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Exploring Nursing Students' Attitudes Toward Transgender Individuals and Dehumanization of Transgender People: The Role of Psychological Characteristics

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Abstract

Introduction: The discrimination and dehumanization faced by transgender people is particularly intense, both at the societal level and in health services.

Purpose: To examine nursing students' attitudes toward transgender individuals and to explore the role of empathy, demographic characteristics, and personality traits in shaping these attitudes. Additionally, to weigh and culturally adapt the Genderism and Transphobia Scale.

Methodology: A cross-sectional study was conducted with a sample of two Universities, in Nursing Departments, with data collection via an anonymous questionnaire that included demographics, the Genderism and Transphobia Scale, the Ten-Item Personality Inventory, the Toronto Empathy Scale, and other tools to assess dehumanization. Data were analyzed with descriptive and inductive statistics, and the significance level was set at 0.05.

Results: The results showed that the absence of empathy is associated with higher levels of prejudice and dehumanization. Mean values for the Transphobia/Genderism category were higher for males (75,831, SD = 36,337) compared to females (51,641, SD = 26,560) and for non-binary individuals (32,000, SD = 5,715), with statistically significant differences ($p < 0.001$). Empathy (TEQ) had a negative correlation with dehumanization ($r = -0.415$, $p < 0.001$) and transphobia ($r = -0.480$, $p < 0.001$). Openness to Experience was negatively correlated with transphobia ($r = -0.337$, $p < 0.001$). Linear regression models showed that empathy ($\beta = -3.045$, $p < 0.001$) and Openness to Experience ($\beta = -4.070$, $p < 0.001$) explain 34% of the variability in Transphobia/Genderism ($R^2 = 34\%$).

Conclusions: Enhancing empathy and incorporating inclusive education into nursing curricula can help reduce dehumanization and prejudice against transgender people.

Keywords:

Mental Health, Transgender People, Dehumanization, Nursing Students, Attitudes, Empathy, Psychological Characteristics

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Introduction

The term "transgender" refers to individuals whose gender identity does not align with the sex they were assigned at birth. This term can encompass a wide range of gender identities and expressions, from individuals who have undergone medical sex reassignment procedures to individuals who self-identify with a different gender identity without any changes to their bodies. According to research by Collin and colleagues (2016), the perception of what it means to be transgender depends on the definition adopted, with significant variations in prevalence rates depending on the methodology. Also, as pointed out by Buck (2016), misconceptions and a lack of understanding of the concept of gender identity can lead to prejudice and discrimination.

The discrimination and dehumanization that transgender people face are particularly intense, both in society and in health services. According to research, transgender people are often targeted by microaggressions, objectification, and discrimination, which lead to the loss of their humanness through the rejection of characteristics that are considered uniquely human, such as emotional sensitivity and moral conscience (Kcomt, 2019; Haslam, 2006; Cascalheira & Choi, 2023). In the context of health services, this dehumanization manifests itself in the indifference to the subjectivity and needs of patients, but also in the objectification of them as passive recipients of treatment. At the same time, these experiences lead to increased internalized negativity, shame, and mental health problems, which are often associated with poorer mental health (Cascalheira & Choi, 2023; Safer et al., 2016). Transgender individuals face higher rates of anxiety, depression, and suicidal ideation due to societal stigma and discrimination. Experiences of rejection, workplace bias, and inadequate healthcare contribute to chronic stress and psychological distress. Minority stress theory explains how cumulative discrimination leads to poor mental health outcomes. A systematic review highlights that transgender people are at significantly increased risk of mental health disorders compared to cisgender individuals (Budge et al., 2013). Addressing these issues requires strengthening legislative protections and raising awareness among health professionals to provide comprehensive and humane care.

Nursing students' attitudes towards transgender people vary, but most studies show that they are characterized by a lack of knowledge (Fradelos et al.,2022), prejudices, and stereotypical perceptions, which affect them in providing provision of quality care. According to the study by Derbyshire and Keay (2023), many students show confusion about gender and gender identity, with many agreeing with statements such as "the male/female dichotomy is natural" and "a person can never change their gender". Furthermore, they exhibit higher levels of implicit bias compared to other health professional groups, while education about trans health remains limited. Similarly, research by Day and Nicholls (2019) highlights that students use language that heteronormatively treats trans people, positioning them as “other” and reinforcing social stereotypes, while there is a lack of understanding of the complexities of trans identity. The findings highlight the need for targeted education that will reduce bias and enhance inclusive health care (Albani et al, 2022; Day & Nicholls, 2019; Derbyshire & Keay, 2023).

Nursing students’ attitudes toward transgender people are influenced by several factors, with education playing a central role. Research suggests that curricula often lack sufficient information about the needs of the transgender community, leading to students being inadequately prepared to provide quality care. Lack of knowledge about issues such as psychological support, management of transgender patients, and their medical needs reinforces prejudices and stereotypes (Gentil et al., 2023). Furthermore, the lack of specialized educational tools and clinical scenarios limits students’ ability to fully understand the challenges transgender people face in the healthcare system (Mizock & Lundquist, 2016).

At the same time, personal contact and clinical experience play an important role. When students can meet and care for transgender people, they form more positive and well-informed views about the needs of this group (Jecke & Zepf, 2024). On the other hand, the lack of such experiences often leads to uncertainty and insecurity when providing care, which highlights the importance of adapting educational programs (Roy & Clark,2024; Jecke & Zepf, 2024). By incorporating interactive seminars, partnerships with transgender organizations, and internship opportunities, educational institutions can reduce prejudice and enhance students’ cultural sensitivity (Stewart & O’Reilly, 2017).

Personality traits and empathy play a central role in shaping nursing students’ attitudes toward transgender people individuals. Individuals with high emotional stability, openness to experience, and a heightened level of social responsibility tend to express greater acceptance of diversity. Empathy, as the ability to understand and share the feelings and experiences of others, is a catalyst for reducing prejudice. Studies show that educational programs aimed at enhancing empathy can significantly reduce negative attitudes toward LGBTQ+ individuals, including transgender individuals (Ozturk & Demirden, 2023).

Beyond theoretical knowledge, experiential learning plays an equally important role. Educational interventions based on experiential exercises, such as participating in virtual scenarios or personal contact with trans people, enhance empathy and reduce discrimination. At the same

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time, promoting openness through diversity courses helps reduce internalized bias that can affect professional behavior. Lack of empathy, on the contrary, can reinforce stereotypes and lead to phenomena of professional distancing, which negatively affects the quality of care for transgender people (Adams, 2019). Therefore, educational institutions should emphasize the cultivation of empathy and sensitivity towards diversity through targeted interventions that enhance both interpersonal skills and knowledge. Although nursing students' attitudes towards LGBTQI+ people have been studied (Fradelos et al., 2022; Cornelius & Carrick 2015), attitudes specifically towards transgender people remain unexplored in the Greek academic space. Lack of focus on the trans community indicates a significant gap in the relevant literature. Furthermore, in Greece, there are no valid and reliable tools to measure attitudes towards trans people or to assess transphobia, which limits scientific understanding and the possibilities for intervention to reduce prejudice.

Purpose

The purpose of the study is to investigate nursing students' attitudes toward transgender individuals as well as to examine the role of demographic, personality, and cognitive characteristics in shaping attitudes toward transgender individuals and their dehumanization by nursing students. In addition, the study aims to weigh and culturally adapt the Genderism and Transphobia Scale.

Methodology

Study setting and participants

This study employed a cross-sectional design. 294 Nursing students from two nursing departments were recruited.

Data collection

Data were collected via an anonymous questionnaire consisting of five parts:

A sheet containing social and demographic characteristics.

The Genderism and Transphobia Scale (GTS) is a psychometric instrument developed by Hill and Willoughby (2005) to measure prejudice, discrimination, and negative attitudes toward transgender individuals and those who do not conform to traditional gender norms. The instrument is designed to assess different aspects of transphobia and radical gender bias. The GTS includes a total of 32 statements that cover a wide range of behaviors, perceptions, and feelings toward transgender individuals. Participants are asked to rate their level of agreement or disagreement with the statements, usually on a 7-point Likert scale (from 1 = I strongly disagree to 7 = I strongly agree). This scale consists of two factors: Transphobia/genderism and Gender-bashing.

To evaluate the dehumanization of transgender individuals, a modified and culturally adapted Greek version of the Dehumanization Scale was utilized (Fradelos et al., 2022). "Human Uniqueness" refers to characteristics that differentiate humans from other animals, including attributes such as delicacy, politeness, self-control, and advanced cognitive abilities. "Human Nature" encompasses universal and fundamental human traits such as sensitivity, autonomy, kindness, and cognitive flexibility. When individuals are denied "Human Uniqueness," they are often compared to animals and described as puerile, immature, impolite, irrational, or backward. Conversely, the denial of "Human Nature" traits leads to comparisons with inanimate objects or machines, rendering individuals emotionless, rigid, passive, and lacking in feelings or agency. The scale consists of seven-point items, with eight statements in total. For example, one item is "they are open-minded and can think things through", where "1" indicates total disagreement and "7" total agreement. Higher scores reflect stronger dehumanizing tendencies, whereas lower scores suggest the absence of such tendencies. The scale measures two forms of dehumanization: animalistic dehumanization (assessed by four items) and mechanistic dehumanization (also assessed by four items) (Bastian & Haslam, 2010).

The Ten-Item Personality Inventory (TIPI), developed by Gosling et al. (2003), is a concise self-report measure containing ten items that assess personality according to the Big Five Factors Model, as proposed by Costa and McCrae (McCrae & Costa, 1987). Each dimension of the Big Five is represented by one item reflecting the positive pole and another reflecting the negative pole. Participants rate how each trait applies to them using a seven-point scale. This scale has demonstrated strong convergent validity, test-retest reliability, and a high degree of agreement between self-ratings and observer ratings (Myszkowski et al., 2019). The scale has been used in Greek students by Fradelos et al. (2022).

The Toronto Empathy Questionnaire (TEQ), developed by Spreng et al. (2009), is a brief self-report instrument designed to assess empathy as an emotional process. The TEQ comprises 16 items that evaluate the behavioral, emotional, cognitive, and physiological dimensions of empathy across a wide spectrum of individuals (Novak et al., 2021). The TEQ has been used in numerous countries, languages, and psychological contexts (Roth & Altmann, 2021). Furthermore, the TEQ has been validated in Greece, with a satisfactory Cronbach's α coefficient of 0.72 (Kourmousi et al., 2017).

The translation and cultural adaptation process of the Genderism and Transphobia Scale

Adhering to WHO's guidelines, the translation and cultural adaptation of the Genderism and Transphobia Scale involved several stages. Initially, two independent bilingual translators, both healthcare professionals, translated the English version into Greek. These translations were then merged and revised by a third translator to create a single Greek version. This Greek version was then translated into English by two separate individuals who were proficient in English. The resulting English versions were combined into a single version and translated in Greek by a third translator. This final Greek version was administered to ten nursing students, and the cognitive interview method was employed. During this process, students shared whether they encountered any confusing or challenging aspects. Generally, nine out of the ten students reported no such issues.

Statistical analysis

Descriptive and inferential statistics were are applied to this study. The data was examined using descriptive statistics (frequency, mean values, and standard deviations) and inductive statistics to address all the research questions. Analyses of variance (ANOVA), independent t-tests, spearman and Pearson correlation, regressions, internal consistency (Cronbach's coefficient), and confirmatory factor analyses were carried out using SPSS26.0 and JASP. The significance level was set to a p-value ≤0.05.

Ethics

This study received approval from the Ethics Committee of the Department of Nursing of the University of Thessaly University in Thessaly (approval number 689DN/08.06.2023). Furthermore, the study adheres to the principles outlined in the Helsinki Declaration (2013) and complies with the national ethical standards established by the relevant national and institutional committees overseeing human experimentation. The anonymity of participants was ensured using self-selected codes. Informed consent was obtained from all participants before their involvement in the study

Results

Table 1 presents the demographic characteristics of the sample. Most participants were women (78.6%), while men constituted 20.1% and non-binary individuals constituted 1.4% of the sample. The mean age of the participants was 23.09 years (SD ± 9.1). Regarding the year of academic studies study, 36.7% of the nursing students were in their 4th year, 28.9% in their 2nd, and 15% in their 1st year of studies, respectively. while the percentages for the 2nd and 1st years were 28.9% and 15% respectively. Most students Mostly, were single (53.1%), while 30.3% stated that they were in a relationship. Regarding the place of residence, 73.1% lived in urban areas, 13.9% in semi-urban, and 12.9% in rural areas, .70.7% identified themselves as heterosexual, while 15.6% chose not to answer about their sexual preference. The education of the participants' parents varied greatly with the mother and father of the participants mostly having university or secondary education. Finally, 93.9% of the participants had not attended seminars on the care of LGBTQ+ people.

Table 1. Demographic characteristics of the sample

Variable	Group	Frequency	Percentage
Gender	Female	231	78.6
	Male	59	20.1
	non-binary	4	1.4
Age (mean±SD)		23.09(9.1)	
Year of Study	1st	44	15
	2nd	85	28.9
	3rd	19	6.5
	4rth	108	36.7
	5th <	38	12.9
Marital Status	In relationship	89	30.3
	Single	156	53.1
	Other	30	10.2
	Married	19	6.5
Area of Residence	Urban (>10.000)	215	73.1

	Rural (<2000)	38	12.9
	Semi-urban (2000 – 10.000)	41	13.9
Sexual Preference	Heterosexual	208	70.7
	I don't want to answer	46	15.6
	Homosexual	24	8.2
	Other	4	1.4
	Bisexual	12	4.1
Mothers Educational status	Postgraduate	36	12.2
	University	109	37.1
	Highschool	108	36.7
	J. Highschool	14	4.8
	Elementary	21	7.1
	Illiterate	6	2
Mothers Educational status	Postgraduate	20	6.8
	University	102	34.7
	Highschool	97	33
	J. Highschool	31	10.5
	Elementary	39	13.3
	Illiterate	5	1.7
Have you attended an LGBTQ+ care course?	No	276	93.9
	Yes	18	6.1

Descriptive Analysis

Table 2 presents the descriptive statistics of the study. The mean values for the different dimensions examined varied range over a wide range. Specifically, the Mechanistic and Animalistic dehumanization scales presented similar mean values (10.715 and 10.696 respectively) with high-reliability coefficients (Cronbach's alpha = 0.849 and 0.817). Of Regarding the personality dimensions, Extraversion had a mean of 7.48 with a standard deviation of 2.803, while Agreeableness and Conscientiousness presented means of 10.401 and 10.799 respectively. However, the reliability for some of these dimensions such as Agreeableness (0.260) and Emotional Stability (0.210), was low. The total score in the Empathy (TEQ) scale had a mean of 48.500 with a standard deviation of 5.677, while the dimensions of Gender Bashing and Transphobia/Genderism showed higher fluctuations, with mean values of 11.456 and 56.228, respectively, and high reliability (Cronbach's alpha = 0.865 and 0.961, respectively).

Bivariate Analysis

The results of the ANOVA analysis revealed significant differences in the scores for the Gender bashing and Transphobia genderism categories of the GTS scale between genders. The Gender bashing category showed a mean value of 10.225 (SD = 4.214) for female participants, a mean value of 16.576 (SD = 9.534) for male participants, In the Gender bashing category, female participants had a mean value of 10.225 (SD = 4.214), males 16.576 (SD = 9.534), while non-binary individuals/others had the lowest mean value of 7.000 (SD = 0.000). The difference between females and males was statistically significant ($p < .001$), as was the difference between males and non-binary individuals/other ($p = 0.004$). In the Transphobia genderism category, female participants had a mean score of 51.641 (SD = 26.560), male participants had a mean score of 75.831 (SD = 36.337), and non-binary/other individuals had a mean score of 32.000 (SD = 5.715). Differences between females and males ($p < 0.001$) and between males and non-binary individuals ($p = 0.010$) were also statistically significant, indicating the influence of gender on the relevant attitudes. ANOVA analysis revealed statistically significant differences in Mechanistic dehumanization scores by gender ($F(2. 288) = 5.261$, $p = 0.006$). The mean score was higher for men ($M = 12.310$, $SD = 5.500$) compared to women ($M = 10.380$, $SD = 4.534$) and non-binary individuals ($M = 6.750$, $SD = 4.193$). The differences confirm the existence of variation in perceptions according to gender. Similarly, in the Animalistic dehumanization scale, the ANOVA analysis also showed significant differences

between genders (F (2. 290) = 8.862. p < .001). Men had the highest mean score (M = 13.034, SD = 5.156), followed by women (M = 10.126, SD = 4.724) and non-binary individuals (M = 9.000, SD = 3.464). The statistically significant differences highlight the differentiation of attitudes and perceptions for this category.

The results of the ANOVA analysis also showed statistically significant differences in the scores of the categories Transphobia and genderism, Mechanistic dehumanization, and Animalistic dehumanization, depending on the personal situation of the participants (p < .001 for all three categories). Specifically, for the category Transphobia genderism, married people presented the highest mean score (M = 78.105, SD = 26.278). while participants in the category "Other" had the lowest (M = 41.367. SD = 15,370). Post-hoc tests showed statistically significant differences between married and other categories, as well as between married and single (p < 0.05). In the Gender bashing category, married people again had the highest mean score. Statistical analyses revealed significant differences between married people and all other personal statuses (p < 0.001). The "Other" category again had the lowest score, as in the other categories. Married people also showed the highest mean value in In the Mechanistic dehumanization scale, married people also again showed the highest mean score (M = 15.105, SD = 4.228), while the "Other" category had the lowest value (M = 8.750, SD = 4.124). The differences between married and the other categories were statistically significant (p < 0.001). Finally, in the Animalistic dehumanization scale, married people had the highest score (M = 15.579, SD = 6.678), while participants in the "Other" category had the lowest (M = 9.200, SD = 4.089). The results of the post-hoc tests showed significant differences between married and all other categories (p < 0.001). Overall, personal status seems to significantly affect the scores in the three categories.

Correlation analysis with the Pearson's r-coefficient revealed the following results:

There was a positive and statistically significant correlation between age and the Mechanistic dehumanization (r = 0.206, p < .001) as well as the Animalistic dehumanization (r = 0.174. p = 0.003). suggesting that older ages are associated with higher scores in these categories. The Gender bashing category did not show a statistically significant correlation with age (r = 0.016, p = 0.783), while the Transphobia category showed a weak but statistically significant positive correlation (r = 0.136, p = 0.022)

Table 3 presents the correlations between five personality dimensions (Extroversion, Agreeableness, Conscientiousness, Emotional Stability, Openness to experiences) and four themes (mechanistic, animalistic, sexist, transphobic-generic behavior). Openness to Experience was is negatively and significantly correlated with all themes, with Pearson r values ranging from -0.195 (mechanistic) to -0.337 (transphobic-generic), with all p- values being less than 0.001, indicating that people with high Openness are less likely to exhibit such behaviors. Similarly, Technological Expertise (TEQ) was is also negatively and significantly correlated with the four examined themes, with Pearson r values ranging from -0.332 (mechanistic) to -0.480 (transphobic-generic), and with p-values also being less than 0.001, indicating a strong negative relationship, conversely. The remaining personality parameters (Extroversion, Agreeableness, Conscientiousness, and Emotional Stability) did do not show significant correlations, since as their p-values were are greater than 0.05.

Table 2. Descriptive statistics of the study

	Mean	SD	Mini	Max	Chron. a
Mechanistic Dehumanization	10.71	4.8	4.00	26.00	0.84
Animalistic Dehumanization	10.69	4.9	4.00	26.00	0.81
Extraversion	7.48	2.8	2.00	14.00	0.68
Agreeableness	10.40	1.9	5.00	14.00	0.26
Conscientiousness	10.79	2.2	3.00	14.00	0.49
Emotional Stability	10.22	2.0	3.00	14.00	0.21
Openness to Experiences	10.49	1.9	3.00	14.00	0.26
TEQ	48.50	5.6	30.00	59.00	0.75
Gender bashing	11.45	6.2	7.00	46.00	0.86
Transphobia/ Genderism	56.22	30.2	25.00	153.00	0.96

Multivariable Analysis

Table 4 presents the results of a linear regression analysis where the parameters of mechanistic and animalistic dehumanization, sexist and transphobic behavior were used as dependent variables, and empathy and personality traits parameters were used as independent variables. For mechanistic dehumanization, the factors that had have statistically significant correlations were are Agreeableness (β = 0.557, p < 0.001), Openness to Experience (β = -0.414, p = 0.005), and Expertise (β = -0.385, p < 0.001), with a R-Squared (R^2) value (value defining the proportion of variance in the dependent variables explained by the independent variables) of 19.9%

the model explaining 19.9% of the variability (R^2 = 19.9%). In animalistic dehumanization, the significant factors include Agreeableness (β = 0.462, p = 0.004). Emotional Stability (β = 0.341, p = 0.037) and Expertise (β = -0.415, p < 0.001) with the model explaining 20.1% of the variability (R^2 =

20.1%). In the case of sexism, the significant factor was is Agreeableness (β = 0.374, p = 0.066), Openness to Experiences (β = -0.523, p = 0.006), and Expertise (β = -0.447, p < 0.001), with the model explaining 19.1% of the variability (R^2 = 19.1%). Finally, for transphobic-generic behavior, Agreeableness (β = 3.593, p < 0.001), Openness to Experiences (β = -4.070, p < 0.001), and Expertise (β = -3.045. p < 0.001), were are statistically significant factors with the model explaining 34% of the variability (R^2 = 34%).

Validation of Genderism and Transphobia Scale

Reliability Analysis of the Genderism and Transphobia Scale

The test-retest method was applied to explore the test-retest repeatability of the Genderism and Transphobia Scale. Twenty Nursing students completed the questionnaire at baseline and two weeks later. This interval is interposed so that the individuals do not recall their answers. Upon the analysis, significant correlations were observed between the two-administration (p<0.001) facts (Intraclass Correlation Coefficients = 0.545) that reveal that the scale is stable through time. In addition, Cronbach's Alpha had values of 0.86 and 0.96 for the subscales suggesting acceptable internal consistency of the scale. Moreover, the value of Cronbach's Alpha would not increase if the scale discarded items. All items exhibited strong correlations to the total score. This fact adds to the excellent internal consistency of the scale.

Construct validity of Genderism and Transphobia Scale

Finally, we performed a CFA to test the two-factor structure of the scale. Regarding CFA, the model tested was equivalent to the original factorial structure of the Genderism and Transphobia Scale as proposed by other authors. The model presented a reasonably good fit to the data. Tucker-Lewis index (TLI) was 0.850, the comparative fit index (CFI) and goodness of fit index (GFI) were nearly 0.9 and standardized root mean square residual (SRMR) was 0.080. Those values suggest an acceptable but not excellent fit. Overall, our CFA confirmed the two-dimensional structure of the scale.

Table 3. Pearson's Correlations

Variable		mechanistic	animalistic	Gender bashing	Transphobia genderism
Extraversion	Pearson's r	0.055	0.095	0.011	-0.021
	p-value	0.349	0.105	0.850	0.722
Agreeableness	Pearson's r	0.005	-0.005	-0.137	-0.079
	p-value	0.931	0.937	0.019	0.176
Conscientiousness	Pearson's r	0.054	0.056	-0.058	-0.022
	p-value	0.359	0.342	0.321	0.712
Emotional Stability	Pearson's r	0.024	0.085	-0.142	-0.012
	p-value	0.680	0.145	0.015	0.831
Openness to Experiences	Pearson's r	-0.195	-0.136	-0.233	-0.337
	p-value	< .001	0.020	< .001	< .001
TEQ	Pearson's r	-0.332	-0.331	-0.390	-0.480
	p-value	< .001	< .001	< .001	< .001

Table 4. Linear Regression analysis with mechanistic and animalistic dehumanization and Genderism and transphobia as dependent variables and empathy and personality traits as Independent

						95% CI	
	Unstandardized	**Standard Error**	**Standardized**	**t**	**p**	**Lower**	**Upper**
Model for Dehumanization	23.139	2.373		9.753	< .001	18.469	27.809
Extraversion	0.229	0.098	0.134	2.342	0.020	0.037	0.422
Agreeableness	0.557	0.157	0.231	3.557	< .001	0.249	0.865

Conscientiousness	0.203	0.141	0.095	1.438	0.152	-0.075	0.480
Emotional Stability	0.087	0.158	0.037	0.547	0.585	-0.225	0.398
Openness to Experiences	-0.414	0.146	-0.171	-2.842	0.005	-0.701	-0.127
TEQ	-0.385	0.055	-0.455	-6.999	< .001	-0.493	-0.277
Model summary: F(6,284)=11.749, p<0.001, R^2=19.9%							

						95% CI	
	Unstandardized	**Standard Error**	**Standardized**	**t**	**p**	**Lower**	**Upper**
Model for Animalistic Dehumanization	22.132	2.423		9.133	< .001	17.362	26.902
Extraversion	0.279	0.100	0.159	2.781	0.006	0.081	0.476
Agreeableness	0.462	0.160	0.186	2.879	0.004	0.146	0.777
Conscientiousness	0.097	0.143	0.044	0.676	0.500	-0.185	0.379
Emotional Stability	0.341	0.163	0.141	2.097	0.037	0.021	0.662
Openness to Experiences	-0.260	0.148	-0.105	-1.750	0.081	-0.551	0.032
TEQ	-0.415	0.056	-0.478	-7.391	< .001	-0.526	-0.305
Model summary: F(6,286)=12.011, p<0.001, R2=20.1%							

						95% CI	
	Unstandardized	Standard Error	Standardized	t	p	Lower	Upper
Model Gender Bashing	33.194	3.068		10.820	< .001	27.156	39.233
Extraversion	0.262	0.127	0.118	2.059	0.040	0.011	0.512
Agreeableness	0.374	0.203	0.120	1.842	0.066	-0.026	0.775
Conscientiousness	0.222	0.182	0.081	1.220	0.223	-0.136	0.580
Emotional Stability	-0.277	0.205	-0.091	-1.349	0.178	-0.681	0.127
Openness to Experiences	-0.523	0.188	-0.167	-2.778	0.006	-0.894	-0.152
TEQ	-0.447	0.071	-0.408	-6.265	< .001	-0.587	-0.306
Model summary: F(6,287)=11.302, p<0.001, R^2=19.1%							

						95% CI	
	Unstandardized	Standard Error	Standardized	t	p	Lower	Upper
Model Transphobia Genderism	180.557	13.492		13.383	< .001	154.001	207.112
Extraversion	1.227	0.559	0.114	2.194	0.029	0.126	2.327
Agreeableness	3.593	0.894	0.236	4.020	< .001	1.834	5.352
Conscientiousness	0.692	0.799	0.052	0.865	0.388	-0.882	2.265
Emotional Stability	1.179	0.903	0.080	1.306	0.193	-0.598	2.956
Openness to Experiences	-4.070	0.828	-0.267	-4.915	< .001	-5.699	-2.440
TEQ	-3.045	0.314	-0.571	-9.711	< .001	-3.662	-2.428
Model summary: F(6,284)=24.693, p<0.001, R^2=34%							

Discussion

The purpose of the study was to investigate nursing students' attitudes toward transgender individuals as well as to examine the role of demographic, personality, and cognitive characteristics in shaping attitudes toward transgender individuals and their dehumanization by nursing students. In addition, the study aimed aims to weigh and culturally adapt the Genderism and Transphobia Scale. This study highlighted differences in attitudes towards transgender people between genders, with male participants having significantly higher scores on the Transphobia/Genderism scale than non-binary individuals, with statistically significant differences. Similar results were observed in the Mechanistic and Animalistic Dehumanization categories, with males showing higher mean values. Another finding was a strong negative correlation between empathy (TEQ) and dehumanization, . Particularly in the Transphobia/Genderism scale, participants with higher levels of empathy had lower levels of prejudice and dehumanization. Finally, concerning

personality traits, Openness to Experiences was negatively correlated with Transphobia/Genderism and Mechanistic Dehumanization, indicating that students with higher openness were less likely to express prejudice. 93.9% of participants stated that they had not attended seminars on caring for LGBTQ+ individuals. Lack of this education is generally associated with higher levels of prejudice and dehumanization.

According to our results, nursing students exhibit moderate to low levels of discrimination towards trans people. The results of the study disagree with previous studies like Derbyshire and Keay (2023), which highlight higher levels of subconscious bias and confusion among nursing students regarding gender discrimination and gender identity. The present study was conducted in Greece, while many of the previous studies were conducted in countries with different cultural contexts and social norms regarding trans people. The use of different measurement tools, such as the Genderism and Transphobia Scale (GTS) in the present study, may lead to differences in results. In addition, the tools used may capture explicit bias and not implicit bias, which usually reaches presents higher levels.

The results of the study show that male participants reported higher levels of Transphobia/Genderism compared to women and non-binary individuals, with the difference being statistically significant ($p < 0.001$). This difference highlights the influence of gender on attitudes towards transgender individuals, which is consistent with previous findings.

In particular, according to a study by Sequeira et al. (2020), men are more likely to exhibit prejudice and discrimination against transgender people, due to deep-rooted social perceptions of gender and gender identities. Exposure to educational initiatives and programs that promote acceptance of diversity appears to reduce these negative attitudes, especially at younger ages.

Furthermore, as Castellini et al. (2017) report, women and non-binary individuals tend to show greater empathy and acceptance towards transgender individuals. This is attributed to social and cultural factors that enhance solidarity and understanding between groups facing discrimination. This data highlights the need for targeted interventions, such as educational programs and awareness campaigns, that focus on gender bias and enhancing empathy. Promoting intercultural understanding can contribute to reducing transphobia and creating a more inclusive social environment.

Another important finding of our study was that empathy is a factor that plays an important role in shaping positive attitudes towards transgender people. This agrees with the study by Ozturk & Demirden, (2023), who support the importance of empathy in reducing prejudice and transphobia, findings that strengthen the main hypothesis of the present study. Empathy helps individuals understand the experiences, feelings, and needs of transgender individuals, reducing dehumanization and discrimination. Through empathy, transgender people are perceived not as “different” or “other,” but as people with shared feelings and rights. Studies, such as Bastian & Haslam (2010), show that cultivating empathy reduces the tendency toward mechanistic and animalistic dehumanization, allowing for the creation of more positive attitudes.

The personality dimension "Openness to Experience" appears to function as a protective factor, showing a negative correlation with transphobia. That is, individuals with higher levels of openness to experience tend to have less prejudice against trans people. According to previous studies (Cullen et al., 2002; Godø et al., 2024), the adoption of feminist beliefs and openness to experience are independent negative predictors of transphobia. That is, individuals who embrace feminist values and/or have high openness to experience show reduced levels of transphobia. However, openness to experience did not moderate the relationship between feminist beliefs and transphobia, suggesting that it functions independently as a factor in reducing prejudice. Furthermore, openness to experience is associated with traits such as imagination, aesthetic sensitivity, attention to emotions, preference for variety, and intellectual curiosity. These traits may enhance an individual's ability to understand and accept different gender identities, thereby reducing the likelihood of developing transphobic attitudes (Cullen et al., 2002; Godø et al., 2024). Overall, openness to experience appears to play an important role in reducing transphobia, acting as an independent protective factor. Cultivating this dimension of personality, through educational and experiential interventions, could contribute to reducing prejudice and promoting a more inclusive society. Our study revealed that 93.9% of participants had not attended any training on LGBTQ+ care. This lack of specialized training is directly related to the findings of previous research, which indicates shortcomings in nursing curricula regarding the care of LGBTQ+ populations (McGregor et al., 2023). Specifically, McGregor et al. point out that the inclusion of LGBTQ+ care in curricula is still limited, which creates challenges for healthcare professionals in providing appropriate and equitable care.

Similar findings are reported in other studies. Research by Khanal et al. (2023) highlights the importance of including LGBTQ+ care issues in basic health studies, highlighting that the lack of specialized education exacerbates health inequalities. Similarly, Carpenter et al. (2023) found that nursing and medical students reported limited knowledge and confidence in caring for LGBTQ+ patients, highlighting the need for targeted training

through workshops and clinical programs. Furthermore, Carr et al. (2023), provide evidence that including such topics in training enhances the skills and awareness of health professionals. In summary, the findings highlight the need to review nursing curricula and incorporate targeted thematic modules related to the care of LGBTQ+ individuals. Providing specialized training is not only a matter of scientific completeness but also of social justice.

Mental health practitioners must provide affirming and culturally competent care to transgender individuals to mitigate the effects of discrimination. Training programs should emphasize gender-affirming approaches and the impact of minority stress on mental health. Therapists should advocate for inclusive policies that reduce systemic barriers to care. Creating safe, nonjudgmental therapeutic spaces can help transgender clients build resilience and self-acceptance. Integrating peer support and community resources into treatment plans enhances social support and well-being. Research-informed interventions should address the unique needs of transgender individuals to improve mental health outcomes (Budge et al., 2013).

Strengths and Limitations

Despite the originality and methodical design of the study, there were some limitations. First, the sample came exclusively from two Universities, nursing departments in Greece, which limits the generalizability of the results to other geographical areas or cultural environments. The study used a cross-sectional design, which does not allow for causal inferences about the relationships between the variables. Finally, the data were collected through self-report questionnaires, which may lead to socially desirable responses or be influenced by the subjective perception of the participants.

Conclusions

Empathy is proven to be a critical factor in understanding the needs and eliminating prejudices against transgender people. Health professionals with increased levels of empathy are better able to provide comprehensive, inclusive, and humane care. At the same time, cultural sensitivity, the ability to understand cultural differences and adapt care to the specific needs of the individual, is a fundamental principle of modern health care. The lack of these skills leads to inequalities in care, which highlights the need to train nursing students in these areas. Personality traits, such as Openness to Experience and Agreeableness, play an important role in shaping attitudes toward diversity. Students with high levels of openness show greater adaptability to the needs of transgender individuals and lower levels of prejudice. Conversely, the absence of these traits is associated with increased transphobia and negative attitudes. Understanding the impact of personality traits can contribute to the development of individualized interventions that will enhance the receptivity of nursing students to diversity.

The findings of the study highlight the urgent need for educational interventions that aim to reduce transphobia and dehumanization. Experiential exercises, such as role-playing scenarios and encounters with trans people, can promote empathy and break down stereotypes. In addition, the integration of LGBTQ+ care topics into nursing curricula is essential, not only for information but also for the cultivation of cultural sensitivity. At the same time, collaboration with LGBTQ+ organizations can strengthen teaching and provide real-life examples of the complexity of these people's needs.

Conflict of interest

The authors declare no conflict of interest.

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