

Influence of Nurse Education on Healthy Lifestyle Habits of Students: A Literature Review

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Abstract

Objective: To determine if knowledge acquired during nursing career influence the health habits of students: drugs consumption, diet, exercise and sexual behavior. To identify areas for improvement in the curricula of nursing career, as well as the specific weaknesses presented by these students.

Design: Literature review by searching primary documents of original researches on the subject through secondary sources, making a critical and thorough evaluation of such documents.

Data sources: Original articles from four databases: PubMed/Medline, Spanish Medical Index, CINAHL and Scopus.

Review methods: DeCS/MeSH "Students, Nursing", "Health Behavior" "Health Promotion", "Life Style", "Alcohol Drinking", "Smoking", "Unsafe Sex", "Drug Users", "Feeding Behavior", "Sedentary, Lifestyle" and "Risk-taking" were used, applying AND/OR boolean. Inclusion criteria established were: quantitative research in any design, participating nursing students, published in scientific journals from 2005 to 2015 in English, Spanish or Portuguese. Exclusion criteria: references outside the desired focus and repeated articles.

Results: 21 references were included in the literature review. 85% of them (n=18) had a descriptive cross-sectional design, 9.5% (n=2) a longitudinal observational design and 4.7% (n=1) a quasi-experimental design. 43% of articles (n=9) were focussed about substance abuse, 38% (n=8) about physical activity and healthy eating, 9.5% (n=2) about sexual behaviors of students, and another 9.5% (n=2) about the importance of knowledge on Health Promotion in the development of professional and personal lives.

Conclusion: Nursing students have a better predisposition to improve their health habits than other non-medical qualifications students. They have healthier behaviours related to toxic intakes or sex relationships. The evolution and formation of students throughout nursing degree, in general, improve their health habits, although sometimes they could be damaged by factors such as academic overload. The implementation of education programs in the field of Health Promotion is deemed necessary for the university stage.

Keywords: Students; Nursing (MeSH); Health behaviour (MeSH); Life style (MeSH); Health promotion (MeSH); Risk factors (MeSH)

Introduction

Health-promoting habits assisting the good health and healthy lifestyles as well as strengthening and promoting practices that foster the achievement of full and total health situation from all known perspectives have been terms irretrievably linked to the profession of nurse for many years [1,2]. Nursing professionals are a fundamental part of the patient teaching process, as well as of the adoption or support of health promoting behaviour [3-5]. It is essential for the Nursing students to receive adequate training throughout the university years, since they will transmit the knowledge and skills learned in order to improve the quality of people's lives in the future [6]. Nursing professionals spend more time with the patients than any other professional; therefore patients take the nurses as a reference or a model of healthy habits [5].

Albeit numerous studies that have been published about the evolution of nursing students' experience throughout the university years in terms of changing their lifestyle habits, the literature reviews are infrequent. However, there are some examples, such as the review conducted by nursing students from the US on the habit of smoking and its influential factors [7]. This review accentuates the high consumption of tobacco among these students, the high number of smokers who reconsider quitting smoking and the vital importance of Health Promotion Programs during the training stage of future nursing professionals. There is another literature review that has collected 35 articles in English [8], which shows the tendency of Nursing students to smoke and the increasing prevalence that occurs as students' progress in their university degree, highlighting also the effectiveness of programs in reducing the consumption of tobacco, although they do not seem to have a great acceptance by the students.

With reference to alcohol consumption among nursing students, the review done in 2008 transcends [7]. It describes various strategies to incite students to drink on a massive scale, involving games, discounts

and promotions at different events and celebrations or even bets whose penalty is to drink a certain amount of alcohol. This review concludes that education programs related to alcohol intake in nursing students are very beneficial as they influence the reduction of consumption of alcohol and also encourage the creation of Health Education Programs by future health professionals. The answers that the nursing students provided regarding the consumption of alcohol in people around them have been studied [9], evaluating the perspective of Nursing students on the problems of alcohol consumption and recovery of patients who have suffered or suffer from alcoholism. Most students report having had contact with alcoholics and have a very positive view regarding their recovery. Hence, there is a need for Education Programs during the training years of professionals to promote the creation of Health Promotion Programs in this area among future professionals.

Regarding eating behaviors, some reviews stand out due to the fact that they show the importance of the knowledge in the area of nutrition that Nursing students are required to have in order to promote Health Programs in everyday environments such as schools [10]. The National Association of School of Nurses (NASN) indicates that adequate nutrition fosters intellectual development. It also highlights how important it is to have a healthy diet for all professionals who promote healthy lifestyles, as they will be the main example to follow by all the patients who wish to improve the quality of their nutrition. There are also interesting reviews on other health habits such as alcohol consumption, drug use and unsafe sexual practices of nursing students. Thus, a research conducted in Spain [11], reveals the close relationship between consumption of toxic substances and unsafe sexual practices, both due to lack of contraceptive methods and also because of the short fall of knowledge about the activities performed. Although as students acquire knowledge over the years, a remarkable decrease of these practices is observed, that is why an improvement of curricula for the training of future professionals is very much needed.

Another point to take into consideration regarding health behaviors of nursing students is the physical activity. A study that includes among its participants students of Health Science and Teaching degrees and also Nursing students [12] focuses on the relationship between practicing sports and a good diet, finding wide disparities in responses of students from different degrees. Nursing students show to have better habits. However, the most revealing is the importance given to promote health habits in the students' curricula in order to improve their lifestyle habits.

As has already been seen, some gaps in certain areas have been found while collecting the data, with regard to drug abuse or unsafe sex practices. Because of these shortcomings and because it is during the stage when living habits and social relationships evolve so considerably [13], it is necessary to investigate studies performed, update and study the habits of university students and even more concerning future health professionals, who are the main health promoters and who will greatly influence the changes that patients should make in their everyday life [5].

The literature review is done in order to learn how Nursing studies and knowledge acquired by the students influence the lifestyle of these future professionals and their health habits, addressing the consumption of tobacco, alcohol and other drugs, diet, exercise and sexual practices. The review is also done to determine areas in the curricula of nursing degree that need improvement as well as specific weaknesses of students.

Methods

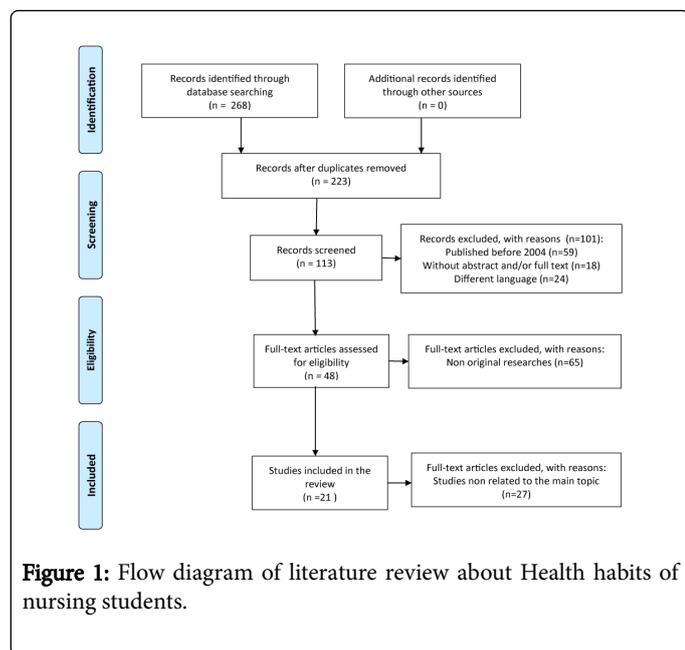
An exhaustive search of the literature in view of the influence of nursing studies on lifestyle habits of students, published between 2005 and 2015, was completed consulting following bases: PubMed/Medline, Spanish Medical Index (IME), Cumulative Index to Nursing and Allied Health (CINAHL) and Scopus. The following Decs/Mesh key words were used: "Students, Nursing", "Health Behavior", "Health Promotion", "Life Style", "Alcohol Drinking", "Smoking", "Unsafe Sex", "Drug Users", "Feeding Behavior", "Sedentary, Lifestyle" and "Risk - taking". The search strategy was developed by combining the descriptors mentioned above with the Boolean operators AND, OR, according to the volume and (restricted or expanded) character of the results obtained in each of the databases consulted. Quantitative studies of all designs, in English, Spanish or Portuguese, published in scientific, medical and nursing journals in the last 10 years, related to the topic and which were not repeated previously were selected. The eligibility criteria related to language were focused on English language due to its prevalence in published articles, but adding additional languages (Spanish and Portuguese) was decided to improve interpretation and generalizability not only within the Anglo-Saxon culture but also in the Ibero-American culture.

So, the limits used in the literature search were the following: publishing date later than 2004, English, Spanish and Portuguese languages, nursing students as target population, summaries and full texts. The exclusion criteria were specifically: duplicated records, articles published before 2004, abstract and/or full text not available, different languages than restricted ones, non-original researches (like reviews, editorials or case reports) and non-quantitative studies related the main topic.

A total of 268 references were collected, from which 156 were dismissed due to exclusion criteria like duplicated records (n=45) or publishing date, non-abstract/full text available or different language (n=101). The references that did not have presented an original research (n=65) or a quantitative study (n=27) were also excluded.

Finally, 21 references considered relevant were the ones that formed the subject of literature review. In Figure 1, a comprehensive flow diagram are shown, describing the different steps to include studies for the review, after applying the referred searching limits and exclusion criteria, following the PRISMA group recommendations. We proceeded to analyze the content of the studies included in the review, following these recommendations for systematic reviews, adapting the PRISMA group checklist to identify in the text of each article the type of study design, the features of participants, data collection procedure followed, tools used for it, health habits and lifestyles researched, the most relevant findings and the most remarkable conclusion.

To perform the analysis of these results, percentages of study design types were calculated and health habits studied in papers included in the review were grouped, and a synthesis of methodological aspects described in each study was performed. Individual results of each study were summarized and also main findings, providing a general interpretation of each research, as well as possible implications for future research.



Results

After reviewing and analyzing the selected articles, it was found that 85% of these works were descriptive and transversal (n=18), 9.5% were longitudinal observational (n=2) and 4.7% was quasi-experimental (n=1). Nearly 43% of the articles (n=9) dealt with the consumption of

toxic substances (alcohol, tobacco, illicit drugs...) and one of them linked the consumption of these substances to their influence on driving and road safety. Over 38% of them (n=8) covered the area of physical activity and healthy diet, 9.5% of them (n=2) inquired into the most important aspects of sexual life of students, linking it with the main factors influencing it both positively and negatively and 9.5% of the remaining articles (n=2) determined the importance of knowledge of Health Promotion in the development of professional as well as in personal life of students.

Over 58% of the articles analyzed were characterized by employing in-house questionnaires "ad hoc" and others previously developed and validated. The two most commonly used tools were the HPLP (Health Promoting Lifestyle Profile, which evaluates lifestyles) and the AUDIT (Alcohol Use Disorder Identification Test). Only a 29% of reviewed studies did not have a sample size over 100 people, ranging from 30 to 1,255 subjects (x=288.38).

On the other hand, 29% of the studies (n=6) included only the female population in the samples, because of selection criteria (50%, n=3), the existence of centers where no men were taking the degree (50%, n=3) and 9.5% of the studies (n=2) did not specify the gender of the samples. The wide variety of results depending on the habit studied as well as the country or city where the study was conducted is worth stressing. In Table 1 are presented the main features and results of the studies included in the review, and the most relevant results are presented by groups of health habits. It is noteworthy that all studies are concluded with particular emphasis on the importance of improving the curriculum of the university.

Study	Participants (gender) and location	Procedure	Study design	Results	Key findings
[14]	191 fourth year nursing students (male and female). Honduras	Closed-responded questionnaire on alcohol habits (AUDIT)	Cross-sectional design.	22% had low-risk drinking and 3.1% high-risk drinking.	The findings about the low levels of alcohol consumption are explained by the lack of acceptance of this behavior in health professions and the training received by students
[15]	118 health sciences, students: medicine, nursing, psychology and pharmacy (male and female). Spain	Structured clinical interviews about substance abuse and related disorders (SCID-VC).	Cross-sectional design.	29.3% of the sample had some type of substance abuse. From this group, 73.6% were addicted to smoking, 14.7% to alcohol and 2.9% to cannabis. Male consumed 1.31 more quantity of alcohol than female (p<0.01).	High level of toxic substances use, especially alcohol and tobacco. The implementation of preventive measures in future professionals can reduce levels of dependency.
[16]	220 first year nursing students (male and female). Spain	Ad hoc questionnaire to analyze behaviors such as substance abuse, safe driving, and overall risk behaviors.	Cross-sectional design.	82.8% of male and 89.6% of female used any contraceptive method. 100% of male and 94.4% of female drank alcohol during last year.	Significant differences between men and women were observed, as men tend to follow more aggressive behavior during driving or abusing substances. In the other side, men tend not to use contraceptives to prevent STIs.
[17]	401 nursing students, from first to fifth year (Not specified gender). Colombia	Closed and opened response Ad hoc questionnaire, analyzing eating habits	Cross-sectional design.	43% of students showed unsuitable feeding behaviours. 80% showed normal weight, 11% low weight, 7.5% overweight and 1.5% obesity.	43% of students showed unsuitable feeding behaviours. 80% showed normal weight, 11% low weight, 7.5% overweight and 1.5% obesity.
[18]	184 students (96 Nutrition and 88 Nursing students, male and female). Spain.	Ad hoc 24 h reminder questionnaire collecting	Cross-sectional design.	16.7% of Nutrition students had overweight or obesity: This	The difference between both groups of students is not significant. Having

				percentage in Nursing students was 14.7%. More physical activity was practiced by Nutrition students (Relative Risk 1.2). More carbohydrates were consumed by normal weighted students ((RR 1.29 p=0.012)	knowledge about nutrition is not decisive to carry out a proper eating behavior.
[19]	57 nursing students (female). Turkey	Health-promoting lifestyle profile questionnaire (HPLP).	Longitudinal design.	The total score of HPLP when nursing students entered to school was 121.63 and at graduation was 140.15 (p=0.000).	A positive change of students' lifestyle and knowledge from the beginning to the end of their studies is observed
[20]	847 nursing students and 769 non-nursing students (not specified gender). Turkey	Health-promoting lifestyle profile questionnaire (HPLP).	Cross-sectional design	HPLP mean for nursing students at 1st grade was 2.47 and at 4th grade 2.51. For non-nursing students HPLP mean was 2.41 at 1st grade and 2.30 at 4th grade (p<0.05).	The knowledge of nursing students in the areas of nutrition, exercise and risky behaviors influence positively in their lifestyle. They have better health behaviours than non-nursing students.
[21]	67 nursing students not received sexuality matters (female). Colombia	Ad hoc structured questionnaire about sexual activity	Ad hoc structured questionnaire about sexual activity	91% knew that just one sexual relationship could cause pregnancy. 59% knew that ejaculating outside vagina could cause pregnancy and 82% knew that post day pill should be used before 72 h after sexual relationship.	The knowledge that students have is not enough to perform a sexual life without risk. Having enough knowledge does not guarantee a safe sexual practice.
[22]	130 nursing students (male and female). Colombia	Ad hoc survey about knowledge and consumption of psychoactive substances	Cross-sectional design.	83.7% of students agreed to legalize psychoactive substances. 87.6% recognized having used drugs.	A close relationship between the use of psychoactive substances and the lack of knowledge was observed. This negatively affects both the very health of students and public health.
[23]	82 nursing students (female). Peru	Self-administered questionnaire about stress levels and alcohol consumption (Academic Stress Inventory and AUDIT)	Cross-sectional design.	The main stressor for nursing students was academic overload (mean score=3.87/5). 48% of students were regular alcohol consumers (1-2 drinks a day).	Because students perceived an academic overload, bad habits are reported, which negatively affects the health of students and their recommendations in their working practice.
[24]	315 students: 49% Non-nursing students (agricultural engineering students) and 51% nursing students (male and female). Spain	Ad hoc questionnaire for sociodemographic data and BMI, Eating Disorders Inventory-body dissatisfaction (EDI-IC) and Eating Disorders Inventory-Slimming obsession (EDI-OD)	Cross-sectional design.	Mean of BMI for nursing students=24.0 and for non-nursing students=23.25. EDI-IC score for nursing students was 7.35 (female) and 4.13 (male) and for non-nursing students 6.28 (female) and 2.55 (male). EDI-OD score for nursing students was 3.50 (female) and 1.65 (male) and for non-nursing students 2.77 (female) and 1.36 (male).	Although the differences were statistically non-significant, knowledge of Nutrition and Dietetics plays a key role in raising awareness of nursing students regarding diet and health. Knowledge of nursing students is beneficial to professional developing and to carry out a healthier life.
[25]	130 nursing students (male and female). Spain	Ad hoc anonymous bilingual questionnaire (Spanish-basque) about drinking and smoking habits, longitudinally filled out along three years.	Longitudinal design.	Prevalence of smokers was 25% among first grade, 26.7% among second and 26.9% among final grade students. Prevalence of regular drinkers was 70.4%, 69.7% and 69.6%, respectively.	Students do not improve throughout university life, or even become worse. Those professionals who have unhealthy habits are not good models for the general population, impacting negatively on the health.

[26]	30 nursing students (male and female). Spain	Ad hoc questionnaire about frequency and intensity of exercise and physical activity	Cross-sectional design.	17% of students are used to doing physical activity at least 3 days a week. 47% recognize not to do it at all. 73% of student's don't get the recommended level of calories in their diet.	Nursing students are not able to integrate health tips into their daily routine. The educational messages that try to convey in their professional future will be less effective if they do not carry a healthy lifestyle
[27]	143 traditional and non-traditional nursing students (female). USA	16 items questionnaire to analyze Barriers for Health Promotion Activities (BHPA) and Health-promoting lifestyle profile questionnaire (HPLP II)	Cross-sectional design.	Mean score on the BHPA scale indicated that non-traditional students experienced higher perceived barriers than their traditional counterparts (2.73 vs. 2.22, p=0.001). Traditional nursing students got a total HPLP score of 2.74 and non-traditional nursing students got 2.47 (p=0.01)	The rigorous nature of nursing programs may have a significant impact on health promoting behaviors and perceived barriers to health promotion for students, particularly for non-traditional nursing students.
[28]	159 nursing students (male and female) in their 1st and 2nd year. USA	Questionnaire to evaluate smoking, drug and alcohol abuse, stress, physical activity and safety (Health Style).	Cross-sectional design.	No significant differences in means of the healthy behavior scores between 2nd year nursing students than 1st year students: smoking (17% smokers), drugs and alcohol (4% daily drinkers), eating habits (65% failing to keep their weight down), exercise (81% not achieving recommended level of physical activity), safety and stress control.	No significant differences in means of the healthy behavior scores between 2nd year nursing students than 1st year students: smoking (17% smokers), drugs and alcohol (4% daily drinkers), eating habits (65% failing to keep their weight down), exercise (81% not achieving recommended level of physical activity), safety and stress control.
[12]	258 university students: 87 nursing students, 73 physiotherapy and 98 education students (female). Spain	International Physical Activity Questionnaire (IPAQ) to evaluate physical activity and Eating Attitudes Test (AT-40) to study eating disorders.	Cross-sectional design	Nursing students (72.1%) and education students (64.7%) reported the highest rates of sedentary life style. The degree of association between physical activity expenditure and the existence of eating disturbed attitudes was only significant among education students (OR=3.58; p<0.05)	An important prevalence of physical inactivity and eating disturbed attitudes seems to exist among education and nursing students. There is a chance that the performance of intense physical activity could be related to inadequate eating habits.
[29]	1255 nursing students (female). México.	Ad hoc questionnaire to analyze sexual and reproductive behaviours	Cross-sectional design	47.7% of students had had sexual relationships. 28.1% of them reported having had pregnancy or abortion during the studies. 36.6% of students stated to use always contraceptives.	It is necessary to create health programs on sexuality and reproduction, although the education offered is not always the behaviours. Most appropriate, due to the difficulties in adapting to religion, culture and lifestyle.
[30]	61 third year nursing students (male and female). United Kingdom.	Ad hoc questionnaire related to illegal drugs use and educational inputs about substance misuse.	Cross-sectional design	All the students who completed the questionnaire indicated the importance of substance misuse as a topic area of nurse education. Only 15% indicated that the subject was covered in enough detail.	Students would like more factual information on illicit drugs to be included in the nursing curricula, mentioning issues such as the physical effects of drugs and treatment interventions as areas for further learning.
[31]	182 nursing students (male and female). Ireland	Self-administered questionnaire about physical activity and	Cross-sectional design	20% of students were smokers, 95% drank alcohol and 73% were	University should emphasize promoting healthy lifestyles among their students. These skills can be transferred to clinical

		lifestyle (European Brain and Behaviour Society EBBS).		used to doing exercise at least twice a week. Male practiced more frequently physical activity than female.	practice, because professionals serve as a role model and they can facilitate behavioral changes to the population.
[11]	291 first year nursing students (male and female). Spain	Ad hoc anonymous questionnaire including sociodemographic variables, drug abuse and risky sexual practices.	Cross-sectional design	Smoking rate was 17% for male and 26% for female. Alcohol drinking rate was 50% and 38%, respectively. 65% of female and 55% of male always used condoms. 32% of female had used at least once de post day pill.	There are high levels of alcohol and smoking among nursing students, which influences negatively in safe sexual relationships. Training programs for nursing students must be created, because in the future they must give health advice to the population.
[32]	78 nursing students (male and female). Spain	Ad hoc baseline questionnaire about customs and food preferences of students before and after having a course with a Nutrition subject.	Quasi-experimental design, pre-post evaluation.	Before taking the subject, just 38% of students chose foodstuffs with a healthy reference. After the course this percentage rises to 52.6%. An improvement is observed in nutrient intake.	A slight improvement in eating behavior is observed after attending the course on Nutrition and dietetics, but having knowledge of these subjects is not indicative of changes towards a healthier diet.

Table 1: Included studies.

Consumption of toxic substances and sexual practices

Several works on consumption of toxic substances were discovered, such as the one conducted in Honduras [33], which shows that 3.1% of participants had a high-risk drinking. This study concluded that nursing students knowledge have had an influence on reduction of prevalence of alcohol consumption and on lack of acceptance regarding consumption of substances in reference to health professionals A descriptive study developed in Spain [15] determined a high rate of consumption of toxic substances (alcohol, tobacco, etc.), as proved the result that 29.3% of the sample reported any type of substance abuse, despite the knowledge of nursing students. Another research performed in Spain, based on first-year nursing students [16] related the consumption of these substances, as a risk factor, to road safety. In fact, 100% of male and 94.4% of female included in the sample drank alcohol during last year and the study concluded that the inexperience and lack of knowledge of these students, therefore, is a key factor for alcohol consumption and thus affects negatively their driving habits.

Another work carried out in Colombia revealed that 87.6% of students recognized having used drugs, and the study also proved the lack of knowledge of nursing students regarding the consequences of consuming psychoactive substances and determined the strong link between the lack of knowledge and risk taking of future health professionals. In line with the above, another study done in Spain [25] determined that health habits regarding consumption of toxic substances do not improve with knowledge and even worsens throughout university years. Prevalence of smokers was 25% among first grade and 26.9% among final grade students and prevalence of regular drinkers was 70.4% and 69.6%, respectively. Thus, it could have a devastating effect on both health students and health of the

population, as nursing professionals are taken as reference for healthy lifestyles.

Following the line of risk habits of students in the area of sexuality a study conducted in 2010 in Colombia found that knowledge of nursing students is not sufficient to lead a safe sexual life. Only 91% knew that just one sexual relationship could cause pregnancy and just 59% knew that ejaculating outside vagina could cause pregnancy. On the other hand, Health Programs regarding sexuality did not have adherence, since it is often a part of a theoretical framework that is not always adopted by the students due to religion, culture, lifestyle. This is reflected in a research done in Mexico [29], where it was intended to train future nursing professionals in the field of sexuality, but 28.1% of them reported having had pregnancy or abortion during the studies, and just 36.6% of students stated to use always contraceptives.

Nutrition and physical activity

Another most studied area in relation to healthy behaviors is the diet and the physical activity of students. We found a study conducted in Colombia [17], where it is determined that the University has more negative than positive influence on eating behaviors of students due to economic factors and lack of time. In fact, in this research 43% of students showed unsuitable feeding behaviors and 9% reported overweight or obesity. Comparative studies have also been led to determine whether knowledge about nutrition plays an important role in the lifestyle of nursing students when compared to students of Nutrition and Dietetics degree, as it was proved in a study conducted in Spain [18]. Although 16.7% of Nutrition students had overweight or obesity and this rate in nursing students was 14.7%, it was proved that more physical activity was practiced by Nutrition students.

Knowledge about nutrition does not play an important role in making-decisions concerning the food because no significant difference between the two degrees was found, which can negatively influence future interventions of professionals. Other research developed in Turkey among nursing students and students from other degrees of Social Science [20] noted that knowledge of nursing students in areas like nutrition and exercise had a positive influence on their behavior. In this research, HPLP mean rate for nursing students was 2.47 at first grade and 2.51 at fourth grade. For non-nursing students HPLP mean was 2.41 and 2.30, respectively ($p < 0.05$).

A study conducted in Spain [24], concluded about the importance of the knowledge in the areas of Nutrition and Dietetics when integrating healthy habits into the daily routine of nursing students. As one of the results, the study proved that mean of BMI for nursing students was 24.0, while for non-nursing students was 23.25. Also was reported that Eating Disorders Inventory-body dissatisfaction (EDI-IC) and Eating Disorders Inventory-Slimming obsession (EDI-OD) scores were significantly higher for nursing students than for non-nursing students.

In 2005 another study was conducted in Spain and focused on the importance of integrating healthy habits in the daily life of professionals, particularly with regard to physical activities, since it helps the message they transmit to their patients to be much more effective [26]. For instance, it was worrying that 47% of students recognized not to do physical activity at least 3 days a week and 73% didn't get the recommended level of calories in their diet.

One of the most relevant studies included in this review was conducted also in Spain in 2012, with a quasi-experimental design, which was intended to verify the dietary changes of nursing students after completing the course of Nutrition and Dietetics. An improvement in eating behavior was noted, but having knowledge about the subject was not a clear indicator of improvement of habits, since many of the recommendations learned were not implemented. Thus, before taking the subject, just 38% of students chose foodstuffs with a healthy reference and after the course this percentage raised to 52.6%.

Professional nurse as a model of healthy behavior

Concerning professional nurses being a model for the population, a 2006 study performed in United States, determined that Nursing students do not meet expectations or become benchmarks of health [28] since their habits, despite their knowledge, are rather unhealthy. In fact, it wasn't found significant differences in means of the healthy behavior scores between second year nursing students than first year students, like smoking (17% smokers), drugs and alcohol (4% daily drinkers), eating habits (65% failing to keep their weight down) or practicing exercise (81% not achieving recommended level of physical activity).

In spite of this, the factor that influences the most in lifestyle habits is the academic training received, as concluded in the study developed in 2011 in United Kingdom. It revealed that the curricula does not give enough importance to risks of consuming illicit substances [30] and, thus, it is recommended to reinforce this knowledge through training programs. Academic overload may be a risk factor for students wanting to get rid of stress by consuming alcohol or other substances, which is clearly reflected in a study conducted in 2005, in Peru [23]. Thus, 48% of students were regular alcohol consumers (1 or 2 drinks a

day) and the mean score of Academic Stress Inventory for participants was 3.87 from a maximum of 5.

The importance of maintaining good health in future health professionals is reflected in a study conducted in Spain, which determines that high levels of consumption of alcohol and tobacco by Nursing students [11] have a negative impact on certain aspects such as STI transmission. For instance, only 65% of female and 55% of male reported they always use condoms and the alcohol drinking rate was 50% and 38%, respectively. Another study did in Spain, found that the lifestyle of nursing students compared to students of Education or Physical Therapy, is less healthy, despite their knowledge [12]. In this sense, nursing students and education students reported the highest rates of sedentary life style, 72.1% and 64.7%, respectively.

Another important research performed in Ireland claims that the University is a learning scenario for Health Promotion [31] in order to foment the improvement of clinical practice of future professionals. They recommended improving some rates reported in the study, like 20% of smokers or 95% of alcohol drinkers, among nursing students participants. The change of the habits of life of nursing students occurs throughout college life, which will have a positive influence on their future clinical practice, as it was proved by a study conducted in Turkey and it is seen that students implement the skills taught in the University. As an evidence of this, the total score of HPLP when nursing students entered to school was 121.63 and at graduation was 140.15.

However, other factors not related to the university have an impact on the behavior of nursing students, such as the level of maturity of the students and other sociodemographic factors, as was concluded by other research performed in United States [27], in which was compared traditional nursing students versus non-traditional nursing students. Mean score on the Barriers for Health Promotion Activities scale (BHPA) indicated that non-traditional students experienced higher perceived barriers than traditional students (2.73 vs. 2.22, $p = 0.001$).

Discussion

Knowledge of Nursing professionals have evolved throughout history, resulting in them taking on more and more responsibilities, which requires nurses to be well trained and serve as a model of healthy lifestyle for the rest of the population. One of the responsibilities of nursing professionals is the Health Promotion and Health Education. Nurses should advise correctly the patients to improve their lifestyles and quality of life.

After analyzing the 21 cited above studies, it is worth noting that the target population is clearly not homogeneous since very different samples participated. The review has highlighted the relevance of the topic, since the health of people in the future will depend on those who today are still nursing students. Through this review we have tried to analyze what are the main risk factors in the studied population in order to raise awareness and to create future Health Programs aimed at improving the unhealthy behaviors that have been determined.

One of the limitations of this review is the diversity of habits it collects, but it also can be considered a strong point because of the originality it presents. The lack of background information has been a real limitation when carrying out the review, since it is not started from well-established knowledge bases regarding the subject studied. Due to the cultural diversity that the review presents, the data cannot

be layered according to cultures but should be comprehended, in general, as a work based on Nursing students, which may also be considered as another limitation.

Concerning previously mentioned studies, we would highlight those reviews that talk about the habit of drinking among the Nursing students and which agree on the need for Health Programs to improve the alcoholic habit of students [9,34]. On the other hand, concerning the consumption of tobacco, we can see that while progressing in their university degree, this habit is reinforced and strengthened, which has a negative effect on the health of students [7,8]. A fact that enhances the accuracy of this review has been the finding of a previous review that studies the influence of knowledge of nursing students regarding their diet, proving that knowledge acquisition on health improves their nutrition habits.

Nursing students compared to other students in the Health branch have very similar behaviors, especially in the field of nutrition [12,17,18,20,24,26,31]. When comparing with students of other non-medical degrees, Nursing students have excelled presenting much healthier behaviors, due largely to the knowledge acquired during academic training [27]. In general, nursing students have similar habits to any other students of non-medical degrees, although it is true that they make decisions knowing the repercussions that those may lead to due to their health knowledge.

It is worthy to mention the influence of university life on the lifestyle habits of students [20], as both studies and academic overload influence one way or another the behavior of the students [23].

Nursing knowledge always plays a positive role regarding healthy habits, but the academic overload and other socio-demographic factors also influence and not always in a positive way. Thus, the academic overload leads the students to relieve tension and reduce stress in some way and most of them end up adopting unhealthy behaviors. Consequently, reinforcing the importance of countering this overload with Health Programs will provide students with healthy habits to replace those unhealthy alternatives.

Modifying lifestyle habits of students is not simple, but it is much easier during learning stages or in the university period [31]. When nursing students begin their studies, they have a basic knowledge acquired at lower educational levels and this knowledge causes fluctuating changes in their health behaviors. As a result, at certain times those will impact positively and in others negatively. Regarding positive impacts, it is worthy to mention the personal and professional evolution the students experience during their academic training, allowing them to use their knowledge for their own benefit and to improve their health and of those around them. On the contrary, there are negative aspects, as mentioned above, since in many parts of the world the main activities for young people to release stress are to lead unhealthy habits [11].

Thus, all information collected and discussed above may serve as a basis for future research, since the field of lifestyle of future Health professionals has an indirect impact on the health of the general population and can be a benefit or harm to it, depending on whether the behavior of the professionals in their day to day life is healthy or not [30].

In this literature review unresolved issues due to the diversity of selected studies arise, since the habits and customs of the university students are influenced by sociodemographic factors besides the

knowledge acquired. However, there is clearly a glaring need to improve curricula in nursing degree programs through Health Promotion for students to strengthen the knowledge acquired during the university stage. This will impact positively on both the integration of healthy routines into the lives of students and on future development of their clinical practice, as it has been shown that the nursing staff is taken as a role model by the population [12,18,20,24].

Conclusion

The aim of this review has been to update the knowledge about the lifestyle habits of nursing students, comparing the knowledge of the Nursing students to the one of the students of other non-medical degrees. Information about the main activities that students perform during their training in their daily lives has been collected, solidifying a starting point for future research associated with this area. A better predisposition of nursing students to improve health habits has been noted compared to the students of other non-medical degrees. It is noteworthy that Nursing students present healthier habits than other students from other degrees regarding alcohol consumption, intake of toxic substances or sexual practices.

Thus, the way in which the evolution and academic training of students throughout the degree improve the health habits of students, although some may be impaired at certain times due to factors such as stress or academic overload, has been recorded. Although the Nursing students have healthier lifestyle habits than other students, a lack of knowledge of future health professionals has been expressed, as it has also been expressed the need of Education Programs implementation in the field of Health Promotion during the university years.

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