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ORIGINALES

Sexuality education: Different attitudes among incoming and outgoing Nursing undergraduates

Diferentes actitudes hacia la sexualidad entre estudiantes de Enfermería de primero y cuarto curso

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ABSTRACT:

Objective: To evaluate whether attitudes towards sexuality acquired by students during a Spanish nursing degree are sufficient for their performance in professional practice.

Methods: This is a descriptive, cross-sectional, and quantitative study based on a self-completion survey composed of standardized scales that compare sexual attitudes among 101 first-year students with 86 fourth-year students. The 187 nursing students, 24 men and 163 women were between 18 and 60 years old (M_{age}=21.21, SD=5.48). The evaluative instrument was an anonymous questionnaire that consisted of sociodemographic questions and two standardized scales: Attitudes Towards Sexuality Scale (ATSS-28) and Double Standard Scale (DSS).

Results: Comparison between cohorts using the Mann-Whitney U test proved to be close to being significant in the ATSS, U=3625.50, z=-1.95, p=.052 and significant in DSS, U=3560.50, z=-2.13, p=.034. These findings indicate that fourth-year students have more positive attitudes towards sexuality and less rigid adherence to gender roles. In addition, a medium negative correlation, r_s=-.307, p=.001, between ATSS and DSS was obtained, showing a positive association between attitudes and less adherence to gender roles. These results suggest that nursing degree training had a positive impact on sexual attitudes.

Conclusion: Healthcare professionals are centrally involved in the care of patients and families. Nurses' attitudes towards sexuality are important in terms of patient comfort and the accessibility and acceptability of care. Implementation of training in sexuality has a positive effect on nursing care and favours the establishment of global health strategies.

Descriptors: Attitude of Health Personnel; Education; Gender identity; Nurses; Sexuality.

RESUMEN:
Objetivo: Evaluar si las actitudes hacia la sexualidad adquiridas por los alumnos durante el Grado en Enfermería son suficientes para su desempeño profesional.
Métodos: Se trata de un estudio descriptivo y transversal basado en una encuesta compuesta por escalas estandarizadas que comparó las predisposiciones sexuales entre 101 alumnos de primer curso con 86 de cuarto. Los 187 estudiantes de enfermería, 24 hombres y 163 mujeres tenían entre 18 y 60 años (M_{edad}=21.21, *DT*=5.48). El instrumento utilizado para su evaluación fue un cuestionario anónimo que estaba constituido por preguntas sociodemográficas y las dos siguientes escalas, la Escala de Actitudes hacia la Sexualidad (ATSS-28) y la Escala de Doble Estándar (DSS).
Resultados: Los resultados obtenidos estuvieron cera de ser significativos por curso en la ATSS, *U*=3625.50, *z*=-1.95, *p*=.052 y significativos en la DSS, *U*=3560.50, *z*=-2.13, *p*=.034. Estos hallazgos indicaron que los alumnos de cuarto tuvieron actitudes más positivas hacia la sexualidad y una menor adherencia a los roles de género. Además, se obtuvo una correlación negativa moderada, r_s=-. 307, *p*=.001, entre la ATSS y la DSS que mostraba asociación entre las actitudes positivas y la menor adhesión a roles de género. Estos resultados sugieren que la formación enfermera tuvo un impacto positivo en sus actitudes.
Conclusión: La enfermería está involucrada de manera central en el cuidado de los pacientes y sus familias. Sus actitudes hacia la sexualidad son importantes en términos de comodidad del paciente, accesibilidad y aceptabilidad de su atención.

Palabras Clave: Actitud del Personal de Salud; Educación; Enfermeras y Enfermeros; Identidad de Género, Sexualidad.

INTRODUCTION

Sexuality is an inherent aspect of being human and includes gender identities, sexual orientation, affectivity, relationships, pleasure and reproduction [(1)]. Sexual development in humans is bound to life experiences and is exhibited through attitudes, behaviours, beliefs, roles and desires [(2)]. This development occurs continuously and is integrated during the different processes and stages of life, from birth until death. Thus, experience of sexuality will have a big influence on well-being and health [(3)]. According to the World Health Organization (WHO), sexual health is defined as: "*a state of physical, mental and social well-being in relation to sexuality, and sexual relations that need a respectful education and the search for pleasant sexual experiences, safe, free from coercion, discrimination, and violence*" [(4)]. This definition emphasises the fact that sexual health is more than the lack of illness; it is a complex construct formed by biological, psychological and sociocultural dimensions and influenced by economic, and historical factors [(1)].

With regards to sexual health, there are currently one million people in the world with poor well-being due to the spread of Sexually Transmitted Infections (STIs) [(4)]. The WHO has estimated that strategies carried out to prevent the spread of STIs are insufficient as there are one million people who acquire it every day. In addition, 376 million people are living with chlamydiosis, gonorrhoea, syphilis or trichomoniasis, 500 million people have the Herpes simplex virus, 290 millions of women are infected with Human Papillomavirus, and 38 million people live with the Human Immunodeficiency Virus (HIV) [(1,4,5)]. Furthermore, society cannot continue to allow vulnerable groups to continue to present the highest rates of STIs and lack access to health services. Therefore, WHO and UNESCO have responded jointly to this issue by directing their efforts towards the establishment of global research programs on sexual diseases [(6)]. Nevertheless, interventions to prevent the transmission of STIs are not enough, due to the complexity of human sexual behaviours [(5,6)]. To improve the effectiveness of health prevention and promotion, it is necessary to invest in health programs, research, education, and activities that provide efficient care worldwide, limiting

inequalities between countries[6]. Thus, the responsibility of preventive health campaigns and their strategies are principally in the hands of health and education professionals, but for reaching its significant change, social involvement of politics and government funding is needed [7].

The sexual health education must address, normalize and integrate the study of sexuality into the curriculum, without focusing solely on disease prevention [8]. This transformation is necessary to eliminate the regressive and prohibitive visions of sex education and especially female sexuality and sexual minorities [9]. In recent years, the provision of comprehensive sexuality education has become important as it is necessary to underline and incorporate aspects related to sexual attitudes and behaviours with gender, human rights values, and attachment [8,9]. For this reason, this training is designed to understand and to enhance the equality between sexual and gender diversity, to guarantee an interpersonal and social communication of tolerance, to respect the right of ethnic minorities, and to understand attachment relationships [3].

Nevertheless, educational interventions should focus on avoiding negative attitudes (erotophobias) towards sexuality and encouraging erotophilic attitudes [10,11]. In this way, progress will be made in reducing sexist prejudices and discrimination towards the LGTBIQ + community (Lesbian, Gay, Bisexual, Transgender, Intersex, Queer, and +, indicating the inclusion of a broader range of identities not represented in this abbreviation) [7]. Currently, the most scientifically supported teaching methodology is the present comprehensive sex education proposal, which is based on a biographical and professional model accepted worldwide as the reference for understanding human sexuality. This method includes comprehensive attention to the development of affective predispositions and knowing how to address people's sexual behaviours throughout life [12]. Consequently, health professionals should receive qualified training that includes this approach and contributes to generating a significant change in their understanding and in the acquisition of interdisciplinary competencies in this area [8].

Sexuality in the training of health professionals competencies

The education of health professionals should be approached from a curriculum that integrates, normalizes, understands and analyses sexuality and their sexual experiences and beliefs [13]. Outgoing university students and people with previous public health training show more positive attitudes and behaviours towards sexuality than the rest of undergraduate students. These findings are related to the idea of maturation of thoughts about sexuality and to further training [14]. The initial teacher training in schools and universities is insufficient in regard to the lack of integration of sexuality in their subjects [14,15]. The education that students have received from professors has focused mostly on the prevention of STIs [8]. Thus, it is essential to change this situation and compel teachers to receive quality training in this domain [15].

On one hand, previous investigations have stated that the way in which university students learn to approach sexuality is unequal, since both the curricula and teacher training are different depending on career choice[9]. Another major disadvantage is that university professors have expressed fear of students' reactions when addressing issues related to sexuality and prefer not to deal with them in the classroom, arguing that students have already been trained at lower educational levels. In addition, male teachers have a more negative and regressive sexual disposition, presenting greater erotophobic attitudes than female teachers. This difference in predispositions by sex is

related to conservationist preconceptions of adherence to male gender roles [14]. Curiously, the number of male professors is greater in universities than that of women. However, on the other hand, teachers state that they would be willing to participate in teaching sexuality if they received prior training, and if the institution is willing to support them if they follow the educational protocols that are established. Therefore, teacher training can contribute to generating a positive change that reduces attitudes and sexist behaviour at university [9-11].

Health professionals who are both trained and competent in teaching sexuality contribute to reducing risk behaviours and sexual prejudices, guaranteeing human sexual rights and respect for sexual minorities [13]. Consequently, comprehensive sexuality education should be incorporated into the curricula of nursing graduates with the intention of improving insufficient training in this specialty and creating interdisciplinary health teams that are capable of approaching and resolving dilemmas of a sexual nature [13]. The solution to improving professional nursing training in sexuality lies in an interdisciplinary education based on global care through active and scientific methodologies that ensure the development of a curriculum that is constantly updated to the current context [8,13].

Nonetheless, the competencies of a Spanish nursing degree analysed in this research comply with the quality principles of professions established nationally by International Council of Nursing and the transversal generic competencies of the Tuning Project [16,17]. The subjects covered in nursing degrees comply with the quality principles of the professions established in the National Agency for Quality Assessment and Accreditation of Spain (ANECA) and in other European international organizations through the Declaration of Bologna [16]. Despite this, these competencies relate to health education in general and do not explicitly mention sexual education. In this way, they do not enable students to acquire the skills that allow them to comprehensively address sexuality. The topic of sexuality in Spanish nursing degrees is divided into thematic blocks without explicitly addressing the intersecting connections that should exist between these constructs [15,18]. For example, in the assessed degree at Complutense University of Madrid, contraceptive methods are taught in maternal nursing, and sexual dispositions and behaviours are taught in sociology without any connection between them [14,18].

According to Dawson et al. and de Vries et al., there is not a sufficient comprehensive evaluation of sexuality in the nursing curriculum, and the authors highlight in particular the lack of competency assessments for the students and professors [13,15]. Furthermore, health and educational students consider these plans to be outdated, and they do not feel prepared to approach sexual diversity in their professional area[15]. Therefore, it is essential to train nurses that can contribute to a positive disciplinary change towards sexuality through their roles at work [1,13]. Moreover, there is an increasing demand in communities for solutions that can adapt to globalized healthcare to protect sexuality experiences worldwide [6].

The main objective of this study is to evaluate attitudes towards sexuality and adherence to sexual roles, comparing the predispositions manifested by the incoming and outgoing nursing students of the Nursing Degree. As secondary objective, this research also aims to assess whether attitudes differ by gender, age and other sociodemographic variables of interest analysed in the study. The hypotheses raised in this research were that the incoming and outgoing nursing students will similarly

suggest that they acquired insufficient improvement in their professional skills related to the approach to human sexuality. It is assumed that students, despite having received formal sex education in the prevention of STIs, will declare a high rate of risky sexual behaviours. Furthermore, it was hypothesized that women, students with previous training and older students such as outgoing students will have more positive attitudes towards sexuality and less adherence to gender roles than the rest of the participants. Finally, in relation to the previously analysed literature, it is assumed that positive or liberal attitudes towards sexuality will negatively correlate with the maintenance of a double sexual role.

METHODS

Study type and participants

A non-experimental quantitative study design of a cross-sectional and descriptive nature has been proposed, given the relevance of this modality to explore facts, circumstances or phenomena and examine the relationships between the factors. The sociodemographic variables are gender, age, cohort, and previous training, and the outcome variables were the results of the two scales and questions about risky sexual behaviours and sex education. To achieve the proposed objective, a comparative-correlational study has been carried out by using a questionnaire. A non-probabilistic incidental sampling was performed, which used the availability of nursing enrolled students. The sample is composed of 187 students, between 18 and 60 years (*M*=21.21, *SD*=5.48) enrolled in a nursing degree at the University Complutense of Madrid (UCM) during the 2017-2018 academic year. Undergraduates were recruited voluntarily to participate in the study through opportunistic sampling methods. Inclusion criteria in the research were that all students were incoming and outgoing nursing undergraduates at UCM, and exclusion criteria were those who did not want to participate and underage students.

Measuring tools

The primary interest of this study was to evaluate sex education, sexual risk behaviour, sex role adhesion, and negative and positive attitudes towards sexuality. Thus, the study instrument was divided into 3 sections: firstly, section A contained 6 self-elaborated questions about personal details such as age, gender, sexual orientation, university course, previous training and sexual education opinions and hours; secondly, section B contained the 2 aforementioned standardized scales, and lastly, section C contained 1 self-elaborated question about comments and suggestions. This questionnaire also contained a Consent Form.

The Spanish version of the Scale of Attitudes towards Sexuality (ATSS) of Fisher and Hall [19] used in this research was the validated and extended adaptation by Diéguez et al [20]. This scale is utilized to evaluate the degree of sexual liberalism and erotophilic and erotophobic attitudes towards sexuality through its 28 items. The responses are structured around a 5-point Likert scale (1=Strongly_disagree to 5=Strongly_agree). Items 1, 4, 5, 8, 9, 12, 14, 16, 17, 18, 21, 22, 27 and 28 were negatively phrased so their value needs to be inverted before analysis. The evaluation consists of assessing the ranges of the sum of the score of the items on the scale. The score varies from 28 to 140 points. Lower values indicate a lower degree of liberalism and more negative

attitudes towards sexuality. Fisher and Hall [19] obtained an acceptable Cronbach's Alpha: α=.76 for the range of 12 to 14 years. In our research a good reliability was obtained with an α=.81.

The Spanish version of the Double Standard Scale (DSS) of Caron, et al. [21] utilised in this research was the validated adaptation by Sierra, et al. [22]. This scale is used to evaluate attitudes towards the degree of adherence to the double sexual standard, through its 10 items. The responses are structured around a 5-point Likert scale (1=Strongly_disagree to 5=Strongly_agree). Item 8 is negatively phrased, so its value needs to be inverted before analysis. The evaluation consists of assessing the ranges of the sum of the score of the items on the scale which vary from 10 to 50 points. Higher values indicate a high adherence to the double sexual standard. Caron, et al. [21] obtained an acceptable Cronbach's Alpha of .72 in adults. In our study an acceptable reliability was obtained with an α=.71.

Data collection

This study was approved by the UCM ethics committee. All participants had to choose to participate voluntarily in the study by agreeing to the Consent Form. Data collection was conducted in Madrid, Spain in March and June (for incoming and outgoing undergraduates) of the year 2018. It was carried out in the University and the Hospital Clinic San Carlos (Madrid). Participants were gathered in classrooms and given written surveys to complete. The face to face survey was collected and completed in around 25 minutes per group. The questionnaires were administered by the researcher in person, in an online format and through collaborating researchers to determine scientific rigour. The procedure was divided into 3 parts: literature review, survey elaboration and piloting; survey administration; and result analysis.

Data analysis

Data were computerized and analysed through IBM SPSS 24. Quantitative variables were represented in mean and standard deviation (SD), and categorical variables in numbers and percentages. The data were explored prior to analysis to examine the normality of the sample characteristic data. A non-normal distribution in the mean scores of the scales was indicated by conducting the Kolmogorov-Smirnov test. This analysis showed for the ATSS, $D(187)=.140$, $p=.001$ and for the DSS, $D(187)=.084$, $p=.002$. Hence, the scales were analysed in comparison with the sociodemographic variables of our study using non-parametric statistics. Firstly, an independent samples Mann–Whitney U test was conducted in order to compare the mean ranks of the scale scores between two groups such as gender, cohort, and previous training. Lastly, Spearman's rank correlation coefficient was undertaken to determine if there was a statistically significant relationship between the scales' punctuation and age. Level of significance in the statistical inferences' analysis were based on p-values <.05.

RESULTS

Descriptive statistic

The profile of the participants in this sample will be described below in Table 1 according to gender, academic cohort, and previous training.

Table 1. Sample characteristics

Variables	Academic cohort (*n* and %)		*N*	*%*
	Incoming students	Outgoing students		
Gender				
Women	92 (91.08%)	71 (82.55%)	163	87.16
Men	9 (8.91%)	15 (17.44%)	24	12.83
Other training in higher education related to Health Science			10	5.34
Other higher education	14 (13.86%)	15 (17.44%)	29	15.50
Non-other higher education	87 (86.13%)	71 (82.55%)	158	84.49
Total	101 (54.01%)	86 (45.98%)	187	100

n=sample, %=percentage, *N*=population size

On one hand, in line with hypotheses 1, 95.2% of students consider that information received in this area has not been sufficient, with 92.5% of the undergraduates agreeing on the importance of receiving this training for their professional skills. Interestingly, the participants indicated that they have received more informal training in sexuality education that formal, with a high degree of similarity between cohorts. On the other hand, in line with hypothesis 2, undergraduate students presented high percentages in the lack of awareness in communication of risky sexual behaviours. 42% of students always used a condom in sexual intercourse, whereas 58% had had unprotected intercourse. Furthermore, only 5% of students had an STI test before having unprotected intercourse with their partners and 15% did a serological test when they had unprotected intercourse with a new partner. Table 2 below describes the sex education opinions and sexual communication behaviours of the nursing students by cohort.

Table 2. Sex Education and sexual risk behaviours in nursing students

Variables	Academic cohort (*n* and %)		*N*	*%*
	Incoming students	Outgoing students		
Sexual education received				
Formal sexual education	78 (77.22%)	70 (81.39%)	148	79.14
Non-sexual education	23 (22.77%)	16 (18.60%)	39	20.85
Formal sexual education received during their degree				
Students who though that they have received it	4 (3.96%)	7 (8.13%)	11	5.88
Students who though that they have not received it.	97 (96.03%)	79 (91.86%)	176	94.11
Quality of the sexual education received				
Student considered it extremely good	6 (5.94%)	3 (3.48%)	9	4.81
Students considered it very bad	95 (94.05%)	83 (96.51%)	178	95.18
Sexuality education helps to improve your professional skills				
Students considered it extremely helpful	89 (88.11%)	84 (97.67%)	173	92.51
Students considered it not at all helpful	12 (11.88%)	1 (1.16%)	13	6.95
Students who decided not to answer	0	1 (1.16%)	1	0.53
Participation in voluntary Sexual Education-promoting activities				
Student who were doing it	7 (6.93%)	6 (6.97%)	13	6.95
Students who were not doing it.	94 (93.06%)	80 (93.02%)	174	93.54

Formal sexuality education received from lecturer, health care professional or reading scientific literature about it.				
Students who though that they have received it	40 (39.60%)	25 (29.06%)	65	34.75
Students who though that they have not received it.	60 (59.4%)	61 (70.93%)	121	64.70
Students who decided not to answer	1 (0.99%)	0	1	0.53
Informal sexuality education from their family, friends or reading non-scientific literature on Internet.				
Students who though that they have received it	79 (78.21%)	65 (75.58%)	144	78.60
Students who though that they have not received it.	22 (21.78%)	21 (24.41%)	43	22.99
Confident to provide sexuality education to other people				
Extremely confident	27 (26.73%)	41 (47.67%)	68	36.36
Not at all confident	74 (73.26%)	45 (52.32%)	119	63.63
I use a condom as a contraceptive method when I have sexual intercourse with a new partner				
Always	37 (36.66%)	41 (47.67%)	78	41.71
Never	61 (60.39%)	38 (44.18%)	99	52.94
Decided not to answer	3 (2.97%)	7 (8.13%)	10	5.34
My partner and I have done a serologic test before having unprotected sexual intercourse.				
Always	3 (2.97%)	7 (8.13%)	10	5.34
Never	94 (93.06%)	72 (83.72%)	166	88.77
Decided not to answer	4 (3.96%)	7 (8.13%)	11	5.88
I have done a serologic test after I have had unprotected sexual intercourse with a new sexual partner				
Always	16 (15.84%)	12 (13.95%)	28	14.97
Never	82 (81.19%)	70 (81.39%)	152	81.28
Decided not to answer	3 (2.97%)	4 (4.65%)	7	3.74
Total	101 (54.01%)	86 (45.98%)	187	100

n=sample, %=percentage, *N*=population size

Finally, Table 3 details the descriptive results of the age variable and the scores of the ATSS and DSS, which includes the data of the sample divided into academic cohort (incoming and outgoing) and total.

Table 3. Descriptive statistic of the age and the scales.

Variables	**Academic cohort**										**Total sample**				
	Incoming students					Outgoing students					*N*	*Min*	*Max*	*M*	*SD*
	n	*Min*	*Max*	*M*	*SD*	*n*	*Min*	*Max*	*M*	*SD*					
Age	101	18	49	19.70	4.13	85	20	61	23.00	6.29	186	18	61	21.21	5.47
ATSS	101	48	147	112.94	13.77	86	72	134	116.59	10.86	187	48	147	114.62	12.61
DSS	101	10	35	18.42	5.82	86	10	28	16.48	4.76	187	10	35	17.53	5.44

n=sample, *Min*= minimum, *Max*=maximum, *M*=mean, *SD*=standard deviation, *N*=population size

Inferential statistics

Analysis of the ATSS by Fisher and Hall [19] was found close to being statistically significant between cohorts, in line with hypothesis 3. It was lower for incoming

undergraduates (M_{rank}=86.90, *Sum of Ranks*=8776.50, *n*=101) than outcoming undergraduates (M_{rank}=102.34, *Sum of Ranks*=8801.50, *n*=86), *U*=3625.50, z= -1.95, *p*=.052 (2-tailed). These rank differences showed more positive attitude towards sexuality in outgoing students. However, contrary to this hypothesis, gender and previous training did not predict the ATSS score (see Table 4). Furthermore, contradictory to this same hypothesis, positive rank correlation by age and ATSS scores, r_s = .035, *p*=.634 was not found.

Table 4. Mann–Whitney U test for ATSS by gender and other training

Variables	*Mean rank*	*Sum of the rank*	*Mann–Whitney U*	*Wilcoxon W*	*z*	*p*
Gender (*n*=187)						
Men (*n*=24)	88.94	2134.50	1834.50	2134.50	-.491	.623*
Women (*n*=163)	94.75	15443.50				
Other training (*n*=187						
Other training. (*n*=29)	94.47	2797.50	2219.50	14780.50	-.267	.789*
Non-other higher education (*n*=158)	93.55	14780.50				

However, in line with hypothesis 4, analysis of the DSS by Caron, et al.[20], found significance differences between cohorts. It was significantly higher for incoming undergraduates (M_{rank}=101.75, *Sum of Ranks*=10276.50, *n*=101) than outgoing undergraduates (M_{rank}=84.90, *Sum of Ranks*=7301.50, *n*=86), *U*=3560.50, z= -2.126, *p*=.034 (2-tailed). These rank differences showed less gender role adherence in the outgoing students. Nevertheless, contrary to this hypothesis, gender and previous training did not predict the DSS score (see Table 5). In addition, negative rank correlation by age and DSS scores was not found, r_s= -.054, *p*=.464.

Table 5. Mann–Whitney U test for DSS by gender and other training.

Variables	*Mean rank*	*Sum of the rank*	*Mann–Whitney U*	*Wilcoxon W*	*z*	*p*
Gender (*n*=187)						
Men (*n*=24)	97.23	2333.50	1878.50	15244.50	-.314	.754*
Women (*n*=163)	93.52	15244.50				
Other training. (*n*=187						
Other training. (*n*=29)	96.86	2809.00	2208.00	14769.00	-.310	.756*
Non-other higher education (*n*=158)	93.47	14769.00				

Finally, in line with hypotheses 5, a medium negative correlation was discovered between the ranks of the ATSS and the DSS scores, r_s= -.307, *p*=.001. This finding indicates that less adherence to gender roles (DSS) is related with higher erotophilic and sexual liberalistic attitudes towards sexuality.

DISCUSSION

This research was carried out to evaluate sexuality education received, risky sexual behaviours, general attitudes towards sexuality and adherence to sexual roles in nursing students, comparing the opinions, predispositions and conducts of first and last year university students. The findings have reached the objectives and support the

hypotheses, although no significant differences by gender and other previous training were found.

77% of nurse students disclosed that their sexual education training has been mostly transmitted in an informal and non-scientific way (family, friends, or internet). Therefore, this hidden education is contributing to the maintenance of heteronormative and heteropatriarchy norms, myths and false beliefs that are not supported by scientific evidence [3]. The majority of formal training is taught educationally from a biological model, without understanding the social and psychology implications [15]. To solve this problem, it is necessary to legislate the contents and competences in the Nursing study plans and thus contribute to the nursing teachers modify their teaching guides and avoid the transmission of a curriculum that is not adapted to the current problems [13]. The sexuality training of nurse students allows them to become useful, critical and healthy citizens. This education will also prepare these healthcare professionals to manage health promotion addressing sexuality from a comprehensive psycho-affective and psychosexual approach [2].

In this research, only 7% of the students were involved in sexuality educational activities, so they are an unrepresentative percentage of the sample. However, participants who engaged the most in these activities had higher negative attitudes towards sexuality than other students on average. In addition, corresponding with age and professional training factors, fourth-year students considered themselves to be more capable of educating the population on sexuality than first-year students [11]. Nonetheless, the percentage of students who had acquired healthy sexual behaviours through their own experiences and knowledge were well below the average and in some cases less than 10%, demonstrating high sexual risk behaviour despite their health knowledge. This implies that the training in the biological sexual module has not generated a significant change in healthy conducts towards sexuality or avoiding sexual risk behaviours [15], with hardly any differences by course.

Attitudes and beliefs towards sexual liberalism in this research were obtained by analysing the ATSS by Fisher and Hall [19]. Students presented an average score of 114.72 which indicates positive values towards liberalism and sexual attitudes. In line with hypothesis 3, a significant difference in the ATSS scores was found, reflecting a lower degree of liberalism and greater negative attitudes towards sexuality in first-year students compared to fourth-year students, but no differences in other training levels were obtained. When comparing this research with Díaz et al. [23], their findings in the ATSS indicated more negative attitudes towards sexuality in a sample of disabled and non-disabled adults (M=86.49, SD=16.97, n=729) aged between 19 to 55 years than the ones obtained in our study, yet it is recognized worldwide that age and sociocultural factors have a big impact upon sexual predisposition. Gómez-Zapiain et al. [9] claim that age influences sexual behaviours and attitudes and decreases sexual stereotypes. However, previous research in undergraduate students of a similar age by Diéguez, et al. [24] (M=111,7, SD=11,82, n=5614), with an age average of 20.7 years and a higher percentage of women (59.3%) and Diéguez, et al. [20] (M=111.64, SD=12.63, n=2006) with participants aged between 17 to 52 years old, also obtained an average score lower than in our study. In addition, Diéguez, et al. [20] did not find any significant differences by gender and obtained a more positive difference between outgoing and incoming undergraduates than in our study with participants of similar age ranges.

According to hypothesis 4, significant differences in the DSS scores per cohort were found reflecting a higher sexual role adherence in first-year students compared to fourth-year students, but no differences were found between gender and other training levels. However, in the studies of Caron et al. [21] conducted in incoming undergraduate students (*M*=19.1, S*D*=5.3, *n*=330), and Sierra et al.[22] carried out among Spanish university students (*M*=17.9, *SD*=5.6, *n*=400), men had a more negative adherence towards sexual roles than women. In addition, Sierra and Gutiérrez [25] also found a higher adherence to sexual roles in men university students (*M*=20.69*, SD*=6.53*, n*=192*)* than in women (*M*=16.15*, SD*=5.7*, n*=223*)*, with an age range of 16 to 46 years. These findings show that student women nurses in our sample (*M*=17.5, *SD*=5.5, *n*=163) have more adherence to sexual roles than in this study. Nevertheless, our study found a lower total mean average and mean score in the DSS than the rest of the studies.

The attitudinal differences obtained between first and fourth grade students are small in the DSS and not significant in the ATSS. Hence, these positive results in predisposition could be supported in the sexual maturation of individuals and in the creation of more egalitarian societies based on respect for human rights helps to reduce sexual stereotypes and gender roles [26,27]. Education provided in nursing degrees must actively contribute to generating a significant change in attitudes towards sexuality, due to these students' future roles as formal and informal health educators [28].

Study strengths were that the research followed scientific evidence and protocols to measure sexuality in a quantitative approach, increasing the information of these standardized scales. This research contributes to the understanding that attitudes towards sexuality are linked to training, personal interest and high conditioning by socialization [29]. However, it should be considered that the changes produced towards sexual behaviours may be also associated with sexual maturity and the equality law implemented by governments [30]. On the other hand, despite having significant training in sexual diseases, this is where more negative behaviours towards sexuality were found, because the practise of the students is focused on biomedical methods which fail to connect sexuality with affectivity and socialization [29,30].

The study limitations lie in the small sample size and the lack of gender homogeneity between men and women. However, these differences can be due to the bias that exists in health professions with more females, who have more positive attitudes towards sexuality. In addition, this study focused on assessing heterosexual sexuality without including the perspectives of sexual minorities, giving a limited result in terms of the variety of human sexuality approaches. In future studies, the sample should be expanded to different universities with different educational contexts (small and/or large populations) and variables (socioeconomic status, sexual orientation, and political ideologies), and use longitudinal studies to contrast with the results obtained in this research. The ATSS result should also be subject to further research, due to obtaining a finding that it is close to being significant. In addition, it would be useful to combine quantitative and qualitative approaches to examine attitudes towards sexuality in further detail, in order to effectively propose global interventions to change negative attitudes and behaviour. Finally, educational programs or strategies given by nurses should be carried out to contribute to the improvement of the population's sex education from a holistic perspective that does not focus solely on a biomedical model.

CONCLUSION

The incoming and outgoing undergraduates presented similar risky sexual behaviours, and the small attitudinal differences between these educational levels could be more related to sociodemographic and cultural variables than to the competences acquired in the Nursing Degree, requiring further research. The students' education was focused on the biological model that does not allow students to acquire these competencies using integrative methods and continues to maintain the established sociocultural norms. The students' sexuality training is deficient, informal and based on biomedical approaches. It can be considered to be insufficient because when analysing their communicative risk behaviour, it is clear that they have not acquired a healthy conduct towards this. Educational remodelling is required to improve attitudes towards sexuality and contribute to generating equal gender roles. Professional nurse training must include sexuality training from a holistic perspective to improve the nurses' professional careers. Nevertheless, sex education programs must be taught at early educational ages to promote co-education and the acquisition of healthy sexual behaviours, including gender, social equality and erotophilic behaviours and preventing STIs, mental health problems, and other risky sexual behaviour. To conclude, it is necessary to regulate the university curriculum to train qualified professionals in sex education and nursing should not be left behind in this new initiative. The degree offers holistic training of the human being, quality scientific research, and its different specialities endorse nurses as fundamental professionals for the construction of health education. Nursing professionals must have the opportunity to co-ordinate interdisciplinary teams and influence current policies, to ensure there is an egalitarian and effective healthcare system.

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