Instrument Development for Measuring Teachers' Attitudes and Comfort in Teaching Human Sexuality

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ABSTRACT

School based sexuality education remains a hotly debated topic in the United States. Two key areas of this debate focus on teacher preparation to instruct sexuality education and teachers' attitudes and comfort with the subject matter. This article describes the development and psychometric testing of the Teachers' Attitude and Comfort Scale. This simple-to-use instrument has acceptable construct validity and internal consistency on five domains including teacher's concern, comfort, and attitude toward sexuality.

Sexual development is an on-going process that starts in early childhood and continues into adolescence (Greydanus, Pratt, & Dannison, 1995; Office of the Surgeon General, 2001). The way in which adolescents encounter and adjust to their sexuality has major implications for the quality and success of future adult relationships. Data from the 1999 Youth Risk Behavior Surveillance System showed that many adolescents engage in unsafe sexual practices that result in serious consequences such as unintended pregnancy, sexually transmitted diseases, and HIV infection (Centers for Disease Control and Prevention [CDC], 2000). Accordingly, health care professionals have recommended age-appropriate school-based sexuality education as a means of preventing these negative and costly health outcomes among adolescents (CDC, 1999; Jacobs & Wolf, 1995; Landry, Singh, & Darroch, 2000). A review of the literature on school-based sexuality education programs revealed that sexuality and HIV education programs do not increase sexual activity among teens as some people have argued. In fact, sexuality and HIV education may reduce the frequency of sexual intercourse, decrease the number of sexual partners, and may increase frequency of condom and contraceptive use among adolescents (Kirby, 2002a, 2002b; Wilson, 1994). Thus, sexuality education and what society teaches about sexual behavior are important to adolescent development.

Parents, schools, communities, and society as a whole have debated who is primarily responsible for sexuality education. Parents are often afraid of harming their children by teaching sexuality education too soon or by providing misinformation (Kirby, 2002b; Wilson, 1994). In contrast, some parents argue that they ultimately are the primary educators of their children. However, a vast majority of parents want assistance from the schools in providing education on such a critical topic (Mayer, 1997). Moreover, research indicates that many parents believe that the schools are more qualified to teach those aspects of human sexuality that are technical in nature and support sexuality education in the school system (Brown & Simpson, 2000; Kaiser Family Foundation, 2000; Wilson,

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1994). Nevertheless, many schools do not have teachers who possess the skills, knowledge, or inclination to teach sexuality education, because few teachers have received training in that content area.

A study conducted by the Sexuality Information and Education Council of the United States found that preservice teachers are not sufficiently prepared to teach in the field of sexuality, because many of them are not required to take health education, sexuality, or HIV/AIDS courses as part of their degree requirements (Rodriguez, Young, Renfo, & Asencio, 1998). Moreover, Few, Hicken, and Butterworth (1996) found that in the United States there are no established training programs for teachers on sexuality education. In fact, surveillance reports on characteristics of health education among secondary schools showed that across the states only 41% and 5% of the health education teachers had professional preparation in health/physical education and health education, respectively. In addition, the reports revealed that only one-third of health education teachers across the states had received in-service training in pregnancy prevention, around 50% had received in-service training in HIV prevention, and less than 50% had received in-service training in other STD prevention (Grunbaum, Kann, & Williams, 1998, 2000). This evidence clearly indicates the need for change in teacher preparation on sexuality related topics (Darroch, Landry, & Singh, 2000).

Many teachers generally depend on in-service training to acquire knowledge and skills pertaining to sexuality education. Therefore, it is not surprising that they report concern about their capacity to instruct their students on sexuality related topics, including STDs and HIV prevention, and their ability to teach personal skills to adolescents (Rodriguez, Young, Renfro, & Asencio, 1998). To meet the needs of adolescents and to reduce negative consequences associated with sexual activity (i.e., pregnancy, STDs), future generations of teachers must possess the skills and knowledge to educate our youth to be more responsible with respect to engaging in various sexual behaviors (National School Boards Association, 1998). Clearly there is a need in the United States to improve the preparation of teachers in comprehensive sexuality education as well as in HIV/AIDS prevention (Levenson-Gingiss & Hamilton, 1989; Rodriguez et al., 1998). This need is illustrated by the many adolescents who are sexually active by the age of 18. Given the amount of time individuals under the age of 18 spend at educational institutions, school seems to be the logical place to provide adolescents human sexuality education to help them make informed decisions on the topics of sexual behavior, HIV/AIDS, STDs, and pregnancy (Levenson-Gingiss & Hamilton, 1989). Sexuality education programs are beneficial to students only when teachers feel adequately prepared to teach the curricula. Therefore, the purpose of this investigation was to design and test an instrument designed to assess teachers' attitudes and comfort with sexuality education. By using this instrument, school systems and universities will be able to identify teachers' attitudes and comfort level about sexuality education before they address sexuality-related issues in the classroom.

METHODS

The Teachers' Attitude and Comfort Scale (TACS) was developed to assess teachers' attitudes and comfort level about teaching sexuality education to adolescents. TACS was developed through an extensive literature search, focus group discussions, and validity testing. Institutional review board permission was obtained, allowing human subjects to participate in the study. Instrument development was based on the standards for instrument development established by the American Psychological Association (American Psychological Association, 1985) and the guidelines suggested by Algina and Crocker (1986).

Identification of Domains

The first step in the development of the scale was to identify the attitudes, comfort level, and other concepts that represent the construct or domain. Key terms such as *teachers*, *sexuality*, *attitudes*, and other words were used to search the literature through databases such as *PsychLit*, *Social Science Index*, and *Medline*. Although no single instrument measuring specific constructs was identified, based on the results from the review of the literature 10 domain areas were identified in need of exploration. The identified domains were teacher comfort with subject matter; teacher characteristics; course-specific teacher attitudes; course-specific teacher values; course-specific teacher training; teacher knowledge about sexuality; teacher attitudes toward sexuality; teacher interest about curriculum implementation; and teacher willingness to teaching "difficult" subjects.

Refinement, Reduction of Items, and Validity

An initial pool of 100 items was created based on a literature review. The items were worded to fit 1 of the 10 areas identified. To determine content validity and reduce the number of items in the scale, the initial pool of 100 items was presented to a panel of experts. The panel of five experts in the field of human sexuality, which included veteran classroom teachers, university professors who had published in the field, and a staff member at Planned Parenthood, assisted with the face validity. This process is recommended for a logical examination of the items on the survey instrument (Wiersma, 2000). Each individual received a scorecard for each of the questions on the instrument. For the question to remain in the study, at least 60% had to agree to keep the question. However, if any individual wanted a question discarded, or if any individual suggested that a question needed to be modified, it was done.

In addition, three focus groups with schoolteachers in three randomly selected school districts in Texas (i.e., Dallas, Houston, and San Antonio) were conducted to further refine the items. Each district's office of research was enlisted to help the researcher identify qualified teachers to participate in the study. Each of the three districts, Dallas, Houston, and San Antonio, identified 10 teachers who had taught health

or physical education in the last 2 years. These individuals were invited to participate in the focus groups for the study. Of the 30 people invited, 11 attended the focus groups. The principal author facilitated the focus groups. The participants were presented with the list of 100 items and were asked to identify the main areas to be addressed in the field of sexuality education. Focus group participants provided their input in the deletion of duplicate items, wording, and thoughts on what was necessary to adequately measure teachers' perceptions. The input of both the panel of experts and the focus groups resulted in the reduction of the initial pool of 100 items to 56 items. Further revisions were conducted by the researchers to decrease redundancy and duplication of items, resulting in a final set of 30 statements with approximately three items per domain area.

Scale Testing and Refinement

To conduct a pilot test of the instrument, a survey was mailed to a sample of teachers representative of the population in the state of Texas. A systematic sampling, in which every 20th name was selected and contacted, was used to select 250 members of the Texas Association of Health, Physical Education, Recreation, and Dance. The mailing list was selected due to its large size and representation of teachers at all levels in the State of Texas and due to the fact some non-health education teachers (e.g., physical education teachers) are sometimes asked to teach human sexuality classes.

If the teacher was no longer working in the school system, his or her name was removed from the list and the next person was chosen. A cover letter stating the importance of the study and instruction for completion of the survey was sent to each participant. Each individual was asked to complete the survey within 3 weeks of receiving it. Each survey contained a self-addressed stamped envelope to help facilitate the return of completed instruments. If a survey was not returned within the 3-week period, it was discarded to ensure a time line for project completion. One hundred and fifty-one surveys were returned. Of these, 5 were discarded because they were incomplete and another 9 were discarded due to arriving past the deadline, resulting in 137 usable surveys, an overall return rate of 55%.

Construct Validity and Reliability

A principle component analysis was performed to determine the underlying factors of the 30 items of the TACS. A varimax rotation was performed to place the factors into an interpretable position. The result was interpreted using factor loadings of .5 or greater as the criterion value to identify the different factors.

To determine the instrument's internal and stability reliabilities, two processes were conducted. First, Cronbach alpha coefficients were calculated to determine the internal consistency of the total scale and each derived factor. Following this process, the refined instrument was distributed to a new group of 30 randomly selected teachers from the Dallas/Fort Worth metropolitan area to determine the instrument's stability reliability, because the original 137 surveys had no follow-up performed. A two-tailed Pearson product moment correlation coefficient was performed to establish the stability of the TACS. A criterion value of .7 was established for acceptable reliability.

RESULTS

Participants

As seen in Table 1, the sample population was mostly female (85%), with a mean age of 42. Participants were mostly White (83.2%), and almost half of them taught at the senior high school level. Finally, most of them had completed a bachelor's degree and taken classes at the graduate level.

Construct Validity

A principal component factor analysis with a varimax rotation was performed on the 30 items to identify and analyze constructs of the instrument. Although the initial 30 items represented 10 areas of interest, the factor analysis generated only 9 factors with eigenvalues greater than 1, which accounted for 70% of the total variance. Of these 9 factors generated through factor analysis, 4 factors were dropped from the study due to less than three variables loading on the specific factor. Thus, the final TACS has 5 factors (Table 2), and 23 items accounted for 51% of the total variance. These factors (23 items) correspond to two-thirds of the items corresponding to the original 10 content areas. The five subscales included teacher concerns about curriculum implementation (7 items), teacher comfort with the subject matter (6 items), course-specific teacher attitudes (4 items), teacher interest about curriculum content (3 items), and teacher attitudes toward sexuality (3 items). Overall, the content areas correspond well with the

Table 1. Selected Demographic Characteristics of Respondents

Category	*n*	%
Gender		
Female	*117*	*85*
Male	*20*	*15*
Age (Mean=42)		
20–29	*27*	*20*
30–39	*32*	*23*
40–49	*48*	*35*
50–59	*16*	*12*
60 and over	*14*	*10*
Race		
White	*114*	*83*
African American	*8*	*6*
Latino	*14*	*10*
Other	*1*	*<1*
Grade Level		
Elementary	*31*	*23*
Junior High	*31*	*23*
High School	*66*	*48*
No answer	*9*	*6*
Highest Education Level		
1–2 years of college	*1*	*1*
2–4 years of college	*7*	*5*
Bachelor's degree	*81*	*59*
Completed some graduate courses	*41*	*30*
Master's degree	*7*	*5*

Table 2. Factor Analysis for the Five Factors on TACS

Item	Factor 1 Loading	Factor 2 Loading	Factor 3 Loading	Factor 4 Loading	Factor 5 Loading
Factor 1: Teacher concerns about curriculum implementation					
Parents are generally supportive of school-based sexuality education.	.884				
Videos are an effective method for teaching sexuality.	.878				
Lectures are an effective method for teaching sexuality.	.876				
Using guest speakers is an effective method for teaching sexuality.	.754				
Outside groups (i.e., parents, religious groups) pose a significant influence to implementing sexuality education in the classroom.	.702				
My school district provides adequate training and helps teachers to secure necessary resources.	.700				
Teachers should refrain from physically touching their students.	.606				
Factor 2: Teacher comfort with subject matter					
I need additional training on how to teach and incorporate the emotional aspects of human sexuality.		.815			
I need additional training on the sexuality of adolescents.		.815			
I find it difficult to speak about sex.		.744			
Sexuality should not be discussed in the classroom.		.657			
I would not be comfortable teaching a class concerning sexuality.		.615			
I have strong feelings against teaching sexuality in the schools.		.555			
		.551			
Factor 3: Teacher interest about curriculum content					
Teachers need to help adolescents understand their responsibilities to self, family, and friends.			.859		
Teachers need to help adolescents develop skills in getting along with members of the opposite sex.			.834		
Teachers need to discuss the role of the family in personal growth and development.			.795		
Adolescents should be taught about sexuality.			.743		
Factor 4: Course-specific teacher attitudes					
Young people should learn about sexuality from their own experiences.				.721	
I would be embarrassed to teach about sexuality to my students.				.708	
Students should be discouraged from asking sexuality related questions.				.553	
Factor 5: Teacher attitudes toward sexuality					
Talking about sexuality encourages people to become sexual.					.711
Sexuality education should not be taught in the school.					.659
Teachers who have strong religious beliefs about sexuality should teach those to their students.					.503

Note: Items loading of .5 or higher are presented for each factor.

factors indicating a good measure of construct validity.

Reliability

To establish the internal reliability of the instrument, Cronbach alpha coefficients were calculated for each subscale in the instrument. The reliability analyses of the five factors in the TACS were as follows: Factor 1 (teacher concerns about curriculum implementation)=.87, Factor 2 (teacher comfort with subject matter)=.78, Factor 3 (teacher interest about curriculum content)=.84, Factor 4 (course-specific teacher attitudes)=.48, and Factor 5 (teacher attitudes toward sexuality)=.39.

Table 3. Reliability Measures of TACS for Test–Retest

Domain	Pretest n	Posttest n	Pearson
Total Scale	*26*	*21*	*.85*
Factor 1: Teacher concerns about curriculum implementation	*27*	*24*	*.81*
Factor 2: Teacher comfort with subject matter	*30*	*30*	*.95*
Factor 3: Teacher interest about curriculum content	*30*	*30*	*.83*
Factor 4: Course-specific teacher attitudes	*30*	*28*	*.69*
Factor 5: Teacher attitudes toward sexuality	*30*	*30*	*.93*

Note: *N*=30. Variations occur within sample subgroup (*n*) due to whether the participant answered the entire survey.

A Pearson product moment correlation was calculated on the 23 items using data collected from the 30 surveys completed by teachers in the Dallas/Fort Worth metroplex to establish test–retest reliability of the instrument over a 3-week interval. Each participant was asked to complete the survey twice. A two-tailed Pearson product moment correlation coefficient was calculated for each of the five factors and the entire scale (Table 3). In each of the five identified scales the calculated Pearson product moment correlation was higher than or equal to the predetermined level (.7). Thus, the TACS was consistent in measuring the domain areas and appeared to be stable in determining teachers' attitudes and comfort level about adolescent sexuality education.

DISCUSSION

The purpose of this investigation was to design and test an instrument designed to assess teachers' attitudes and comfort about sexuality education. Data were analyzed by using descriptive statistics, a panel of experts and focus groups for face validity, a factor analysis and Pearson product moment correlation coefficients for construct validity, and Cronbach alpha analysis and test–retest for reliabilities. These steps follow American Psychological Association standards for instrument development and guidelines suggested by Aligna and Crocker (1986). Based on the input from the panel of experts and participants from focus groups, 77 items were deleted from the original scale to improve content validity. A principal component factor analysis with a varimax rotation was performed on the 30 items of the TACS to identify and analyze the constructs of the instrument. The final scale included five factors (23 items) that accounted for half of the variance. The results from the reliability analysis showed that each subscale was moderate to highly reliable in terms of Cronbach alpha coefficient, and the whole scale appeared to have test–retest reliability over time.

The development of this instrument is subject to three limitations. First, the sample used during the pilot testing of the instrument was limited to Texas, and those teachers may not be representative of teacher characteristics in other states. Second, as with any survey, responses may have been subject to bias given the participants' interest in the area of sexuality. Third, the reliability coefficients for Factors 4 and 5 are lower than desired. Individuals using the scale should carefully draw conclusions from these areas. Finally, despite high factor loadings, the sample size consisted of less than the recommended minimum of 5–10 individuals per item for the principle component factor analysis. Thus, the results of the factor analysis must be carefully considered.

In summary, this article describes the initial steps that resulted in the TACS, which could be used by school districts to identify training needs by sexuality education teachers. This could be used as part of in-service training for first-year instructors who have been assigned to teach human sexuality courses. Results from the application of the scale can be used to identify areas in which the instructor needs additional preparation and training as well as to identify those areas where the instructor is adequately trained to implement sexuality education.

Still, the authors acknowledge that there is room for improvement of the scale, as other researchers use it with other groups of teachers. For example, questions could be added to course-specific teacher attitudes and teacher attitudes toward sexuality to increase the reliability of these factors. In addition, questions could be added to several factors—teacher characteristics, course-specific teacher training, course-specific teacher values, and teacher knowledge about sexuality—so that these factors could be tested for reliability and added to the final scale of the TACS.

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