RESEARCH ARTICLE

Attitudes Toward Caring for People Living with HIV/AIDS: A Cross-Sectional Study of Nursing Faculty in Six Countries

Juan. M. Leyva-Moral1,2,3, Karen A. Dominguez-Cancino3,4,5, Joan E. Edwards6, David Moriña-Soler7, Sandra K. Cesario6, Genesis M. Guevara-Vasquez3,8,9, Maria Feijoo-Cid2 and Patrick A. Palmieri1,3,8,10,*

1Grup de Recerca Infermera en Vulnerabilitat i Salut, Universitat Autònoma de Barcelona, Barcelona, Spain
2Department d'Infermeria, Universitat Autònoma de Barcelona, Barcelona, Spain
3Evidence-Based Health Care South America: A Joanna Briggs Institute Affiliated Group, Lima, Perú
4Escuela de Enfermería, Universidad Científica del Sur, Lima, Perú
5Escuela de Salud Pública, Universidad de Chile, Santiago, Chile
6Center for Global Nursing, Texas Woman’s University, Houston, United States
7Departament de Matemàtiques, Universitat Autònoma de Barcelona, Barcelona, Spain
8Vicerrectorado de Investigación, Universidad Norbert Wiener, Lima, Perú
9Dirección de Investigación, Hospital Regional Lambayeque, Chiclayo, Perú
10College of Graduate Health Studies, A. T. Still University, Kirksville, United States

Abstract:

Background:
Since the earliest study about nursing faculty and student attitudes about caring for people living with HIV/AIDS (PLHIV) in 1992, there have been less than 20 additional studies reported in the literature. Yet, PLHIV continues to report stigma and experience discrimination. Nursing faculty attitudes are part of the informal curriculum. Negativity about caring for PLHIV can adversely impact student perceptions as well as their care. Current research in this area is essentially non-existent.

Objective:
To describe the attitudes of the university nursing faculty toward caring for PLHIV; and to identify the relationship between faculty attitudes and explanatory factors such as age, education, religion, nationality, teaching in a clinical setting, years of experience, and university attributes.

Methods:
This was a multicenter cross-sectional study with nonrandomized electronic purposeful sampling. The Healthcare Provider HIV/AIDS Stigma Scale (HPASS) is a 30-item scale with three subscales: Prejudice, stereotype, and discrimination. The English and Spanish versions of the HPASS exhibit stable psychometric properties for cross-cultural research. The HPASS was delivered to university nursing faculty in six countries across three continents.

Results:
A sample of 368 nursing faculty completed the HPASS. The mean composite score was 2.41 (SD = 0.69), six-point scale with lower scores indicating more positive attitudes, with subscale scores: Stereotypes 2.55 (SD = 0.84), discrimination 2.28 (SD = 0.74), and prejudices 2.41 (SD = 0.63). Peruvian faculty had the highest scores while Canadian had the lowest. Significant correlations were observed between attitudes and the three subscales, and between the three subscales and the composite score.

Conclusion:
Attitudes of the nursing faculty toward caring for PLHIV were slightly positive to slightly negative depending on the region and country. Knowledge deficiencies about HIV persist, incorrect beliefs are common, and attitudes appear to be influenced by culture. The correlation between subscales justifies continued research to implement targeted interventions. Education about HIV/AIDS can address knowledge deficits while structured interactions with PLHIV can facilitate experiential learning.

Keywords: Acquired Immunodeficiency Syndrome, HIV Infections, Faculty, Nursing, Social Stigma, Social Discrimination, Prejudice, Healthcare Provider HIV/AIDS Stigma Scale, HPASS.
1. INTRODUCTION

Nearly 40-years have passed since the first cases of acquired immune deficiency syndrome (AIDS) were reported [1] and the human immunodeficiency virus (HIV) was isolated as the causative agent [2]. Advancements in clinical management strategies, including new pharmaceuticals, have shifted the associated AIDS from an acute and lethal illness to a chronic but manageable condition. However, reductions in prejudices, stereotypes, and discrimination have not paralleled clinical improvements. As a result, people living with HIV/AIDS (PLHIV) continue to experience substantial stigmatization and overt discrimination [3, 4].

Immediately following the discovery of HIV/AIDS, the media reported negative reactions among health professionals as they avoided caring for PLHIV, fearing the contagion [5, 6]. Although evidence suggests there has been a steady decline in discriminatory behaviors fears about contracting HIV continue to linger in nursing faculty [7 - 9], especially when patients are homosexual or intravenous drug users [10, 11]. There were positive correlations between negative attitudes toward caring for PLHIV and age, homophobia, having children [12], and religion and race [7]. However, positive nursing attitudes are necessary for respectful, compassionate, and understanding care [13].

1.1. HIV Stigma Framework

The HIV Stigma Framework [14] explains how PLHIV encounter stigmatizing situations resulting from prejudices, stereotypes, and discrimination [15]. Stigma exists as a social structure with interpersonal processes that reduces the social value and the standing of people [16] due to their HIV positive status [17]. Prejudices are the negative attitudes toward a group or members of a group [18], whereas stereotypes are the general social beliefs that are then uniformly applied to all members [19]. Discrimination, however, goes beyond mere attitudes with negative behaviors directed at members of a group, or results in less positive behaviors targeted to a specific group member with similar situations as other members [20]. With persistent stigmatizing experiences, PLHIV are vulnerable to emotional, cognitive, and behavioral damage [17]. Although health care institutions should be safe environments for PLHIV [21], most health care professionals are often unaware of their stigmatizing attitudes and behaviors [22, 23].

1.2. Nursing Students

Nursing students are not exempt from the fear of contagion as negative attitudes about caring for PLHIV persist, including refusing to administer basic care such as hygiene, shaving, and feeding in Turkey [24 - 27]. However, in Germany, Lohrmann et al. [28] reported positive attitudes among nursing students, especially among those who had previous contact with someone living with HIV/AIDS. Yet, most of the available evidence about the attitudes of student nurses in caring for PLHIV is old, possibly not reflecting the contemporary reality.

Since the earliest study about nursing faculty and student attitudes regarding caring for PLHIV [29], there have been less than 20 additional studies related to students and/or faculty reported in the literature (PubMed search strategy: ((((((nurse) OR nursing) AND faculty) OR professor) OR instructor)) AND (((HIV) OR AIDS) OR HIV/AIDS)) AND (((attitude) OR perception) OR perspective) OR belief)) AND (((stigma) OR discrimination) OR stereotyping) OR prejudice). In addition, a few recent studies, cross-sectional with small samples, are contradictory. For example, Suominen et al. [30] found discriminatory attitudes among nursing students in Russia, while Leyva-Moral et al. [31], reported positive attitudes among two cohorts of nursing students in Spain. Larger multinational comparative studies are necessary to better understand the current situation across countries and different cultures.

1.3. Nursing Faculty

The attitudes of the university nursing faculty, or nursing faculty, are important as they can become part of the informal or ‘occult curriculum’ [11, 32, 33]; that is, there can be implicit learning impregnated with personal values [34, 35]. Positive results about working with PLHIV have been reported among university faculty in general [36]; most positive in education [37] and dentistry faculty [38]. Leyva-Moral et al. [31] found that 79.8% of nursing faculty at a school in Spain indicated positive attitudes, especially among those who did not profess a religion. The results come from studies with small local samples using validated, though outdated, instruments. Evidence about the attitudes of nursing faculty is essentially non-existent.

1.4. Objective

The purpose of this study was to understand the attitudes of the nursing faculty toward caring for PLHIV and to identify the relationship between attitudes and potential explanatory factors including age, education, religion, nationality, teaching in a clinical setting, years of experience, and university attributes.

2. MATERIALS AND METHODS

2.1. Study Design

This was an international multicenter cross-sectional study with a nonrandomized purposeful sample.

2.2. Setting and Participants

The schools of nursing from 30 universities were invited to participate from three targeted regions: North America, South America, Europe (Spain and England). Universities were chosen for ease of access to develop a diverse sample with English and Spanish speaking countries. About half the universities agreed to participate (2 Canada, 1 Colombia, 3 Peru, 8 Spain, 1 United Kingdom, 1 United States). The deans and department directors from each university shared the study...
information with their nursing faculty by email with a direct link to the anonymous questionnaire.

2.3. Data Collection

Data were collected with a digital version of the Healthcare Provider HIV/AIDS Stigma Scale, or HPASS [39] from September 2016 to July 2017. The HPASS is a 30-item valid and reliable scale with three subscales: Prejudice, stereotype, and discrimination. The internal consistency and test-retest reliability for the overall scale (Cronbach’s alpha between 0.88 and 0.94), and the three individual subscales (Cronbach’s alpha between 0.80 and 0.93) are excellent [39, 40]. Furthermore, in a cross-cultural scale translation study of Chinese and Canadian medical students, the content validity index average was 0.88, while the ICC was 0.87 [40]. As the instrument incorporates a six-point Likert scale, ranging from complete disagreement (1) to complete agreement (6) (the lower the score, the more positive attitude) in response to statements about attitudes and beliefs regarding PLHIV, ambiguous midline responses are eliminated [39]. A Spanish version, or HPASS-ESP [41], was produced for Peru, Colombia, and Spain using forward and reverse translation, with expert assessment and correction for context, content, and culture [42]. - see the supplemental file for the complete HPASS-ESP instrument. The assessment was completed by 12 nursing faculty in three different Spanish-speaking countries. In addition to the HPASS, sociodemographic data were collected.

2.4. Ethical Considerations

Before being able to complete the digital questionnaire, each nursing faculty was required to review the introductory information about the study, including detailed information about the research team, aim of the study, time for completion, and risks and benefits. As such, the nursing faculty were able to make an informed decision prior to agreeing to participate by entering the questionnaire. Participation was voluntary, anonymous, and without compensation for participating. Physical data and records, although without identifying information, were maintained in a safe locked file accessible only to the research team while digital data was secured through password protected programs on a secure server. The study was approved by the university institutional review board (Protocol #19213).

2.5. Data Analysis

Descriptive information for all explanatory and response variables are provided as n (%) or mean (standard deviation). The association of the explanatory variables and outcomes (composite score and subscale scores) was determined through linear modeling [43]. The models included the subscale scores, the composite score as a response variable, and the explanatory variables. The factors significantly associated with the outcome, the direction of the association, and the strength of the relationship emerged from the modeling. Also, a sensitivity analysis was completed, accounting for potential clustering across the six countries [44, 45]. Finally, a correlation analysis was completed to measure the direction and strength of potential associations across the three considered subscales (Altman, 1991). All analyses were conducted using R version 3.4.1 [46] and Stata 14.0 [47]. The study is reported according to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology), following the minimum requirements for reporting cross-sectional studies [48].

3. RESULTS

A total of 368 nursing faculty from Canada, Colombia, Peru, Spain, United States, and United Kingdom responded to the HPASS questionnaire. The mean age of the participants was 47.5 years (SD = 11.0) and the majority self-identified as female (280; 76.1%). Nursing faculty reported an average teaching experience of 13.2 years (SD = 10.8); most with completed postgraduate studies (36.5% held a doctoral degree and 45.3% had a master’s degree). Participants primarily taught at the undergraduate level (256; 70.9%). For the most part, the participants self-identified as Catholic (190; 54.0%), and nearly half indicated religion was either ‘important’ or ‘very important’ in their lives (174; 47.8%). An additional 25.3% (89) of the participants self-identified as agnostic/ atheists (Table 1).

Table 1. Participant Descriptive Data (mean and standard deviation).

| Socioeconomic Information (mean/SD) | n (%) | N |
|------------------------------------|-------|---|
| Gender                             |       |   |
| Male                               | 88 (23.90) | 368 |
| Female                             | 280 (76.10) |   |
| Age                                | 47.5 (11.00) | 362 |
| Religion                           |       | 352 |
| Catholic                           | 190 (54.00) |   |
| Agnostic/Atheist                   | 89 (25.30) |   |
| Other                              | 73 (20.73) |   |
| Importance of Religion             |       | 364 |
| Very important                     | 98 (26.90) |   |
| Important                          | 76 (20.90) |   |
| Somewhat important                 | 51 (14.00) |   |
| Not important                      | 46 (12.60) |   |
| Not important at all               | 80 (22.00) |   |
I prefer not to answer

| Highest Academic Degree Achieved | 13 (3.57) |
|----------------------------------|-----------|
| Doctoral                         | 133 (36.50)|
| Master                           | 165 (45.30)|
| Nurse Specialist                 | 29 (7.97) |
| Advanced Practitioner            | 5 (1.37)  |
| Registered Nurse                 | 27 (7.42) |
| I prefer not to answer           | 5 (1.37)  |

| Working as Clinical and Faculty  | 366       |
|----------------------------------|-----------|
| Yes                              | 180 (49.2)|
| No                               | 182 (49.7)|
| I prefer not to answer           | 4 (1.09)  |

| Teaching Level                   | 361       |
|----------------------------------|-----------|
| Doctoral                         | 17 (4.71) |
| Master                           | 24 (6.65) |
| Undergraduate                    | 256 (70.90)|
| Both                             | 60 (16.60)|
| I prefer not to answer           | 4 (1.11)  |

| Teaching Experience, Years (mean/SD) | 323       |
|--------------------------------------|-----------|
| USA                                  | 65 (18.10)|
| Colombia                             | 44 (12.20)|
| Spain                                | 145 (40.30)|
| UK                                   | 22 (6.110)|
| Peru                                 | 63 (17.50)|
| Canada                               | 21 (5.830)|

| Type of University                  | 360       |
|--------------------------------------|-----------|
| Private                              | 229 (63.60)|
| Public                               | 131 (36.40)|

| HPASS composite score               | 339       |
|-------------------------------------|-----------|
| USA                                 | 2.41 (0.69)|
| Colombia                            | 2.44 (0.64)|
| Spain                               | 2.28 (0.57)|
| UK                                  | 2.03 (0.63)|
| Perú                                | 3.05 (0.68)|
| Canada                              | 1.83 (0.43)|

| Stereotyping subscale score         | 339       |
|-------------------------------------|-----------|
| USA                                 | 2.55 (0.84)|
| Colombia                            | 2.35 (0.74)|
| Spain                               | 2.14 (0.64)|
| UK                                  | 1.88 (0.63)|
| Perú                                | 2.91 (0.82)|
| Canada                              | 1.70 (0.37)|

| Discrimination subscale score       | 337       |
|-------------------------------------|-----------|
| USA                                 | 2.28 (0.74)|
| Colombia                            | 2.51 (0.68)|
| Spain                               | 2.32 (0.52)|
| UK                                  | 2.10 (0.62)|
| Perú                                | 2.81 (0.68)|
| Canada                              | 1.96 (0.21)|

| Prejudice subscale score            | 338       |
|-------------------------------------|-----------|
| USA                                 | 2.43 (0.64)|
| Colombia                            | 2.51 (0.68)|
| Spain                               | 2.32 (0.52)|
| UK                                  | 2.10 (0.62)|
| Perú                                | 2.81 (0.68)|
| Canada                              | 1.96 (0.21)|

Table 2. HPASS composite score and subscale scores (means and standard deviations).

Overall, the HPASS responses resulted in a mean composite score of 2.41 (SD = 0.69). The subscale mean scores were 2.55 (SD = 0.84) for stereotypes, 2.28 (SD = 0.74) for discrimination, and 2.41 (SD = 0.63) for prejudices (Table 2). By country, the highest mean composite and subscale scores were observed among Peruvian nursing faculty and the lowest among Canadian faculty.

Linear analysis indicates for all faculty from all the universities, except for Colombia and Peru, the composite scores and subscales were lower to the reference university (USA) (Table 2). Canadian nursing faculty showed statistical significance in both the total HPASS (p=0.002) and the three subscales (prejudice p = 0.009; discrimination p = 0.006; stereotypes p = 0.007). The Peruvian nursing faculty scores were significantly higher in both the total HPASS (p=0.001) and its 3 subscales (prejudice p = 0.006; discrimination p = 0.001; stereotypes p = 0.001) (Table 3).

The results of the total HPASS were significantly higher in public universities (p = 0.038) as opposed to private universities. As for the prejudice subscale, significantly lower scores were observed in the participants self-identifying as advanced nurse practitioners (p = 0.032). In public
Table 3. Explanatory variables associated with each subscale and the HPASS composite score.

|                | HPASS | PREJUDICES | DISCRIMINATION | STEREOTYPES |
|----------------|-------|------------|----------------|-------------|
|                | Estimate (Std. error) | p-value | Estimate (Std. error) | p-value | Estimate (Std. error) | p-value | Estimate (Std. error) | p-value |
| Age            |        |            |                |            |
| Doctoral       | 0.01 (0.01) | 0.094 | 0 (0) | 0.44 | 0.01 (0.01) | 0.095 | 0.01 (0.01) | 0.123 |
| Master         | 0.21 (0.17) | 0.212 | 0.11 (0.16) | 0.504 | 0.19 (0.18) | 0.303 | 0.28 (0.21) | 0.186 |
| Nurse Specialist | -0.05 (0.43) | 0.913 | 0.26 (0.42) | 0.528 | -0.02 (0.48) | 0.964 | -0.25 (0.55) | 0.647 |
| Advanced Practitioner | -0.18 (0.15) | 0.243 | -0.32 (0.15) | 0.032 | -0.23 (0.17) | 0.178 | -0.05 (0.2) | 0.797 |
| RN             | 0.94 (0.62) | 0.127 | 0.91 (0.59) | 0.126 | 1.24 (0.68) | 0.072 | 0.61 (0.78) | 0.436 |
| Religion       |        |            |                |            |
| Religious      | -0.08 (0.13) | 0.515 | 0.06 (0.12) | 0.654 | -0.16 (0.14) | 0.28 | -0.07 (0.16) | 0.647 |
| Somewhat       |        |            |                |            |
| Important      | -0.03 (0.11) | 0.8 | 0.09 (0.11) | 0.401 | -0.01 (0.12) | 0.948 | -0.12 (0.14) | 0.41 |
| Not important  | -0.16 (0.14) | 0.249 | 0.08 (0.14) | 0.581 | -0.21 (0.16) | 0.193 | -0.24 (0.18) | 0.173 |
| Not important at all | -0.43 (0.16) | 0.009 | -0.1 (0.15) | 0.502 | -0.44 (0.18) | 0.015 | -0.58 (0.2) | 0.004 |
| Country        |        |            |                |            |
| Colombia       | -0.01 (0.16) | 0.962 | 0.05 (0.15) | 0.76 | 0.04 (0.17) | 0.835 | -0.08 (0.2) | 0.688 |
| Spain          | -0.31 (0.21) | 0.133 | -0.28 (0.2) | 0.168 | -0.29 (0.23) | 0.208 | -0.36 (0.26) | 0.176 |
| UK             | -0.32 (0.19) | 0.098 | -0.27 (0.19) | 0.148 | -0.37 (0.22) | 0.097 | -0.3 (0.24) | 0.214 |
| Peru           | 0.57 (0.14) | 0.001 | 0.38 (0.14) | 0.006 | 0.56 (0.16) | 0.001 | 0.7 (0.18) | 0.001 |
| Canada         | -0.36 (0.18) | 0.002 | -0.46 (0.17) | 0.009 | -0.56 (0.2) | 0.006 | -0.62 (0.23) | 0.007 |
| Clinical setting |        |            |                |            |
| No             | 0 (0.09) | 0.967 | 0.14 (0.09) | 0.104 | -0.03 (0.1) | 0.791 | -0.04 (0.11) | 0.735 |
| Yes            | 0 (0.01) | 0.646 | 0 (0.01) | 0.983 | 0.01 (0.01) | 0.246 | 0 (0.01) | 0.86 |
| University funding | 0.4 (0.19) | 0.038 | 0.36 (0.18) | 0.049 | 0.39 (0.21) | 0.064 | 0.42 (0.24) | 0.078 |

* Independent linear model for each subscale and composite score.

Table 4. Correlation analysis between the HPASS subscales and the composite score.

| Scales and Composite | r      | p-value   |
|----------------------|--------|-----------|
| Stereotype & Discrimination | 0.77  | < 0.0001  |
| Stereotype & Prejudice | 0.59  | < 0.0001  |
| Discrimination & Prejudice | 0.70  | < 0.0001  |
| Total HPASS & Stereotype | 0.92  | < 0.0001  |
| Total HPASS & Prejudice | 0.77  | < 0.0001  |
| Total HPASS & Discrimination | 0.94  | < 0.0001  |

Universities, for the same subscale, significantly higher scores were observed (p = 0.045). In the “discrimination” subscale, significantly higher scores were observed among the registered nurses (p = 0.034). Finally, in the “stereotypes” subscale, significantly higher scores were observed among faculty holding a doctoral degree (p = 0.041). There were no statistically significant findings related to the other variables (Table 3).

Correlational analysis showed a statistically significant association (p < 0.001) between the three different subscales and between the scores of the subscales and the HPASS composite score (Table 4). Results from the sensitivity analysis, considering potential clustering across the six countries, did not differ from those obtained through other analyses.

4. DISCUSSION

Generally, the attitudes of the nursing faculty towards caring for PLHIV are slightly to solidly positive; however, there are notable differences between countries. In addition, there are specific areas for improvement in each country. Apart from Peru, the results are consistent with the findings reported in the few but recent investigations. For example, Leyva et al. [31] in a cross-section study with a small local nursing faculty sample, reported positive attitudes improving over time. Their study also revealed the persistent presence of false myths and the lack of knowledge about HIV/AIDS. Significantly better, more favorable, attitudes were identified among nursing faculty
who reported having no religious beliefs. Furthermore, in a science faculty study in three universities in Venezuela, Méndez et al. [37] determined the skills and knowledge specific to PLHIV were unfavorable, the latter being significantly associated with older age (p<0.005). Attitudes toward PLHIV were favorable, although no significant differences were found in sociodemographic variables.

4.1. Attitudes and Behaviors

Positive attitudes are related to increased caring behaviors [49, 50]. Nursing education has long played an important role in the development of caring attitudes [51], the acquisition of knowledge [52], and the advancement of caring behaviors [53]. According to Watson [54], for nurses caring is “the moral ideal of nursing whereby the end is protection, enhancement, and preservation of human dignity” (p. 29). However, negative nursing faculty attitudes towards caring for PLHIV can adversely impact the attitudes of students and the care they provide. The impact of nursing faculty attitude can be partly explained in relation to their comfort teaching content about specific populations. For example, Sirota [11] described “a long skew toward negative attitudes” (p. 222). For more than half of the nursing faculty (n=733) regarding homosexuality. In this study, less than 30% of the faculty reported they were prepared to teach students about homosexuality with almost 90% indicating a “sense of ignorance about what content to teach and how to teach it” (p. 225). The implication is nursing faculty are not comfortable teaching what they do not understand.

4.2. Graduate Education and Advance Practice

The data from this study indicate that nursing faculty working as advanced practice nurses, or nurse practitioners, have the lowest “prejudice” subscale of all participants. Likewise, nursing faculty working as non-advanced practice registered nurses, including those with doctoral degrees, had the lowest subscale scores for “discrimination” and “stereotypes”. Continuing education and professional development can impact the acquisition of knowledge and result in positive changes in attitudes. For example, Farley et al. [55] reported better, more favorable attitudes of caring for HIV-infected pregnant women among certified nurse practitioners as compared to registered nurses in a sample of 121 health care workers in the United States. However, significant differences were only found for the subscale about childcare (p=0.001). This finding can be explained by the advanced clinical education and the daily contact they have with PLHIV in clinical practice. Furthermore, Hamama et al. [56] reported a positive correlation with empathetic attitudes (r = 0.36, P <0.001) and negative significant correlation with avoidant attitudes (r = -0.34, P <0.001) among the nurses working in specialized HIV/AIDS clinics in Russia, compared with those only working in general clinics. Daily work interactions between providers and PLHIV seem to result in more positive caring attitudes.

4.3. South America, Culture, and Context

In Peru, nursing faculty HPASS scores were higher than the other countries, including neighboring Colombia with the second highest scores. This may be due, among other reasons, to the high HIV-related stigma that exists in Latin America [57] and to the marked discrimination experienced by lesbian, gay, transgender, and bisexual people, or LGBT community [58]. In Latin America, there is a close relationship between machismo and the meanings associated with sexuality, and therefore to sexually transmitted infections such as HIV [59, 60]. In the Latino community, ideas about machismo contribute to discrimination against women and gay men and enhance homophobia and sexual coercion [61]. The higher scores might be associated with the machismo prevailing in Peruvian society, including the health sector [62, 63], and therefore the discrimination experienced by the collective LGTB. Other investigations have found differences associated with religion [7, 31, 64], not being the case in this study. These differences could be due to reasons of sampling and variability of socioeconomic-cultural contexts in which participants share cultural meanings associated with sexuality and HIV but not with religious affiliation.

4.4. Faculty and Student Caring Behaviors

Nursing faculty caring behaviors can positively influence the caring behavior of students [65]. When nursing faculty exhibit positive attitudes and role model caring behaviors toward PLHIV, nursing students will manifest the same caring attitude and behaviors. Developing professional education for nursing faculty about caring for PLHIV is an essential strategy to advance positive and caring attitudes. According to Camillo et al. [66], nursing faculty need to develop critical and constructive approaches to teaching students about HIV/AIDS, including sharing personal experiences from PLHIV in classroom presentations and discussions. In this regard, Feijoo-Cid et al. [67] concluded that the expert patient illness narrative is an effective teaching method, resulting in a high level of satisfaction among undergraduate nursing students. This method has shown satisfactory results in developing cultural sensitivity, respect, and trust in others [68].

4.5. Mentoring and Education

In a setting external to the classroom with experienced HIV nurses and PLHIV as mentors, Worthington et al. [69] reported rural Canadian nurses clinically managed HIV care and provided person-centered care to PLHIV. Through qualitative interviews, the participants reported positive changes in terms of knowledge, attitudes, and practices. Similarly, including PLHIV as simulated patients for teaching pretest and posttest HIV counselling in medical students reduced HIV-related stigma and increased comfort with providing HIV-related care [70]. In other educational settings, a population of Iranian schoolteachers (n=1,838), Hoseinpour et al. [71], reported educating teachers about general HIV/AIDS concepts resulted in a statistically significant improvements in attitudes about PLHIV. Similarly, Lohmann et al. [72] reported Belizian faculty from other academic settings were significantly more comfortable with PLHIV with prior experience teaching sexual topics and knowledge about HIV/AIDS. Knowledge deficits across a variety of settings suggests that knowledge deficits about sexually transmitted infections contribute to persistent myths about PLHIV. Social
understand the current situation prior to implementing targeted interventions to improve faculty attitudes about caring for PLHIV.

**LIST OF ABBREVIATIONS**

AIDS = Acquired Immunodeficiency Syndrome
HIV = Human immunodeficiency virus
HPASS = Healthcare Provider HIV/AIDS Stigma Scale
HPASS-ESP = Healthcare Provider HIV/AIDS Stigma Scale, Spanish version
PLHIV = People living with HIV/AIDS
STROBE = Strengthening the Reporting of Observational Studies in Epidemiology

**AUTHORS’ CONTRIBUTIONS**

All authors participated in the manuscript submitted for journal review. The following authors were involved in the stated phases of the project: Study conception (JEE, JLM, PAP); study design (JEE, JLM, PAP); data collection (JLM, SKS, JEE, SKC); data analysis (JLM, DMS, GGV, KDC, PAP); data interpretation (JEE, JLM, KDC, PAP); drafting the manuscript (DMS, JEE, JLM, MFC, PAP, SKC); table development (DMS, GGV, KDC); substantial revisions to the manuscript (JLM, KDC, PAP), critical revisions to the final manuscript (JLM, KDC, PAP); and senior scholar guidance (JEE, PAP, SKC).

**ETHICS APPROVAL AND CONSENT TO PARTICIPATE**

This study was approved by the Institutional Review Board at Texas Woman’s University, Texax, US (Protocol #19213).

**HUMAN AND ANIMAL RIGHTS**

Not applicable.

**CONSENT FOR PUBLICATION**

Not applicable.

**AVAILABILITY OF DATA & MATERIALS**

The datasets analyzed during the current study are available from the Open Science Framework at DOI: 10.17605/OSF.IO/GUA9K.

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**CONFLICT OF INTEREST**

The authors declare no potential or existing conflicts of interest, financial or otherwise.

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**SUPPLEMENTARY MATERIAL**

Supplementary material is available on the publishers website along with the published article.

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