Bol Med Hosp Infant Mex 2013;70(1):18-23

RESEARCH ARTICLE

# Knowledge, behaviors and beliefs of family planning methods and sexually transmitted diseases among nursing students

Irma Sarahí Alemán Rivera,[1] Irma Cortés Escárcega,[2] Ricardo Pérez-Cuevas[3]

## ABSTRACT

**Background.** Adolescents present risks for their reproductive health such as unplanned pregnancy and sexually transmitted diseases that can have a negative impact on their future. Nursing students are not exempt.
**Objective.** To analyze the relationship between knowledge, behaviors and beliefs on family planning methods and sexually transmitted diseases among nursing students.
**Methods.** A cross-sectional study was conducted with nursing students at the National Autonomous University of Mexico. We included nursing students from 17 to 24 years of age. Data were collected using a previously validated instrument based upon the World Health Organization indicators. The information was processed using SPSS for descriptive and inferential analysis.
**Results.** The study included 300 nursing students from the first to the fourth year of schooling. Mean age was 20 ± 1.6 years; ~71% were sexually active. Level of knowledge was different according to age, marital status and educational level. It was lower in the group of 19-year-olds ($t$ = -5.217, $gl$ = 298, $p$ = .0001) and higher in divorced *vs.* single and married students ($F$ = 5.462, $gl$ = 3 and $p$ = .001). The association between knowledge and behaviors showed a significant correlation at the level of a=0.05 (bilateral) and was directly proportional ($rP$ = 0.139, $p < 0.05$).
**Conclusions.** The level of knowledge was related to age, marital status and education. The behaviors are equal, independent of the knowledge influenced by the beliefs.

**Key words:** adolescents, reproductive health, family planning, sexually transmitted diseases.

## INTRODUCTION

The importance of analyzing knowledge and behaviors and exploring beliefs in family planning and sexually transmitted diseases among young adults is due to the possible consequences of their decisions in the field of reproductive health. Studies have reported problems in adolescent reproductive health related to the lack of prevention by mistaken patterns of behavior, especially in Latin America.[1] Young adults, on the average, become sexually active at between 15 and 19 years of age. This occurs under unsafe conditions of health protection due to their limited information, which is reflected in the low usage of family planning methods (FPM), particularly condoms.[2] Females are exposed to a greater risk of unplanned pregnancies, which can result in the practice of abortions under inappropriate conditions, contraction of sexually transmitted diseases (STDs) or other pregnancy-related complications.[3] The group of females between 15 and 19 years of age represents 25% of those who terminate their pregnancies and constitutes 30% of maternal deaths worldwide.[4]

In Mexico, a high proportion of unplanned pregnancies and risk factors exist for acquiring STDs in adolescents, which limits their personal and professional development. The birth of the infant causes school drop-outs, changes in personal and family roles and lack of economic resources to cope with the situation. These young women must be immersed into the working field at an earlier age.



1 Unidad de Medicina Familiar No. 78, Instituto Mexicano del Seguro Social, Nezahualcóyotl, Estado de México, México
2 Facultad de Estudios Superiores Zaragoza Campo I, Universidad Nacional Autónoma de México, México D.F., México
3 División de Protección Social y Salud, Banco Interamericano de Desarrollo, México D.F., México

Received for publication: 12-23-12
Accepted for publication: 1-24-13

Due to inadequate academic preparation, they obtain low-paying jobs, creating an environment of economic uncertainty that adversely affects the family.[5]

Adolescents, due to their biological, psychological and social characteristics, are more susceptible to reproductive health risks. It is considered that, although they are in contact with health care services and receive counseling, the context in which these services are provided may cause a situation where the information received is modified or distorted.[6]

Despite the presence of programs designed to protect the sexual health of young adults, there are still gaps in their knowledge about how to protect themselves from an unplanned pregnancy.[7] Misconceptions persist that give rise to risk behaviors such as machismo, which hinders the negotiation between the sexual partners in the decision-making for choosing a FPM; the sense of "invulnerability" that comes with their age, risk for STDs; imitation of the prototypes of "sexual" women and men communicated by different types of broadcast media[8] coupled with incorrect information received from their peers.[9]

Student nurses are not immune from this problem, even while they are being trained as health care professionals. This situation provides an opportunity to propose the following questions:

- How do factors such as the environment and school programs influence the students?
- What is the impact of the specific information for the adoption of health-generating behaviors?
- Are life's learning lessons significant especially for their sexual health?

This becomes important if we reflect that the nursing career provides the tools for students to become promoters of healthy lifestyles. From the perspective of social learning, these learning experiences should have an impact on the sexual and reproductive lives of the students throughout their development.[10]

The objective of the current study was to examine the knowledge, behavior and to explore the sexual and reproductive health beliefs of students participating in the Bachelor of Nursing program. The study focuses on the field of knowledge and behaviors of FPM, prevention of pregnancy and STDs, and beliefs about their sexual life that expose them to risks.

## SUBJECTS AND METHODS

We conducted a cross-sectional study of undergraduate students in the School of Nursing. To calculate the sample, we considered the population registered during the period from 2008 to 2009. Through a stratified sample, we estimated interviewing 300 students between 17 and 24 years of age who were enrolled in the 4-year nursing program.

Knowledge was defined as "the ability of the students to apply their knowledge and skills to analyze, reason and effectively communicate when problems arise and to resolve and interpret them when related to different situations." It was felt that the skills were not only acquired in school, but instead during daily contact with family, friends and the wider public environment,[11] emphasizing especially on the information regarding STDs and FPM for preventing pregnancy.[12] Returning to the concepts of social learning, behaviors are acquired skills by observing the environment and the experience of each female adolescent during her development, allowing her to make the decision to practice "risky" behaviors or "safe" behaviors for the protection of her sexual health by positive self-perception and self-efficacy capabilities to prevent pregnancy and STDs.

The behaviors were defined as observable behaviors used to detect and measure cognitive skills because they generate a favorable performance. In this case, we will study the recognition of the importance of using contraception and FPM with "casual" partners for prevention of STDs and pregnancy.[13]

Beliefs are considered as the subjective component of knowledge that distinguishes each person from within, distinguishing that person from others. Therefore, it is a specific quality that occurs in the mind of a subject. It may or may not be a "conscience", but the person may be associated with religious, political or moral beliefs and also (although rare) scientific beliefs.[14]

In this situation, it was recognized that there is no quantitative strategy that allowed measurements of beliefs because these vary from person to person. Therefore, they were only described in a qualitative manner through indicators that allowed their categorization.[15] Based on these concepts and recommendations and indicators proposed by the World Health Organization (WHO),[16,17] we designed a self-administered instrument with opened and closed questions. This was subjected to content validation

by experts. Reliability was determined using the Kuder and Richardson 21 test (KR21) that resulted in a value of 0.60. The instrument collected demographic data such as age, gender, marital status, and year of study, as well as data regarding knowledge, attitudes and beliefs.

The knowledge variable was measured through questions with dichotomous response options (right and wrong). The level of knowledge score was stratified into three categories: a) knowledge deficit (0-4 correct answers), b) average knowledge (5-8 correct answers), and c) appropriate knowledge (9-12 correct answers).

The behavior variable was measured only in those students who were already sexually active, through closed questions with response options with a weight of 1-3 points where the sum total of the items was 25 points. Subsequently, established ranges were grouped together: not at risk (>7 positive responses), medium risk (3-6 positive responses), and high risk (<3 matches).

For measurements of beliefs, we used closed questions with answer options along with several open questions. They were categorized by frequency in any of the domains with the following cut-off parameters: favorable beliefs (>3 correct answers) and unfavorable beliefs (<2 correct answers).

Data were entered into a database using SPSS v.15 and the analysis was performed with descriptive inferential statistics.

## RESULTS

We interviewed 300 students enrolled in the Bachelor of Nursing program representing different academic years (1st, 2nd, 3rd and 4th). Students were aged between 17 and 24 years, with an average age of 20 years ± 1.6 SD (27.9% males and 72.1% females); 78.7% were single, 11.5% were married, 4.9% were living with their partners and 4.9% were divorced.

### Knowledge

Adequate knowledge was reported in 30.3%; 69.3% had average knowledge and 0.3% had a deficiency of knowledge. There was no significant difference between males and females, which led us to consider that these figures are equal, regardless of gender. When comparing the knowledge according to age groups, we found inversely proportional significant differences among the students <19 and >20 years of age ($t$ = -5.217, $gl$ = 298, $p$ = 0.0001), with those who were >20 years old having more knowledge. For comparison according to marital status, there were differences ($F$ = 5.462, $gl$ = 3 and $p$ = 0.001). The groups showing these differences were those who were single vs. those who were divorced and those who were living with their partners vs. those who were divorced. Similarly, level of knowledge was different, depending on the year of study ($F$ = 12.079; $gl$ = 3 and $p$ = 0.0001). Differences arose between those who were enrolled in the 1st year vs. the 3rd and 4th year and the 2nd vs. 3rd and 4th years, respectively (Table 1).

### Behaviors

Of the total population, 70.7% reported having an active sexual life, and 29.3% of the population was not yet sexually active. Average age for onset of sexual activity was 18 years ± 8.1 years. The number of sexual partners for males and females was 3:1, respectively. Behaviors were determined in the sexually active subjects where 75.1% demonstrated to practice "nonrisk" behaviors; 24.4% had medium risk, and 0.9% reported risk-type behaviors; 84% of the students who were sexually active expressed having used protection against a possible pregnancy. The FPM used in 69.1% of the cases was the condom, 0.7% used an intrauterine device (IUD), 9.5% used hormonal methods, 7.3% reported having combined the condom with another method, 2.8% resorted to the "morning after" pill and 0.6% used a definitive method. Comparison of the behaviors of the students according to age, gender, marital status and year of enrollment showed no significant difference, making it reasonable

**Table 1.** Comparison of students' knowledge according to marital status and current year of study

| *Variable* | *n* | *Average knowledge score ± SD (maximum = 12)* |
|---|---|---|
| Single | 267 | 7.7 ± 1.4* |
| Divorced | 5 | 10.2 ± 0.8 |
| Living together (free union) | 16 | 8.2 ± 1.3† |
| 1st year | 102 | 7.2 ± 1.4** |
| 2nd year | 74 | 7.6 ± 1.3†† |
| 3rd year | 63 | 8.4 ± 1.4 |
| 4th year | 61 | 8.3 ± 1.5 |

One-way ANOVA with Bonferroni post-hoc test. * $p$ =0.001, ** $p$ =0.0001, † $p$ =0.009 , †† $p$ =0.039.

to assume that behaviors were similar among all sociodemographic groups.

### Beliefs

When exploring the variable of beliefs, the majority considered >20 years old to be the appropriate age of initiation of sexual activity and that this age was related with a situation of greater biological and psychological maturity. With respect to contraceptive use, >50% recognized that side effects may arise, although there was a smaller proportion whose replies reflected lack of information. When asked about STDs, 4/10 students did not protect themselves from an STD during their first sexual encounter due either to the spontaneity of the encounter or to the conscious decision to not use some form of protection. In the same sense, the decision was made to use some type of FPM during their last sexual encounter. The majority did not use contraception; 1/10 reported as not having sufficient knowledge for their use and 5% considered that there were no risks if no method was used (Table 2).

**Table 2.** Participants' beliefs

| *Questions regarding beliefs* | *n/%* |
|---|---|
| Appropriate age for initiation of sexual activity | *n = 300* |
| ≥20 years | 44.4 |
| From 16 years and higher | 41.0 |
| No exact age | 14.6 |
| For what reasons do you consider that is the appropriate age for initiation of sexual activity? | *n = 300* |
| Biological and psychological maturity are better developed | 58.4 |
| Associated with responsibility issues, knowledge and economic stability | 36.0 |
| No response | 5.6 |
| *Existing contraindications for use of FPM?* | |
| Expressed as YES | *n = 198* |
| Risk of side effects | 58.0 |
| Unaware of contraindications, but cannot use these methods | 14.1 |
| Associated health problems | 12.6 |
| Age is a factor for not using FPM | 10.4 |
| The use of FPM implies a risk for acquiring STDs | 2.5 |
| No response | 2.4 |
| *Did you use protection against STDs during your first sexual encounter* | |
| Already initiated sexual activity, NO protection | *n = 61* |
| No contraception due to spontaneity of the encounter | 39.5 |
| It was decided not to because it was the first time | 27.5 |
| No response | 13.0 |
| Did not use because of partner confidence | 11.5 |
| Reported using a different method | 8.5 |
| *Did you use protection against a possible pregnancy during your most recent sexual relations?* | |
| Already initiated sexual activity and did not use protection | *n = 35* |
| The encounter did not allow looking for some type of FPM | 57.1 |
| Insufficient knowledge for using FPM | 14.3 |
| Natural methods were effective | 14.3 |
| Do you wish to become pregnant at this time? | 8.6 |
| Considered no existing risk if no methods were used | 5.7 |

FPM, family planning methods; STDs, sexually transmitted diseases.

### Association of knowledge, behaviors and beliefs

When associating knowledge and behaviors of the participants who are sexually active, the correlation was significant at a 0.05 level (bilateral), directly proportional, but almost never ($rP = 0.139$, $p < 0.05$). No statistical significance was found between knowledge and beliefs or between behaviors and beliefs.

## DISCUSSION

### Knowledge

The highest score according to age group was obtained by the group of >20-year-olds compared with scores from those <19 years of age. This relates to aspects of cognitive maturity that young adults have at that age because knowledge is strengthened by their education and social and life experiences, whether their own or those shared with their peers, as reported in the literature.[6,7,10] This coincides with the results that were obtained showing a linear statistically significant association between students' knowledge and their ages.

Although the level of sexual knowledge was higher for males, the difference was not statistically significant. This differs from that reported by Tapia et al. who pointed out that males have a greater knowledge because cultural aspects continue to exist in which the man is the "master" of knowledge and the decision-maker in the domain of sexuality, whereas females assume the role of a "good woman" who knows little of sexuality and hopes to be taught by her partner.[18]

In a similar manner, there is the case of those who were divorced and had a higher level of knowledge. This situation suggests that due to the need to know how to protect themselves from risks if they have doubts about persons with whom they are sexually active, as reported by Nieto-Andrade and Izazola-Licea.[19] The majority of knowledge was observed in students during their 4th year of study. These data coincide with the relationship reported by Hicks et al. stating that knowledge is strongly associated with degree of literacy.[20]

Indicators of where the majority of doubts existed of knowledge coincided with the study by Mosquera and Mateus. These authors state that there is doubt as to what is the most effective method to prevent pregnancy, how these methods are used and when there is a greater chance of pregnancy.[21] It should be noted that young adults are aware of the methods of STD transmission, coupled with the recognition of the condom as a method of protection.

### Behaviors

Among students who were sexually active, those >20 years of age, females, single status and students in their 4th year of study obtained the highest score. However, risk behaviors continued to occur, reflecting the onset of sexual activity at an early age, the number of sexual partners coupled with the fact that students are occasionally not protecting themselves from pregnancy or STDs due to the spontaneity of the relationship, which exposes them to reproductive risks.

One would expect that being nursing students, their behavior should be more positive with their increased training because they are aware of the risks of unprotected sexual activity. During their 2nd year of training they are instructed in the content of sexual and reproductive health. Despite having knowledge of these risk behaviors, we may think that this is insignificant for appropriate care exhibited by each of the students and that these behaviors are considered only from the perspective of social learning.[22]

### Beliefs

A high percentage of participants demonstrated having favorable beliefs where females, married students and 3rd year students had the highest score. This is related to social learning theory, which addresses how individuals make decisions about their own health care through cognitive-perceptual factors (importance and definition of health, self-efficacy, benefits, barriers and perceived health state about health-promoting behaviors), the benefits derived from the activities that promote health and the barriers to these activities that can be modified (demographic and biological characteristics, interpersonal influences, situational and behavioral factors). This helps the involvement of behaviors that commit to their health, which is the beginning of the action.[10]

The beliefs involved in sexuality in adolescence comprise a factor that directly influences behavior assumed during the course of one's sexual life. This allows assertive decision-making in peer-related situations, in school and in the social environment because there they generate or prevent problems related to sexual life. This situation was reported by Ward and Friedman[8] and Jeltova et al.[23] who support the premise that the environment is related to the adoption of beliefs that guide individual behavior that is either good or bad for individual health. This is accomplished by acculturation and lifestyle stereotypes disseminated among various forms of communication, undermining any formal knowledge and inculcating an unflattering belief system when becoming sexually active.

### Association among knowledge, behavior and beliefs

In this study, knowledge, although usually average, is reflected with positive behaviors, but positive statistical significance was seen, although weak, which is directly proportional between knowledge and behavior expressed by the sexually active students who responded. This supports the premise that although the students have knowledge of FPM as well as STD knowledge, these are not reflected in their behavior.

Sexuality takes different approaches in each young person according to the values learned in their environment and their personal experiences. This situation generates beliefs that intervene in their knowledge and behavior. This study was quantitative, a situation that offers guidelines to investigate the beliefs of young adults related to this phenomenon through qualitative studies. This permits us to place the focus of reproductive health programs on values, family and the role played by the mass media that influence individual behavior. Although the individuals have knowledge, there are doubts and misconceptions about risky sexual behavior.

The promotion and education of materials directed at sexual health strengthens knowledge for young persons, but population intervention and re-intervention are necessary through strategies and technologies established by various programs in schools, health institutions and at home, from a social setting allowing the individual to acquire significant learning experiences.



### Conflict of interest:

The authors declare that they have no conflict of interest and that the views expressed in this article are personal

and do not reflect the views of the institutions with which they are affiliated.

*Correspondence:* Mtra. Irma Sarahí Alemán Rivera
E-mail: sarahialeman@hotmail.com

**REFERENCES**

1. Rasmussen-Cruz BL, Hidalgo-San Martín A, Hidalgo-Rasmussen C. Comportamientos de riesgo de enfermedades y lesiones en estudiantes del Centro Universitario de Ciencias de la Salud de la Universidad de Guadalajara, Jalisco, México. In: Rasmussen-Cruz BL, Hidalgo-San Martín A, eds. Investigaciones en Salud de Adolescentes II (1999-2003). Guadalajara, México: Unidad de Investigación Epidemiológica y en Servicios de Salud del Adolescente (UIESSA); 2005. pp. 27-38.
2. García-Roche RG, Cortés-Alfaro A, Vila-Aguilera LE, Hernández-Sánchez M, Mesquia-Valera A. Comportamiento sexual y uso del preservativo en adolescentes y jóvenes de un área de salud. Rev Cubana Med Gen Integr 2006;22. Available at: http://bvs.sld.cu/revistas/mgi/vol22_1_06/mgi03106.pdf
3. Instituto Nacional de Estadística, Geografía e Informática (INEGI); Navarro-Sandoval NL. Marginación escolar en los jóvenes. Aproximación a las causas de abandono. Rev Inform Anál 2001;15:43-50. Available at: http://www.inegi.gob.mx/inegi/contenidos/espanol/prensa/contenidos/articulos/sociodemograficas/marginacion.pdf
4. Bearinger LH, Sieving RE, Ferguson J, Sharma V. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. Lancet 2007;369:1220-1231.
5. Organización Panamericana de la Salud, Organización Mundial de la Salud. 25ª Conferencia Sanitaria Panamericana. 50ª. Sesión del Comité Regional. Washington, DC, 21-25 September 21-25, 1998. pp. 6-8. Available at: http://www.paho.org/spanish/gov/csp/csp25_4.pdf
6. Onrubia J. El papel de la escuela en el desarrollo del adolescente. In: Fierro A, Martí E, Onrubia J, García-Milá M, eds. Psicología del Desarrollo: el Mundo del Adolescente. Barcelona: Horsori; 2005. pp. 161-178.
7. Figueroa-Perea JG. Comportamiento reproductivo y salud: reflexiones a partir de la prestación de servicios. Salud Pública Mex 1991;33:590-601. Available at: http://bvs.insp.mx/rsp/_files/File/1991/No_6/199133_590-601.pdf
8. Ward LM, Friedman K. Using TV as a guide: associations between television viewing and adolescents' sexual attitudes and behavior. J Res Adolesc 2006;16:133-156. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1532-7795.2006.00125.x/pdf
9. Rodríguez-Cabrera A, Álvarez Vázquez L. Percepciones y comportamientos de riesgos en la vida sexual y reproductiva de los adolescentes. Rev Cubana Salud Pública 2006;32:1-9.
10. Woolfolk AE. Perspectiva social cognoscitiva y constructivista del aprendizaje. In: Psicología Educativa. México: Pearson; 2006. pp. 314-320.
11. Organización, Cooperación y Desarrollo Económico, Benito M. Informe PISA 2006. Competencias científicas para el mundo de mañana. España: Santillana; 2008. Available at: http://ccbb.educarex.es/mod/resource/view.php?id=54
12. Diccionario Mosby POCKET de Medicina, Enfermería y Ciencias de la Salud. Madrid, España: Elsevier Mosby; 2004.
13. Alles M. Nuevo Enfoque. Diccionario de Preguntas. La Trilogía: las Preguntas para Evaluar las Competencias más Utilizadas. México: Granica; 2009.
14. Villoro L. Creer, Saber, Conocer. México: Siglo XXI; 2008.
15. Organización Panamericana de la Salud. Manual de Monitoreo y Evaluación. FOCUS on Young Adults. Serie OPS/FNUAP 2001;3:1-119. Available at: http://www.paho.org/Spanish/HPP/HPF/ADOL/Seccion1a.pdf
16. Organización Mundial de la Salud. Part III.H. Adolescent Reproductive Health Programs. Available at: http://www.cpc.unc.edu/measure/publications/html/ms-02-06.html
17. Organización Mundial de la Salud. Departamento para el Desarrollo Internacional de Estados Unidos y Reino Unido. Encuestas de Vigilancia del Comportamiento (EVC). Directrices para encuestas del comportamiento repetidas en poblaciones en riesgo al VIH. Family Health International 2000. Available at: http://www.who.int/hiv/strategic/en/bss_fhi_sp.pdf
18. Tapia-Curiel A, Villaseñor-Farías M, Nuño-Gutiérrez BL. Conocimientos y actitudes hacia el uso de la anticoncepción de emergencia en jóvenes universitarios. Rev Med Inst Mex Seguro Soc 2008;46:33-41.
19. Nieto-Andrade B, Izazola-Licea JA. Uso del condón en hombres con parejas no estables en la Ciudad de México. Salud Publica Mex 1999;41:85-94.
20. Hicks G, Barragán M, Franco C, Williams MV, Del Rio C. Health literacy is a predictor of HIV/AIDS knowledge. Fam Med 2006;38:717-723.
21. Mosquera J, Mateus JC. Conocimientos, actitudes y prácticas sobre métodos de planificación familiar, VIH-SIDA y el uso de los medios de comunicación en jóvenes. Colombia Méd 2003;34:206-212.
22. Hernández-Tezoquipa I, Arenas-Monreal LM, Martínez PC, Menjívar-Rubio A. Autocuidado en profesionistas de la salud y profesionistas universitarios. Acta Universitaria 2003;13:26-32. Available at: http://redalyc.uaemex.mx/pdf/416/41613302.pdf
23. Jeltova I, Fish MC, Revenson TA. Risky sexual behaviors in immigrant adolescent girls from the former Soviet Union: role of natal and host culture. J School Psychol 2005;43:3-22.