent care for SGM patients.

Overall, the results showed that medical students had a moderate level of knowledge and positive attitudes towards LGBTQIA+ people. However, there were discrepancies observed between different domains, indicating the need for targeted interventions in specific areas. The Practice Score was relatively lower compared to the Attitude and Knowledge Scores, suggesting a gap between theoretical understanding and practical application of LGBTQIA+-inclusive healthcare. Nonetheless, the findings reveal that medical students exhibited a notable level of attitude awareness and a moderate level of basic knowledge that is consistent with previous research.^[7]

One notable finding was the significantly higher Attitude Score compared to the Practice Score. This suggests that medical students may hold positive attitudes towards LGBTQIA+ people but lacking exposure to LGBTQIA+ patients during training addressing their unique healthcare needs. Enhancing practical training and incorporating LGBTQIA+ patient encounters into clinical rotations may help bridge this gap and improve clinical preparedness. Enhancing exposure to LGBTQIA+ patients can enhance the knowledge, comfort, and self-assurance necessary for effectively caring for people who identify as SGM.^[7]

Additionally, the Knowledge Score was higher than the Practice Score, indicating a need to reinforce the application of knowledge in real-world scenarios. This finding underscores the importance of incorporating LGBTQIA+ health topics into medical curricula and ensuring that students receive comprehensive education on sexual and gender minority health issue. By providing students with evidence-based information, clinical guidelines, and case studies related to LGBTQIA+ healthcare, medical education can better equip future physicians to deliver culturally competent care.

Interestingly, medical students demonstrated higher awareness of institutional barriers faced by transgender people compared to LGB people. This suggests that medical education may be addressing transgender-specific issues to a greater extent. However, students reported lower competencies in evaluating transgender people compared to LGB people, indicating potential areas for improvement in clinical training and supervision in transgender healthcare. These findings

highlight the importance of providing appropriate mentorship and support to medical students in their interactions with LGBTQIA+ patients. Incorporating LGBTQIA+ healthcare into faculty development programs and establishing mentorship programs that pair experienced clinicians with medical students may help enhance their skills and confidence in providing care to SGM people.

It is worth noting that the results of this study revealed that sexual orientation had a significant association with the overall cultural competency scores, with lesbian/gay students scoring higher compared to heterosexual students. This finding suggests that individuals who identify as LGBTQIA+ may have personal experiences or a heightened understanding of the unique healthcare needs of this population. Therefore, creating a diverse and inclusive learning environment that fosters open discussions and promotes LGBTQIA+ representation among both students and faculty members may contribute to improved cultural competency among all medical students.

The findings of this study provide valuable insights into the current state of medical education in Portugal regarding LGBTQIA+ health. There is a need to improve practical training and fill theoretical gaps, crucial for medical schools to better equip future physicians to provide equitable and culturally competent care to SGM patients. These efforts will contribute to reducing healthcare disparities and improving health outcomes for LGBTQIA+ people. Studies have shown that even a one-hour lecture can enhance students' knowledge about LGBT health needs, but addressing barriers and improving attitudes towards this population requires further interventions.^[9] In Portugal, studies showed there was a lack of exploration of students' attitudes and knowledge on SGM health, and that should be developed an inclusive undergraduate curriculum is essential to counter heterosexuality assumptions and ensure adequate training for medical students.^[10]

In interpreting the findings of this study, it is important to consider certain factors that may have influenced the results. One notable observation is the lower practice scores among the medical students. This could be attributed to the fact that the study sample consisted of students who may have had limited clinical practice experience at the time of data collection. The emphasis on practical skills and experience in providing care to LGBTQIA+ people may be undervalued in the medical curriculum, resulting in lower practice scores. For instance, when evaluating specific questions such as Q10 and Q16, which pertain to practice subscale, it was expected that students would exhibit lower scores. Therefore, it is crucial to acknowledge that the lower practice scores may not necessarily reflect a lack of competence or unwillingness to provide LGBTQ+ inclusive care, but rather a reflection of the stage of training of the participants.

Moreover, noteworthy that this study focused on medical students, representing a younger population within the healthcare profession. It would be interesting to explore whether older healthcare professionals, who have had more extensive exposure to SGM health topics throughout their careers, exhibit different attitudes and knowledge levels. However, further research would be needed to examine this hypothesis and provide a comprehensive understanding of the attitudes and knowledge of healthcare professionals across different age groups. A few studies have indicated that there is no difference among age groups in terms of the overall score^[6], but it is noteworthy that older health professionals have received less curricular hours on SGM health, albeit with more practical experience.^[11, 12] Future studies should explore the attitudes and knowledge of medical students and healthcare professionals in different settings to obtain a more comprehensive understanding of the current state of LGBTQ+ cultural competence in the health care.

Furthermore, while this study provides valuable insights into the knowledge and attitudes of medical students at a specific faculty (ICBAS), it is important to consider the generalizability of the findings to other medical schools and institutions. Although the study did not directly investigate the prevalence of these knowledge and attitude gaps in other institutions, it is reasonable to hypothesize that similar patterns may exist in medical education country and worldwide and may be a need for further integration of SGM health topics and practical training opportunities within medical education programs.

The present study acknowledges several limitations that should be taken into account when interpreting the findings. Firstly, the study utilized a small sample size, involving a relatively limited number of participants. Increasing the sample size would provide greater statistical power and enhance the generalizability of the results. Secondly, the (mismatched) survey instrument employed was originally designed for healthcare professionals, not specifically for medical students. Variations in clinical experience and exposure to LGBTQ+ health topics among these groups may impact the applicability of certain survey items to medical students. Consequently, the results may not capture the full spectrum of knowledge and attitudes specific to this particular student population. Thirdly, translation issues may have arisen as the translations were performed by the researcher without following established translation guidelines or validation procedures. This lack of standardization introduces the possibility of inaccuracies or inconsistencies in the translated version, potentially compromising the validity of the survey responses (specifically at Q12, there is an inaccuracy when it was translated “is unnatural or immoral” to “não é natural ou immoral”). Moreover, a self-report bias is inherent as the study relied on self-reported measures, which are susceptible to biases such as social desirability bias and recall bias. Participants may have provided responses they perceived as more socially acceptable or may not have accurately recalled their knowledge or attitudes. This

bias has the potential to affect the reliability and validity of the collected data. Lastly, the study employed a cross-sectional design, capturing data at a single time point. Consequently, the ability to establish causal inferences or examine changes in knowledge and attitudes over time is limited.

While these limitations should be considered, this study provides valuable insights into the knowledge and attitudes of medical students towards LGBTQIA+ health. Future research with larger and more diverse samples, using validated survey instruments, encompassing multiple educational institutions, and complemented with a content analysis of the formal curricula on SGM health topics would enhance our understanding of LGBTQ+ cultural competency within medical education.

Conclusion

This thesis has provided valuable insights into the knowledge, attitudes, and cultural competency of medical students towards LGBTQIA+ people. The findings highlight that while medical students generally exhibit positive attitudes and moderate levels of knowledge, disparities exist across different domains, particularly in the application of knowledge in practical settings. To address these gaps, targeted interventions are needed to enhance practical training and exposure to LGBTQIA+ patients during clinical rotations, thereby improving clinical preparedness and cultural competency among medical students.

To ensure equitable and culturally competent care for SGM, medical schools should integrate LGBTQIA+ health topics into their curricula, offer comprehensive education on SGM health issues, and foster a supportive learning environment. By doing so, future physicians can be better equipped to deliver high-quality care to LGBTQIA+ people, ultimately reducing healthcare disparities and enhancing health outcomes for this population. It is important to acknowledge that cultural competency is a multifaceted and complex concept influenced by various factors, including education, training, and personal experiences, all of which shape healthcare providers' ability to provide culturally competent care to any given population.

Annex I: Tables

Table I. Respondent demographics

	N (%)	Global Score Mean (SD)	p-value
Age			0.826 ^b
22	0 (0.0)	0.00 (0.00)	
23	34 (66.7)	4.82 (0.53)	
>23	17 (33.3)	4.86 (0.64)	
Nationality			0.209 ^b
Portuguese	50 (98)	4.83 (0.60)	
Guinean	1 (2.0)	5.50 (-)	
Region^a			0.188 ^c
"Entre Douro e Minho"	29 (56.9)	4.89 (0.57)	
"Trás-os-Montes e Alto Douro"	4 (7.8)	5.13 (0.27)	
"Beira Litoral"	13 (25.5)	4.89 (0.56)	
"Beira Interior"	1 (2.0)	3.39 (-)	
"Estremadura e Ribatejo"	1 (2.0)	4.00 (-)	
"Alentejo"	0 (0.0)	0.00 (0.00)	
"Algarve"	0 (0.0)	0.00 (0.00)	
"Açores"	0 (0.0)	0.00 (0.00)	
"Madeira"	1 (2.0)	4.89 (-)	
Others			
Bissau (Guinea-Bissau)	1 (2.0)	5.50 (-)	
Brazil	1 (2.0)	3.67 (-)	
Gender Identity			0.221 ^c
Cisgender Female	38 (74.5)	4.82 (0.58)	
Cisgender Male	12 (23.5)	4.88 (0.70)	
Other	1 (2.0)	5.61 (-)	
Sexual Orientation			0.034 ^c
Bisexual	5 (9.8)	5.12 (0.42)	
Don't Know	1 (2.0)	4.61 (-)	
Heterosexual	40 (78.4)	4.75 (0.62)	
Lesbian/Gay	5 (9.8)	5.40 (0.23)	
Other	0 (0.0)	0.00 (0.00)	
Religion			0.088 ^b
Atheist/Agnostic	19 (37.3)	5.06 (0.41)	
Christian	32 (62.7)	4.72 (0.67)	

^a Historical-cultural regions of Portugal

^b p-value calculated with Wilcoxon-Mann-Whitney test

^c p-value calculated with Kruskal-Wallis Test

Table II. LGBT-DOCSS score means

LGBT-DOCSS GLOBAL SCORE		M (SD)	4,85 (0,605)		
Practice items	M (SD)	Attitude items	M (SD)	Knowledge items	M (SD)
Q4. I would feel unprepared talking with a LGBT client/patient about issues related to their sexual orientation or gender identity. ^a	5.29 (1.59)	Q3. I think being transgender is a mental disorder. ^a	6.37 (1.40)	Q1. I am aware of institutional barriers that may inhibit transgender people from using health care services.	5.37 (1.55)
Q10. I have received adequate clinical training and supervision to work with transgender clients/patients.	1.88 (1.34)	Q5. A same sex relationship between two men or two women is not as strong and as committed as one between a man and a woman. ^a	6.65 (1.29)	Q2. I am aware of institutional barriers that may inhibit LGB people from using health services.	4.86 (1.61)
Q11. I have received adequate clinical training and supervision to work with lesbian, gay, and bisexual (LGB) clients/patients.	2.31 (1.54)	Q7. LGB individuals must be discreet about their sexual orientation around children. ^a	6.22 (1.43)	Q6. I am aware of research indicating that LGB individuals experience disproportionate levels of health and mental health problems compared to heterosexual individuals.	4.37 (1.97)
Q13. I have experience working with LGB clients/patients.	2.75 (1.70)	Q9. When it comes to transgender individuals, I believe they are morally deviant. ^a	6.73 (0.827)	Q8. I am aware of research indicating that transgender individuals experience disproportionate levels of health and mental health problems compared to cisgender individuals.	4.47 (2.08)
Q14. I feel competent to assess a person who is LGB in a therapeutic setting.	4.80 (1.71)	Q12. The lifestyle of a LGB individual is unnatural or immoral. ^a	6.10 (1.94)		
Q15. I feel competent to assess a person who is transgender in a therapeutic setting.	3.75 (1.61)	Q17. People who dress opposite to their biological sex have a perversion. ^a	6.76 (0.907)		
Q16. I have experience working with transgender clients/patients.	1.96 (1.71)	Q18. I would be morally uncomfortable working with a LGBT client/patient. ^a	6.67 (1.11)		
Total Practice Subscale	3.25 (1.05)	Total Attitude Subscale	6.50 (0.982)	Total Knowledge Subscale	4.77 (1.30)

Abbreviations: LGBT - lesbian, gay, bisexual, and transgender; DOCSS - Development of Clinical Skills Scale; LGB - lesbian, gay, and bisexual. Scores are averages on 7-point Likert scales (1 = strongly disagree to 7 = strongly agree).

^a Scores are not original; they are reverse scored per scoring instructions.

Table III. Shapiro-Wilk Test results.

LGBT-DOCSS Question	W de Shapiro-Wilk (p)	LGBT-DOCSS Question	W de Shapiro-Wilk (p)	Scores	W de Shapiro-Wilk (p)
Q1	0.861 (<0.001)	Q10	0.678 (<0.001)	Global	0.954 (0.048)
Q2	0.912 (<0.001)	Q11	0.792 (<0.001)	Practice	0.930 (0.005)
Q3	0.520 (<0.001)	Q12	0.512 (<0.001)	Attitude	0.557 (<0.001)
Q4	0.887 (<0.001)	Q13	0.855 (<0.001)	Knowledge	0.940 (0.0013)
Q5	0.298 (<0.001)	Q14	0.913 (0.001)		
Q6	0.886 (<0.001)	Q15	0.932 (0.006)		
Q7	0.614 (<0.001)	Q16	0.622 (<0.001)		
Q8	0.872 (<0.001)	Q17	0.284 (<0.001)		
Q9	0.380 (<0.001)	Q18	0.347 (<0.001)		

Table IV. Associations between demographics and scores

	Global Score	Practice Score	Attitude Score	Knowledge Score
Age	277.5 (0.826) ^a	316.5 (0.589) ^a	252.0 (0.443) ^a	254.5 (0.4956) ^a
Nationality	6.0 (0.209) ^a	16.5 (0.586) ^a	11.0 (0.335) ^a	6.0 (0.207) ^a
Region	10.01 (0.188) ^b	10.39 (0.168) ^b	8.70 (0.275) ^b	8.81 (0.267) ^b
Gender Identity	3.02 (0.221) ^b	2.73 (0.255) ^b	1.15 (0.562) ^b	2.05 (0.359) ^b
Sexual Orientation	8.65 (0.034) ^b	6.44 (0.092) ^b	4.65 (0.199) ^b	3.07 (0.380) ^b
Religion	392.0 (0.088) ^a	352.0 (0.354) ^a	1.998 (0.158) ^b	346.0 (0.417) ^a
Attitude Score	-	13.0 (<0.0001) ^a	-	-
Knowledge Score	-	-	154.5 (<0.0001) ^a	-
Practice Score	-	-	-	1274.5 (<0.0001) ^a

^a U (p) - Wilcoxon-Mann-Whitney Test (p-value)^b H (p) - Kruskal-Wallis Test (p-value)

Annex II: Figures

Friedman test, $\chi^2(2) = 70.24$, $p = <0.0001$, $n = 51$

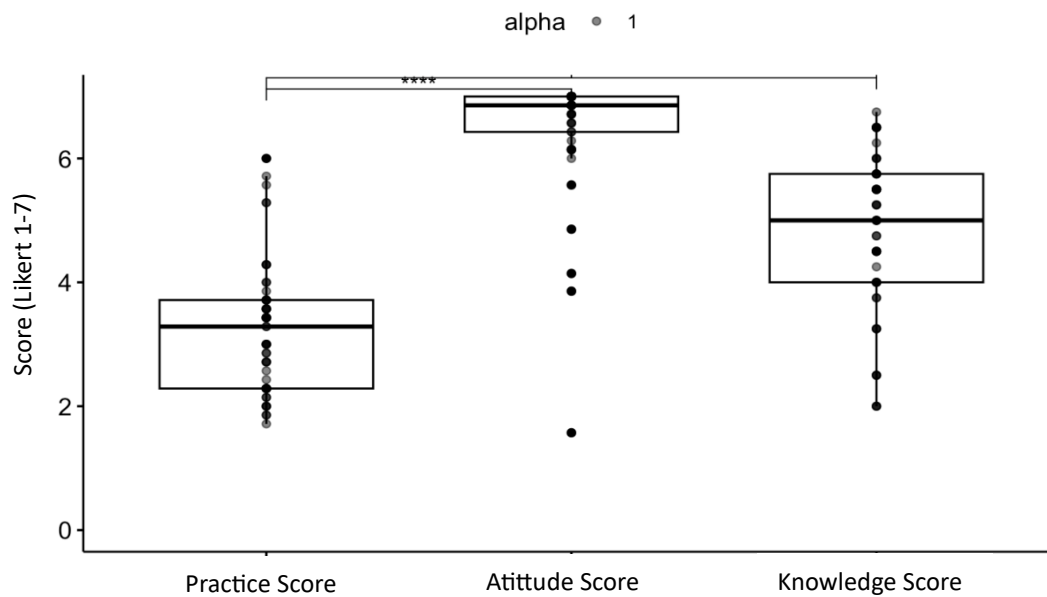


Fig 1. Box Plot of score by subscale score. Medical Students displayed significantly higher Attitudes Score in comparison to both Practice Score and Knowledge Score. Similarly, exhibited significantly higher Knowledge Score than Practice Score.

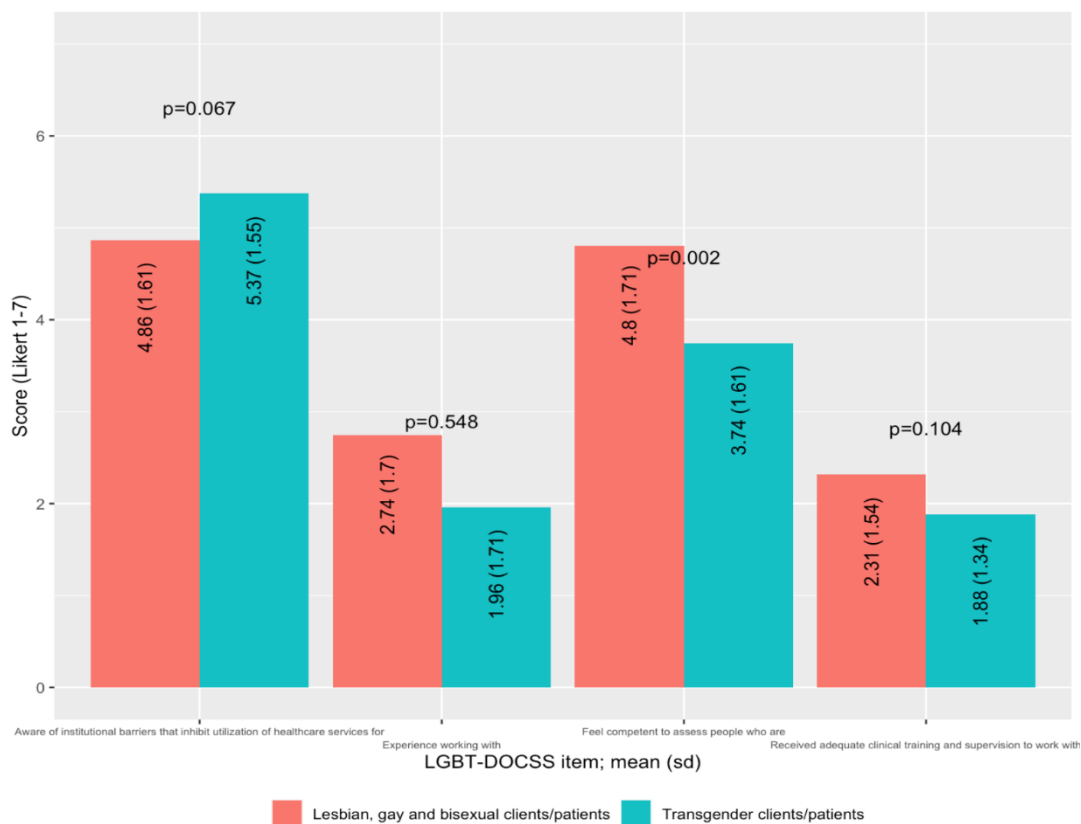


Fig 2. Differences between clinical perceptions of LGB and transgender individuals. In comparison to LGB people, medical students expressed a noticeable lack of sufficient clinical training and supervision, experience, and competence to evaluate transgender people. However, they exhibited higher awareness regarding institutional obstacles faced by the transgender community. LGBT-DOCSS - Lesbian, Gay, Bisexual and Transgender Development of Clinical Skills Scale.

Annex III: Survey

Survey in English

- A. Age
 - a. 22
 - b. 23
 - c. Other (open answer)
- B. Nationality
 - a. Portuguese
 - b. Other (open answer)
- C. Region
 - a. "Entre Douro e Minho"
 - b. "Trás-os-Montes e Alto Douro"
 - c. "Beira Litoral"
 - d. "Beira Interior"
 - e. "Estremadura e Ribatejo"
 - f. "Alentejo"
 - g. "Algarve"
 - h. "Açores"
 - i. "Madeira"
 - j. Other (open answer)
- D. Gender Identity
 - a. Cisgender female
 - b. Cisgender male
 - c. Other
- E. Sexual orientation
 - a. Bisexual
 - b. Don't know
 - c. Heterosexual
 - d. Lesbian/gay
 - e. Other
- F. Religion
 - a. Atheist/agnostic
 - b. Other (open answer)

The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS)

1. I am aware of institutional barriers that may inhibit transgender people from using health care services.
2. I am aware of institutional barriers that may inhibit LGB people from using health services.
3. I think being transgender is a mental disorder.
4. I would feel unprepared talking with a LGBT client/patient about issues related to their sexual orientation or gender identity.
5. A same sex relationship between two men or two women is not as strong and as committed as one between a man and a woman.
6. I am aware of research indicating that LGB individuals experience disproportionate levels of health and mental health problems compared to heterosexual individuals.
7. LGB individuals must be discreet about their sexual orientation around children.
8. I am aware of research indicating that transgender individuals experience disproportionate levels of health and mental health problems compared to cisgender individuals.

9. When it comes to transgender individuals, I believe they are morally deviant.
10. I have received adequate clinical training and supervision to work with transgender clients/patients.
11. I have received adequate clinical training and supervision to work with lesbian, gay, and bisexual (LGB) clients/patients.
12. The lifestyle of a LGB individual is unnatural or immoral.
13. I have experience working with LGB clients/patients.
14. I feel competent to assess a person who is LGB in a therapeutic setting.
15. I feel competent to assess a person who is transgender in a therapeutic setting.
16. I have experience working with transgender clients/patients.
17. People who dress opposite to their biological sex have a perversion.
18. I would be morally uncomfortable working with a LGBT client/patient.

Note: Evaluated from 1 (strongly disagree) to 7 (strongly agree).

Survey in Portuguese

- A. Idade
 - a. 22
 - b. 23
 - c. Outra (resposta aberta)
- B. Nacionalidade
 - a. Portuguesa
 - b. Outra (resposta aberta)
- C. Região
 - a. Entre Douro e Minho
 - b. Trás-os-Montes e Alto Douro
 - c. Beira Litoral
 - d. Beira Interior
 - e. Estremadura e Ribatejo
 - f. Alentejo
 - g. Algarve
 - h. Açores
 - i. Madeira
 - j. Outra (resposta aberta)
- D. Identidade de género
 - a. Mulher Cisgénero
 - b. Homem Cisgénero
 - c. Outra
- E. Orientação Sexual
 - a. Bissexual
 - b. Heterossexual
 - c. Lésbica/gay
 - d. Outra
 - e. Não Sei
- F. Religião
 - a. Ateu/Agnóstico
 - b. Outra (resposta aberta)

The Lesbian, Gay, Bisexual, and Transgender Development of Clinical Skills Scale (LGBT-DOCSS)

1. Estou ciente das barreiras institucionais que possam inibir pessoas trans de usar os serviços de saúde.
2. Estou ciente das barreiras institucionais que possam inibir as pessoas LGB de usar os serviços de saúde.
3. Considero que ser trans é um transtorno mental.
4. Eu não me sinto preparadx para conversar com utente LGBT sobre questões relacionadas à sua orientação sexual ou identidade de género.
5. Uma relação do mesmo sexo entre dois homens ou duas mulheres não é tão forte e tão comprometida como entre um homem e uma mulher.
6. Estou ciente de pesquisas que indicam que pessoas LGB apresentam níveis desproporcionais de saúde e problemas de saúde mental em comparação com pessoas heterossexuais.
7. Pessoas LGB devem ser discretas sobre sua orientação sexual com crianças.
8. Estou ciente de pesquisas que indicam que pessoas trans apresentam níveis desproporcionais de saúde e problemas de saúde mental em comparação com pessoas cis.
9. Quando se trata de pessoas trans, acredito que são moralmente desviantes.
10. Recebi formação e supervisão clínica adequada para trabalhar com utentes trans.
11. Recebi formação e supervisão clínica adequada para trabalhar com utentes lésbicas, gays e bissexuais (LGB).
12. O estilo de vida de pessoas LGB não é natural ou imoral.
13. Tenho experiência clínica com utentes LGB.
14. Sinto-me competente para avaliar uma pessoa LGB em ambiente terapêutico.
15. Sinto-me competente para avaliar uma pessoa trans em ambiente terapêutico.
16. Tenho experiência clínica com utentes trans.
17. As pessoas que se vestem de forma oposta ao seu sexo biológico têm uma perversão.
18. Eu sentir-me-ia moralmente desconfortável a trabalhar com utentes LGBT.

Nota: Avaliado entre 1 (Discordo totalmente) e 7 (Concordo totalmente).

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