Advances in Nursing Science
Vol. 35, No. 2, pp. 154–165

Methodological Quality of Quantitative Lesbian, Gay, Bisexual, and Transgender Nursing Research From 2000 to 2010

Michael Johnson, MSN, RN; Tish Smyer, DNSc, RN; Carolyn Yucha, PhD, RN

The purpose of this study was to evaluate the methodological quality of quantitative lesbian, gay, bisexual, and transgender nursing research from 2000 to 2010. Using a key word search in Cumulative Index to Nursing and Allied Health Literature, 188 studies were identified and 40 met the criteria, which included descriptive, experimental, quasi-experimental, or observational (case control, cohort, and cross-sectional) design. The methodological quality of these studies was similar to that reported for medical and nursing educational research. The foci of these lesbian, gay, bisexual, and transgender studies were biased toward human immunodeficiency virus, acquired immunodeficiency syndrome, and sexually transmitted diseases, and 58.5% of the funded research was related to human immunodeficiency virus or acquired immunodeficiency syndrome. To provide evidence-based health care to these populations, an understanding of the current state of research is crucial. **Key words:** *bisexual*, *gay*, *homosexual*, *lesbian*, *LGBT health*, *MERSQI*, *quantitative methodology*, *sexual orientation*, *transgender*

LESBIAN, GAY, BISEXUAL, AND TRANSGENDER (LGBT) people constitute one of the largest underserved populations in any nursing setting.[1] Although the exact number of people who identify as LGBT is unknown, Snyder[2] cites that currently between 6.0 million and 30.4 million people in the United States identify as LGBT. The largest US representative study of sexual and sexual-health behaviors ever conducted, performed by Indiana University sexual health researchers, cite that 7% of adult women and 8% of adult men identify as gay, lesbian, or bisexual.[3] Eliason et al[1] further stated that 15% to 20% of the US population identifies as nonheterosexual. The variability in these estimations can be attributed to flaws in accurate census data collection methods and continued prejudice and discrimination that create fear of LGBT persons from openly self-identifying.[4]

Many different research studies have illustrated the health disparities between the LGBT populations compared with their heterosexual counterparts.[5] Harcourt[6] asserts that gay men are at increased risk for lung cancer, heart disease, anal cancer, non-Hodgkin lymphoma, and Hodgkin disease. Lesbian women are at higher risk for neoplasm, coronary artery disease, hypertension,

Author Affiliations: *University of Nevada, Las Vegas, School of Nursing.*

The authors have disclosed that they have no significant relationships with, or financial interest in, any commercial companies pertaining to this article.

Correspondence: *Michael Johnson, MSN, RN, School of Nursing, Bigelow Health Sciences, Rm 419, 4505 S Maryland Parkway, Box 453018, Las Vegas, NV 89154 (Michael.Johnson@unlv.edu).*

DOI: 10.1097/ANS.0b013e31825372b9

peripheral vascular disease, and chronic pulmonary conditions.[6] Krehely[5] also supports the claim that LGBT people are at higher risk for cancer, mental illnesses, and other diseases, and are more likely to smoke, drink alcohol, use drugs, and engage in other risky behaviors.[5] Mental health disparities have also been shown to impact the LGBT populations in comparison to heterosexuals.[5,7]

Case and colleagues[8] completed a sizeable study on the health disparities among self-identified lesbians. The study consisted of surveying 90 823 women aged 32 to 51 years, of whom, 694 self-identified as lesbian. The researchers concluded that lesbian women are at an increased risk for health disparities compared with their heterosexual counterparts. Lesbian women were found to have a higher prevalence of risk factors for breast cancer, which may be, in part, related to nulliparity. In addition, lesbian women had a higher prevalence of risk factors for cardiovascular disease, including high daily alcohol intake, elevated prevalence of tobacco smoking, and higher body mass index. Reported depression and the use of antidepressants were also higher in the lesbian population. The researchers concluded that these findings were, almost all, linked to modifiable risk factors and were similar to those women who self-identified as bisexual.[8]

Other researchers have also found health disparities among the lesbian population. Hutchinson et al[9] have concluded that although heterosexual and homosexual women may have similar risk factors, access to and interactions with health care providers differ significantly between the 2 population groups. They reported that lesbian women often underutilize preventive health services and postpone seeking treatment. Roberts[10] reported that lesbians are at higher risks for abnormal papanicolaou test, breast cancer, and cardiovascular disease and have more treatment for mental health illnesses than heterosexual women.

Despite the large US LGBT populations and the diminished health outcomes as compared with heterosexuals, health research to better understand this population is lacking. Different research teams have evaluated existing health and nursing research literature focusing on LGBT populations, and the results are disheartening. Of the existing LGBT nursing and health research, not only is there a dearth of studies, but also there is a bias toward research that focuses on human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS), and sexually transmitted diseases (STD).

Boehmer[11] identified and analyzed the content of all English LGBT public health research from 1980 to 1999. More than 3.8 million article citations were reviewed and only 3777 (0.1%) focused on LGBT health.[11] Eliason et al[1] reviewed all peer-reviewed LGBT nursing research in the top-10 nursing journals by 5-year impact factor from 2005 to 2009. These authors reported that only 8 research articles (0.16%) of all the peer-reviewed articles focused on LGBT nursing research. Of these 8 articles, 6 were qualitative, 2 were quantitative, and all the articles were authored by authors outside the United States. Snyder[2] examined published medical LGBT articles over a 57-year period, from 1950 to 2007, and ultimately discovered that medical research addressing the LGBT populations is lacking; however, Snyder did not perform descriptive statistics to identify the percentage of LGBT research articles compared with total research articles.

Existing research has also examined and described the focus of LGBT health research. Snyder[2] examined 21 728 articles and found that 31.78% focused on HIV, AIDS, and STDs. Snyder only categorized 0.65% related to LGBT health services, 3.28% to health care provider interactions, 6.37% to tobacco, alcohol, and substance abuse, and 9.69% to adolescent health. Nearly all of the other categories did not relate to LGBT health, and, instead, focused on other LGBT issues. Of the 3777 citations reviewed by Boehmer,[11] 2285 (61%) were coded as disease specific. Nearly all of the disease-specific articles focused on STDs, particularly HIV and AIDS. In addition, 80% of these citations focused on gay men, 39% on

bisexual men, and 46% on LGBT populations in general. Eliason et al[1] did not examine disease specific areas in their research; however, it is apparent from Snyder and Boehmer that the majority of LGBT health research has focused on HIV and AIDS.

The majority of LGBT research focuses on HIV and AIDS despite the small percentage of LGBT persons who live with these diseases.[2,5] Only 1.89% to 9.6% of the entire LGBT populations are living with an HIV infection.[2] However, the Centers for Disease Control and Prevention[12] reported in 2010 that men who have sex with men account for 48% of the 1 million people living with HIV in the United States. In addition, the Centers for Disease Control and Prevention has also found that men who have sex with men are the only high-risk group in which new HIV infections are increasing.

In summary, there needs to be more focus on LGBT health research. Health care professionals cannot continue to ignore LGBT populations and their health issues. An evidence-based comprehensive approach must be developed and disseminated to assist LGBT persons to obtain comprehensive health care that goes beyond HIV, AIDS, or STDs.

USING QUEER THEORY AS A THEORETICAL FRAMEWORK

As already discussed, LGBT populations have evidenced disparities in health care, health outcomes, and nursing research. This study requires a theoretical framework that will challenge societal sexual and gender norms to improve these disparities. Queer Theory was chosen as an appropriate theoretical framework. Queer Theory focuses on the social construction of identity and offers an alternative to LGBT studies.[13]

Queer Theory is imbedded within overarching theories of postmodernism, poststructuralism, and feminism.[14–16] Queer Theory views truth, knowledge, and language as socially constructed. This theory recognizes that all human identities and behaviors are created by social contexts.[1] In addition, Queer Theory views sexuality and gender as interrelated and can only be interpreted within social contexts.[1,3] Given this information, Queer Theory can be used as a framework to explore the reasons behind the disparities found in the LGBT populations. Using Queer Theory constructs of historical discourse and power to explore institutions, such as medicine, the church, state, law, and education provides insight into why LGBT disparities exist and why the nursing profession has neglected to research this population. The framework used in this study is shown in Figure 1.

Discourses, sexuality, and power

The definition of discourse varies among different theorists and disciplines. The definition set by Michael Foucault is used in this article. Foucault defined *discourse* as "systems of thoughts composed of ideas, attitudes, courses of action, beliefs and practices that systematically construct the subjects and the worlds of which they speak."[17(p283)] Foucault[18] used discourse to describe verbal and nonverbal communication, and he also asserted that discourse regulates the types of statements that can and cannot be made. In addition, Wilchins[19] and Foucault[20] both suggest that huge institutions, such as medicine, the church, state, law, and education, have defined normal versus abnormal through discourse.

Historical discourse has been able to define normal versus abnormal sexual behavior and sexuality. Sexuality has historically been only associated with reproductive sexual practices and was only discussed during confessions at church.[20] Through discourse, sexuality has evolved into a term that refers to an identity as opposed to a behavior. The term "sexuality" is now associated with the homosexual identity and homosexual sexual acts.[19] Nearly all modern discussion of the LGBT community will relate to their sexuality.[19] This provides insight as to why much of LGBT nursing research pertains to HIV, AIDS, and STDs. In addition, the same institutions that have

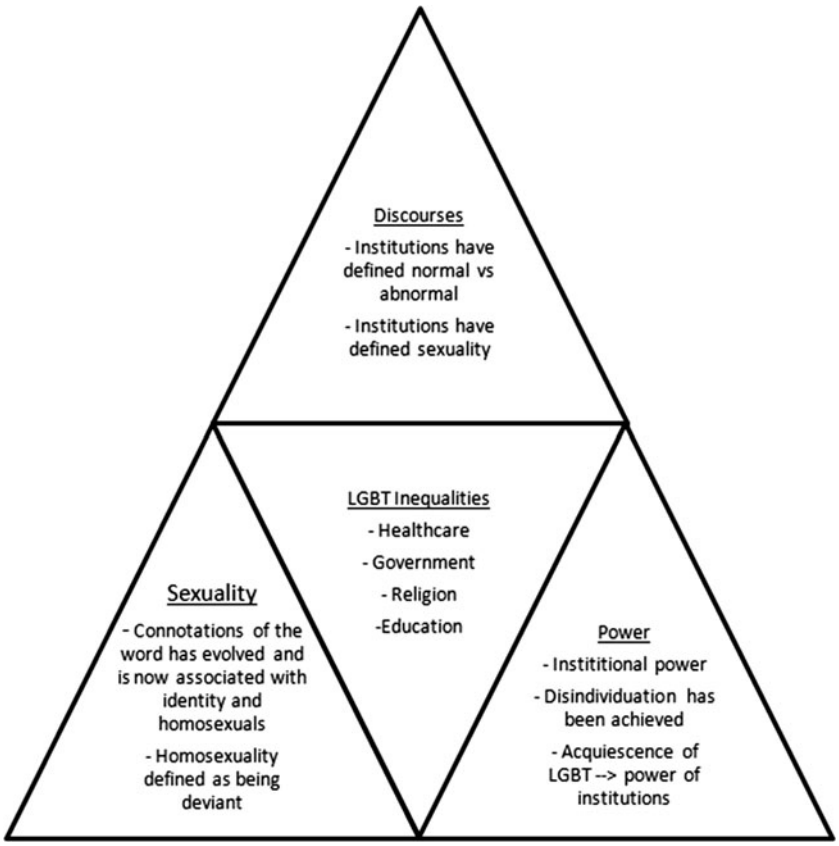

Figure 1. Queer Theory model that depicts how discourses, sexuality, and power have lead to LGBT inequalities and a silence on LGBT nursing research. LGBT indicates Lesbian, gay, bisexual, and transgender.

linked sexuality with homosexuals have come to label individuals who participate in nonheterosexual sexual relationships as deviant.

The labeling of nonheterosexual relationships as deviant through historical discourse provides insight as to how medicine, the church, state, law, and education institutions have held power over the LGBT populations. Foucault[20] theorized that power has been historically achieved by means of public displays of torture, dismemberment, and obliteration; however, in modern punishment, power is primarily asserted over the LGBT population through institutional actions that constrain, restrict, and control them in society.

These ideas can be best illustrated by examining different institutions. The medical institution historically attached negative stigma to the LGBT person. Until 1973, homosexuality was included in the *Diagnostic and Statistical Manual of Mental Disorders* as a diagnosable mental illness.[21] Examining the institution of our government and law reveals that in 1993, the US federal government enacted a law providing military officials the ability to discharge military personnel who openly identified as gay, lesbian, or bisexual. It was not until 2011 that this law was finally repealed.[22] Another case in point can be illustrated by considering the position of religious institutions. The Church of Jesus Christ of Latter-day Saints[23] expresses that any person who participates in sexual relations that is not heterosexual in nature can be excommunicated from the church. The same view point can be observed in the Catholic Church.[24]

These 2 religious institutions were used as examples, but there are certainly other churches and religions with similar viewpoints. Finally, examining higher education reveals perpetuation of LGBT oppression. Butler[25] found that in some academic environments, homosexuality is only addressed in context of HIV, AIDS, and STDs. Not only are LGBT persons oppressed in the curriculum, but also higher education faculty members are often discouraged from researching LGBT topics.[1]

Lesbian, gay, bisexual, and transgender inequalities

The LGBT inequalities and the inequities of LGBT nursing research can be explained by discourse, sexuality, and power. Eliason et al[1] considered the historical discourse of sexuality as a reason for the inequalities in LGBT nursing research. They assert that sexuality has historically been considered a private subject and inappropriate for nurses to assess and discuss with patients. They further elaborate that the silence in nursing on LGBT issues arises from "different root causes than other professions, and the nursing closet door has been closed for most of nursing's contemporary history."[1(p209)] Eliason and her colleagues conclude that LGBT health disparities are unrelated to sexual behaviors, and, instead, are attributed to societal stigma that results in harassment, discrimination, violence, and denial of human rights.

Kirsch[15] also links the inequalities of the LGBT populations to discourse and power. He states that, "like other minorities and ethnic groups, workers, and the disenfranchised, queers are easily blamed when they fail to conform to the social idea."[15(p36)] The LGBT populations have long been discriminated against, and through the influence of institutional power and discourse, LGBT nursing research has not been promoted or valued. This can be evidenced by previous research that has shown that only 0.1% of all nursing research pertains to the LGBT populations.[1]

These constructs of power and discourse link Queer Theory to this study. This study is based on the notion that a silence exists around LGBT nursing research and that what is needed is an increase in the amount of LGBT nursing research to improve evidence-based health care guidelines. On the basis of the Queer Theory, the lack of LGBT nursing research is linked to the construct of power because of 2 main reasons.

First, the idea behind historical sexuality discourse is that the LGBT person has been inherently linked to sexuality, and as cited by Eliason et al,[1] the nursing profession has historically avoided the topic of sexuality because it is relegated as a private topic. Second, institutional power has seriously affected past and present research on LGBT populations. The LGBT populations have been historically and irrefutably discriminated against. These inequalities have been blatant and can be exemplified by actions of institutions, such as medicine, the church, state, law, and education. As a direct result, LGBT people have faced great inequalities and thus the nursing profession has been discouraged to research on this marginalized population.

It is important for nurse researchers to resist and challenge this power differential. According to Felluga,[26] Foucault stated that power ultimately is inherent in individuals and power exists only when it is put into action. Eliason et al[1] concluded that it is important to rise to the occasion to improve LGBT nursing research. They concluded:

> In an era of evidence-based practice, all changes in practice and education, at least in theory, are driven from a research base. If LGBT individuals and issues are invisible in the nursing literature, how will progress be made? Without research, no "evidence-based practice" guidelines can be developed.[1(p209)]

METHODS

This study used a cross-sectional design to evaluate the methodological quality of recent quantitative nursing LGBT research reports. This article is addressing only quantitative research because the instrument being used is intended to be inclusive to quantitative

research and excludes qualitative research. Research reports being used were published between the years 2000 and 2010. This time period was selected to obtain an adequate sample size. Although the relevance of research may decrease over a 10-year span, obtaining a large enough sample size to perform statistical analysis was deemed more important. As mentioned earlier in this article, quantitative nursing LGBT research is lacking and thus retrieving literature that dates back to the year 2000 was required to acquire an adequate number of peer-reviewed research reports.

The research reports were obtained by initially performing a search on the Cumulative Index to Nursing and Allied Health Literature database. The search criteria included using the subject heading "GLBT persons." This exact heading was exploded to ensure the search would identify narrower terms. In addition, the nursing journal subset was used and the time frame was set between 2000 and 2010. The results of this search yielded 188 articles.

Each of the 188 article titles and abstracts were then read by the researcher to determine whether exclusion criteria could be immediately identified, as shown in Figure 2. Those articles that met exclusion criteria on the basis of the abstract or title were immediately excluded. All the remaining articles were examined in greater detail to determine whether they could be used on the basis of inclusion and exclusion criteria. Of the remaining reports, 40 were identified as useable for this study. The article inclusion criteria are presented in Figure 2.

Three distinct variables were included for this study. The primary variable was the methodological quality of published research reports, which was quantified using the Medical Education Research Study Quality Instrument (MERSQI). The other 2 variables included the study funding source and country of data collection. These 2 variables were examined against their relationship with the methodological quality of the research articles.

MEDICAL EDUCATION RESEARCH STUDY QUALITY INSTRUMENT

The MERSQI was identified as an appropriate tool for this study because of its ability to evaluate the methodological quality of a quantitative research study and then to compare that score to the funding and country of data collection. Reed et al[27] developed the MERSQI to identify links between funding and study quality for medical education research. The MERSQI was designed to measure the quality of experimental, quasi-experimental, and observational studies.[27]

Reed et al[27] found that approximately two-thirds of published medical education studies are not funded. Although evidence was not found, it can be assumed that funded LGBT nursing research studies are small and underfunded. It is believed that increased funding will enhance the quality of research[27]; however, there are no studies that have studied the association between LGBT nursing research funding and methodological quality.

The association between country and methodological quality is being examined to determine whether there is a difference between studies conducted within and outside the United States. Shashok and Handjani[28] indicate that the quality of research differs among countries due to many barriers, such as English-language resources, science editors and peer reviewers, infrastructure, and economic and political factors. Identifying associations between country and study quality could provide opportunities to explore collaborations across countries to address LGBT nursing research.

The MERSQI items were operationally defined and adapted according to repeated pilot testing. Reed et al[27] developed the MERSQI to include 10 items, reflecting the following 6 domains of study quality: (1) study design, (2) sampling, (3) type of data, (4) validity, (5) data analysis, and (6) outcomes as shown in the Table 1. MERSQI items are scored on ordinal scales and summed to conclude a total score. The maximum score for each domain is 3, producing a potential score range of 5 to 18.

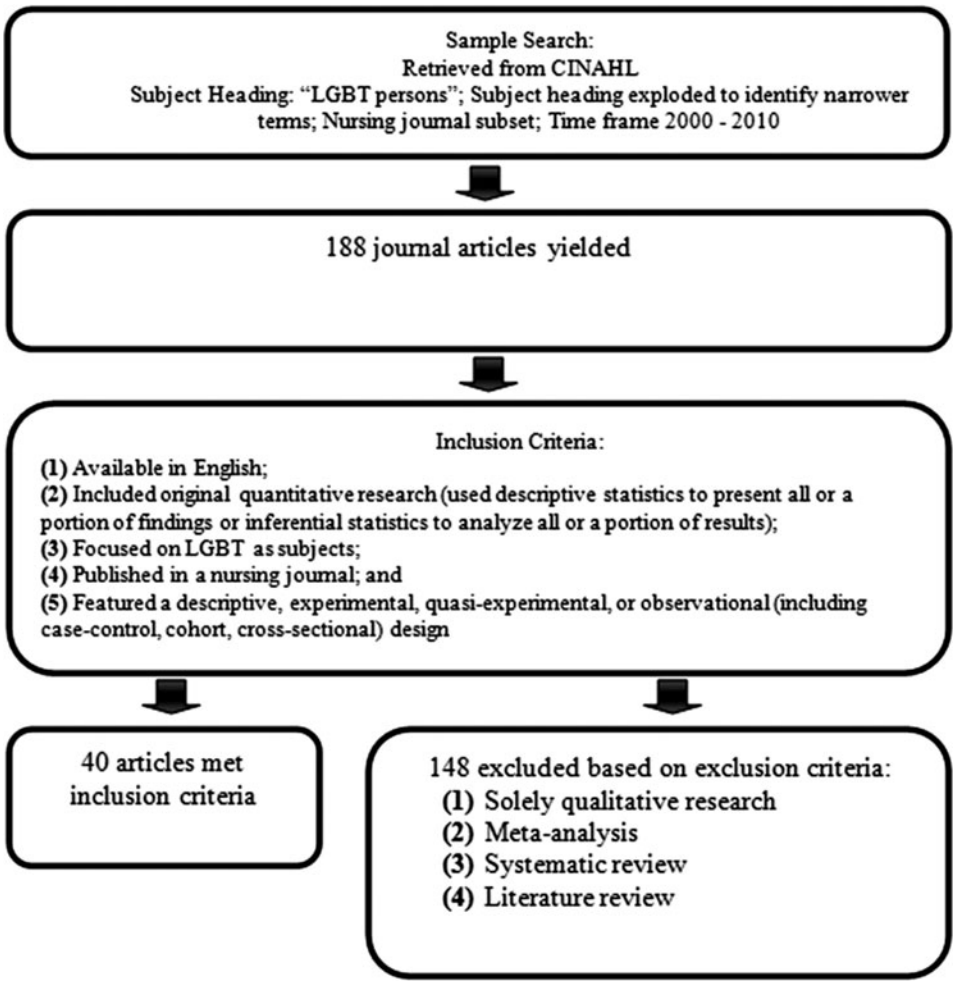

Figure 2. Flow diagram illustrating how this study arrived at the sample size of 40 research articles.

Refer to the MERSQI in the Table 1 for score weights. In addition, Reed et al[27] developed the MERSQI to allow for score adjustments in the case of a nonapplicable response. This score adjustment allows for comparison of scores across studies.

Reed et al[27] established validity and reliability for the MERSQI. The 10 items were defined during repeated pilot testing. The instrument was then applied to 210 medical education research studies. Cronbach α was 0.6, establishing internal consistency of the components and the overall tool. Intraclass correlation coefficients were used to assess interrater (range: 0.72-0.98) and intrarater (0.78-0.998) reliability for all items.[27]

Criterion validity was demonstrated by correlating the MERSQI scores with global assessment of methodological quality by 2 independent experts, measuring the association of MERSQI scores to the 3-year citation rate, and measuring the association between MERSQI scores and impact factors of the publishing journals. Spearman ρ was utilized to compute correlation between expert quality ratings and total MERSQI scores. In addition, simple linear regression was employed to quantify associations between total MERSQI scores and citation rate and impact factor.[27]

Table 1. Medical Education Research Study Quality Instrument

Domain	Medical Education Research Study Quality Instrument Item	n	%[a]
Study design	Single-group cross-sectional or single-group posttest only	34	85
	Single-group pretest and posttest	1	2.5
	Nonrandomized, 2 or more groups	5	12.5
	Randomized controlled trial	0	0
Sampling	No. of institutions studied		
	1	12	30
	2	5	12.5
	>2	23	57.5
	Response rate %		
	Not applicable	4	
	<50 or not reported	22	61.1
	50-74	7	19.4
	>75	7	19.4
Type of data	Type of data		
	Assessment by study participant (knowledge self-report)	38	95
	Objective measurement (knowledge test)	2	5
Validity of evaluation instrument	Internal structure		
	Not applicable	4	
	Not reported	17	47.2
	Reported	19	52.8
	Content validity		
	Not applicable	4	
	Not reported	19	52.8
	Reported	17	47.2
	Relationships to other variables		
	Not applicable	4	
	Not reported	29	80.6
	Reported	7	19.4
Data analysis	Appropriateness of analysis		
	Inappropriate for study design or type of data	0	0
	Appropriate for study design and type of data	40	100
	Complexity of analysis		
	Descriptive analysis only	6	15
	Beyond descriptive analysis	34	85
Outcomes	Outcomes		
	Satisfaction, attitudes, perceptions, opinions, general facts	37	92.5
	Knowledge, skills	2	5
	Behaviors	0	0
	Patient/health care outcomes	1	2.5

[a]Ratings of "not applicable" are not included in percentages.

RESULTS

Forty studies were included in this study. The years of publication range from 2000 to 2010. Of the 40 studies, 70% included data that were collected in the United States and 30% in countries other than the United States. Those countries other than the United States included England (2.5%), Israel (5%), Canada (2.5%), Sweden (10%), New Zealand (7.5%), and Botswana (2.5%). Of the 40 studies, 57.5% did not receive any type of funding, whereas 42.5% did receive funding. Among the funded studies, 37.5% received external funding and 5% received internal funding.

The MERSQI scores had a mean of 9.4 ± 1.5 and a range of 7.0 to 14.4. The mean categorical scores are shown in the Table 1. The majority of the studies (85%) used a cross-sectional design or posttest only. Only 2.5% used a single-group pretest and posttest design, and 12.5% used a nonrandomized with 2 or more group design. The majority of the studies (57.5%) sampled from 2 or more institutions. Sixty-one percent of the studies had a sampling response rate that was either less than 50% or was unreported, and almost all of the studies (95%) used self-report data as opposed to objective measurements.

The 3 sub-categories under the validity of evaluation instrument had varied results. More than half of the studies (52.8%) reported the internal structure, whereas the majority of studies did not report the content validity or the relationships to other variables (52.8% and 80.6%, respectively). All of the studies (100%) utilized appropriate study design and data analysis techniques, and 85% of the studies analyzed the data using techniques beyond descriptive analysis. Nearly all of the studies (92.5%) reported outcomes that were defined as either being satisfaction, attitudes, perceptions, opinions, or general facts. Only 5% reported outcomes that resulted in gaining knowledge or skills, and 2.5% reported patient or health care outcomes.

As already stated, 57.5% of the studies did not receive funding, whereas 37.5% received external funding and 5% received internal funding. Those studies that did not receive funding had a mean MERSQI score of 9.6 ± 1.6 and a range of 8.0 to 14.4. Those studies that received internal funding had a mean MERSQI score of 8.5 ± 2.1 and a range of 7.0 to 10.0. Finally, those studies that received external funding had a mean MERSQI score of 9.0 ± 1.3 and had a range of 7.0 to 11.5. Using analysis of variance, there was no significant difference in the MERSQI scores between studies with no funding, external funding, or internal funding ($P = .376$). Each MERSQI subcategory was also examined and there were no significant differences between any of the MERSQI subcategories and the funding category.

As already stated, 70% of the studies used data that originated in the United States, and 30% from other countries. Those studies originating from the United States had a mean MERSQI score of 9.3 ± 1.6, and those outside of the United States had a mean MERSQI score of 9.4 ± 1.3. Using independent Student *t* tests, there was no significant difference in the MERSQI scores for those studies conducted inside or outside the United States (95% CI: −1.16 to 0.98, $P = .622$). Each subcategory was also examined, and there were no significant differences between any of the MERSQI subcategories and country of data collection.

LIMITATIONS

The first noted limitation in this study was the small sample size of 40 research reports. Had a larger sample size been used, the results might be very different. This small sample size may be the result of a few other noted limitations. The only literature database used to collect the sample was Cumulative Index to Nursing and Allied Health Literature, and if other nursing literature databases had been used, a larger sample size may have been obtained. In addition, using only quantitative research definitely limited the sample size. However, the MERSQI is not intended to score qualitative research, and on the basis of the literature review, a limited number of quantitative research reports were anticipated.

To obtain an adequate sample size, research reports published between 2000 and 2010 were used. The literature review showed few quantitative LGBT nursing research articles published, and thus going back 10 years was required to obtain an adequate sample size. Gottlieb[29] states that limiting a literature reviews to the last 5 years is of importance, and this was understood at the start of this research; however, obtaining a large enough sample size was deemed more important.

Finally, this study was the first of its kind. No other study has used the MERSQI to evaluate the research methodology of quantitative LGBT nursing research reports. The MERSQI was developed to evaluate medical education research, and thus using this tool to evaluate nursing LGBT research was a limitation understood from the beginning.

CONCLUSIONS

Because this study was the first of its kind, it is difficult to compare the findings to other research studies. However, there are other studies that have used the MERSQI, and the results are mixed. The findings in this study did not reveal a significant difference in the MERSQI scores between studies with no funding, external funding, or internal funding. Yucha et al[30] studied the research methodology of 133 nursing education studies, and they also found no statistical difference between MERSQI scores and the source of funding, if any. In contrast, Reed et al[27] had a sample number of 210 research studies and studied the association between funding and quality of published medical education research. They reported higher MERSQI scores with study funding more than $20 000.

The small sample number may attribute to this finding, and had a larger sample size been obtained, the results could have been very different. Despite no significant differences being found between the MERSQI scores and level of funding, this should not imply to others that funding of LGBT nursing research is unimportant. The Institute of Medicine of the National Academies[21] published a report on the health of LGBT people and recommended further funding and research. Boehmer,[11] Eliason et al,[1] and Snyder[2] all have also recommended further funding and research for the LGBT populations. Finally, the sample of published articles used for this study did not list the amount of funding received; however, the funded studies most likely received nominal funding when compared with Reed et al.[27] The variations in funding may account for the differences in our findings related to quality and funding.

Of the existing LGBT nursing and health research, there is a bias toward LGBT research as it relates to HIV, AIDS, and STDs. Snyder,[2] Krehely,[5] and Boehmer[11] all cite a partiality toward these topics because it relates to LGBT research. Interestingly, of those funded studies in this study, more than half (58.5%) related to HIV or AIDS. As already discussed in this article, the homosexual population has been inherently linked to HIV, AIDS, and STDs. However, future funded nursing LGBT research needs to start expanding on other important health topics.

Yucha et al[30] reported significant higher MERSQI scores in those studies conducted in the United States. More specifically, Yucha et al[30] found that those studies scored more points for research study design and validity of instruments. No other studies were found that compare MERSQI scores to the country of data collection.

When comparing the mean MERSQI scores of those studies originating from the United States with those from outside the United States, the scores are almost identical (9.3 ± 1.6 and 9.4 ± 1.3, respectively). Again, these findings might be different had a larger sample size been obtained. Only 7 countries were represented in the sample studies, and 70% originated in the United States.

It is dismal that such little LGBT research exists in other countries; however, this can be expected when considering the current politics surrounding homosexuals. According to the International Lesbian, Gay, Bisexual, Trans and Intersex Association,[31] homosexuality

remains illegal in 80 countries around the world and 5 of them punish homosexual acts with death. Given this political environment, LGBT research is unlikely to originate from most other countries. In fact, the one research study originating from Botswana provided the disclaimer that the research participants had to exhibit caution when participating due to fears of being imprisoned or killed.

The sampling response rate was bleak with 61% of the studies having a response rate of less than 50% or not being reported. Yucha et al[30] and Reed et al[27] both reported that nearly 50% of their studies having a response rate greater than 75%. However, lower response rates in LGBT research is expected because of the stigma and fear of discrimination with openly identifying.[4] As a result of this stigma, response rates that are considered acceptable in other fields of study are difficult to achieve in LGBT nursing research.

The findings in this study revealed an overall mean MERSQI score of 9.4 ± 1.5. These scores are not overly impressive when considering that the MERSQI has a potential score ranging from 5 to 18. However, Reed et al[27] and Yucha et al[30] both reported similar MERSQI scores of 9.95 ± 2.34 and 9.5 ± 2.1, respectively. Both of these studies had much larger sample sizes. Given these few comparisons, it can be inferred that the quality of quantitative LGBT nursing research has similar methodological quality.

There are some domains where LGBT research can improve. Eighty-five percent of the sample used a single-group cross-sectional or single-group posttest design. Future research should use 2 or more groups and randomized controlled trials as the study design. Only a few (5%) of these studies used objective measurement data; thus, future research should focus on using this type of data. Reporting the internal structure, content validity, and relationships to other variables when describing the validity of the evaluation instrument should also improve in future LGBT research. Finally, future LGBT nursing research should focus on providing patient and health care outcomes in addition to satisfaction, attitudes, perceptions, opinions, and general facts.

Advancing LGBT nursing research can be accomplished by nurse researchers conducting more quantitative LGBT research and using rigorous study designs that focus on patient and health care outcomes. These objectives can be accomplished by using the findings of this study, and further evaluating LGBT nursing research using the MERSQI. The findings from this study provide a baseline of the methodological quality of existing quantitative LGBT nursing research to other nurse researchers. In addition, using the MERSQI in future research will advance LGBT nursing research by (1) providing a guideline for nurse researchers as they develop their studies; (2) providing a template for the evaluation of research reports; (3) allowing for the evaluation of the quality of LGBT nursing research reports across journals, countries of origin, years of publication, and funding levels; and (4) providing justification for increased funding for LGBT nursing research.

REFERENCES

1. Eliason MJ, Dibble S, DeJoseph J. Nursing's silence on lesbian, gay, bisexual, and transgender issues: the need for emancipatory efforts. *Adv Nurs Sci*. 2010;33(3):206-218.
2. Snyder JE. Trend analysis of medical publications about LGBT persons: 1950-2007. *J Homosex*. 2011;58(2):164-188.
3. Herbenick D, Reece M, Saunders SA, Schick V, Dodge B, Fortenberry JD. Sexual behavior in the United States: results from a national probability sample of male and females ages 14 to 94. *J Sex Med*. 2010(suppl 5):255-265.
4. Smith DM, Gates GJ. *Gay and Lesbian Families in the United States: Same-Sex Unmarried Partner Households*. Washington, DC: Human Rights Campaign; 2001 http://www.urban.org/UploadedPDF/1000491_gl_partner_households.pdf. Published August 22, 2001. Accessed December 1, 2011.
5. Krehely J. How to close the LGBT health disparities gap. http://www.americanprogress.org/issues/

2009/12/lgbt_health_disparities.html. Published December 21, 2009. Accessed May 10, 2011.
6. Harcourt J. Current issues in lesbian, gay, bisexual, and transgender (LGBT) health: introduction. *J Homosex*. 2006;51(1):1-11.
7. Koh AS, Ross LK. Mental health issues: a comparison of lesbian, bisexual and heterosexual women. *J Homosex*. 2006;51(1):33-57.
8. Case P, Austin B, Hunger DJ, et al. Sexual orientation, health risk factors, and physical functioning in the Nurses' Health Study II. *J Womens Health*. 2004;13(9):1033-1047.
9. Hutchinson MK, Thompson AC, Cederbaum JA. Multisystem factors contributing to disparities in preventive health care among lesbian women. *J Obstet Gyneco Neonatal Nurs*. 2006;35(3):393-402.
10. Roberts SJ. Health care recommendations for lesbian women. *J Obstet Gynecol Neonatal Nurs*. 2006; 35(5):583-591.
11. Boehmer U. Twenty years of public health research: inclusion of lesbian, gay, bisexual, and transgender populations. *Am J Public Health*. 2002;92(7):1125-1130.
12. Centers for Disease Control and Prevention. HIV and AIDS among gay and bisexual men. http://www.cdc.gov/nchhstp/newsroom/docs/fastfacts-msm-final508comp.pdf. Published September 2011. Accessed May 15, 2011.
13. Bower L. *Finding the Other in Mother: Queering Social Scripts for Mothers and Teachers* [dissertation]. Las Vegas, NV: University of Nevada, Las Vegas; 2008.
14. Numer MS, Gahagan J. The sexual health of gay men in the post-AIDS era: feminist, post-structuralist and queer theory perspectives. *Int J Mens Health*. 2009;8(2):155-168.
15. Kirsch MH. *Queer Theory and Social Change*. New York, NY: Routledge; 2000.
16. Pinar WF, Reynolds WM, Slattery P, Taubman PM. *Understanding Curriculum*. New York, NY: Peter Lang; 2004.
17. Lessa I. Discursive struggles within social welfare: restaging teen motherhood. *Brit J Soc Work*. 2006;36(2):283-298.
18. Foucault M. *The Order of Things: An Archaeology of the Human Sciences*. New York, NY: Vintage; 1970.
19. Wilchins K. *Queer Theory Gender Theory*. Los Angeles, CA: Alyson Publications; 2004.
20. Foucault M. *The History of Sexuality*. New York, NY: Random House Inc; 1978.
21. Institute of Medicine of the National Academies. The health of lesbian, gay, bisexual, and transgender people: building a foundation for better understanding. http://www.iom.edu/reports/2011/the-health-of-lesbian-gay-bisexual-and-transgender-people.aspx. Published March 31, 2011. Accessed April 20, 2011.
22. MCCune G. "Don't Ask, don't Tell" for military gays runs out. http://www.reuters.com/article/2011/09/19/us-usa-gays-military-idustre78I53W20110919. Published September 19, 2011. Accessed September 20, 2011.
23. The Church of Jesus Christ of Latter-Day Saints. Chastity. http://lds.org/study/topics/chastity?lang = eng. Published 2011. Accessed September 1, 2011.
24. Catholic Answers. Homosexuality. http://www.catholic.com/library/homosexuality.asp. Published August 10, 2008. Accessed September 1, 2011.
25. Butler RA. *An Assessment of Lesbian, Gay, Bisexual, and Transgender Curriculum Infusion in U.S. Medical Schools* [master's thesis]. Indiana: Indiana University; 2010. http://www.indiana.edu/~spea/pubs/undergrad-honors/volume-4/butler_rachel.pdf. Accessed December 4, 2011.
26. Foucault M. The subject and power: In: Dreyfus HL, Rabinow P, eds. *Michael Foucault: Beyond Structuralism and Hemeneutics*. Chicago, IL: U of Chicago P; 1982.
27. Reed DA, Cook DA, Beckman TJ, Levine RB, Kern DE, Wright SM. Association between funding and quality of published medical education research. *J Am Med Assoc*. 2007;298(9):1002-1009.
28. Shashok K, Handjani F. Enhancing the quality of research publication: AuthorAid in the Eastern Mediterranean. *J Tehran Univ Heart Center*. 2010;5(4):169-171.
29. Gottlieb L. Ageism of knowledge: outdated research. *Can J Nurs Res*. 2003;35(3):3.
30. Yucha C, St Pierre Schneider B, Smyer T, Kowalski S, Stowers E. Methodological quality and scientific impact of quantitative nursing education research over 18 months. *Nurs Educ Perspect*. 2011;32(6):362-368.
31. International Lesbian, Gay, Bisexual, Trans and Intersex Association. 2009 report on state-sponsored homophobia. http://ilga.org/ilga/en/article/1251. Published May 13, 2009. Accessed August 5, 2011.