


## RESEARCH

### Attitude towards research of undergraduate nursing students in a distance education context


### Actitud hacia la investigación de estudiantes de enfermería en un contexto de educación a distancia

### Atitude frente à pesquisa de estudantes de enfermagem em contexto de educação a distância


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### Abstract

**Introduction:** The shutdown of educational institutions worldwide due to the global COVID-19 pandemic resulted in the need to provide distance education, which changed the appreciation and attitude of university students about certain aspects of education. Whether this change affects attitudes towards research is unknown. **Objective:** To analyze the attitude of nursing students towards research in a distance education context. **Methodology:** This is a descriptive cross-sectional correlational study conducted in 376 students enrolled in all the academic years of nursing at a Mexican university; students from other schools, students on academic stay or those who dropped out were excluded. Socio-demographic variables were measured and the questionnaire about attitude towards research of undergraduate students was applied after obtaining the approval of an ethics committee (1/2021) and authorization of the participants by informed consent. **Results:** Students had a poor to fair attitude towards research; 69-71% of the participants stated that the main obstacles regarding research were lack of time and knowledge; they considered that doing research is stressful and tedious; 96-98% of the participants thought that knowing how to cite, write and organize were the main skills to take into account when doing research, having a sense of ethics and flexibility of thought. Students showed a decline in good attitude as they progressed through the years at the university, with  $p < 0.05$ . **Conclusions:** The attitude towards research of distance nursing students was poor to fair, so this study lays the groundwork for future interventions, in which an attempt is made to improve the attitude and disposition regarding distance research.

**Key words:** Attitude; Research; Nursing students; Students (DeCS).

### Resumen

**Introducción:** El cierre de instituciones educativas a nivel mundial debido a la pandemia global de COVID-19 dio como resultado una educación a distancia que ha modificado la apreciación y la actitud de los estudiantes universitarios ante ciertos aspectos educativos. Se desconoce si este cambio afecta la actitud hacia la investigación. **Objetivo:** Analizar la actitud hacia la investigación de los estudiantes de enfermería en un contexto educativo a distancia. **Metodología:** Estudio descriptivo transversal correlacional, en 376 estudiantes inscritos de todos los años de enfermería de una universidad mexicana, excluyendo estudiantes de otras escuelas, en estancia académica o bajas. Se midieron variables sociodemográficas y el cuestionario actitud hacia la investigación en universitarios, con previa aprobación de un comité de ética y autorización por consentimiento informado. **Resultados:** Los estudiantes tuvieron una actitud hacia la investigación de mala a regular, 69-71% manifestó que los principales obstáculos para no investigar fueron falta de tiempo y conocimientos, consideraron que hacer investigación fue estresante y tedioso, 96-98% pensaban que saber citar, redactar y organizarse eran las principales habilidades a tomar en cuenta para investigar, con sentido ético y flexibilidad de pensamiento. Los estudiantes mostraron un decremento en la actitud conforme avanzaban de año en la universidad con  $p < 0.05$ . **Conclusiones:** La actitud hacia la investigación de los estudiantes de enfermería a distancia, fue de mala a regular, por lo que el presente sienta las bases para futuras intervenciones en las cuales se trate de mejorar la actitud y disposición a la investigación a distancia.

**Palabras clave:** Actitud; Investigación; Estudiantes de enfermería; Estudiantes (DeCS).



## Abstrato

**Introdução:** O encerramento de instituições de ensino em todo o mundo devido à pandemia global da COVID-19 resultou na necessidade de fornecer educação à distância, o que mudou a apreciação e a atitude dos estudantes universitários em relação a certos aspectos da educação. Se esta mudança afecta as atitudes em relação à investigação é desconhecida. **Objetivo:** Conhecer a atitude dos estudantes de enfermagem em relação à pesquisa em contexto educacional a distância devido ao COVID-19. **Metodologia:** Estudo descritivo transversal correlacional, em 376 estudantes inscritos em todos os anos de enfermagem numa universidade mexicana, excluindo estudantes de outras escolas, em estadia académica ou licença de ausência. As variáveis sociodemográficas foram medidas e o questionário de atitude em relação à investigação nos estudantes universitários, com a aprovação de um comité de ética (1/2021) e consentimento informado. **Resultados:** Os alunos tiveram uma atitude de pobre a regular em relação à pesquisa. 69-71% afirmaram que os principais obstáculos para não fazer pesquisa foram a falta de tempo e conhecimento, e consideraram fazer pesquisa estressante e tedioso. 96-98% consideraram que saber citar, escrever e organizar eram as principais competências a ter em conta para investigar, com sentido ético e flexibilidade de pensamento. Os estudantes mostraram um declínio na boa atitude à medida que progrediram ao longo dos anos na universidade ( $p < 0,05$ ). **Conclusões:** A atitude em relação à pesquisa dos estudantes de enfermagem na educação a distância, passou de ruim para regular, portanto o presente lança as bases para futuras intervenções em que se trata de melhorar a atitude e disposição para a pesquisa a distancia.

**Palavras-chave:** Atitude; Pesquisa; Estudantes de enfermagem; Alunos (DeCS).

## Introduction

Research is an organized, systematic and objective process that, through the use of the scientific method, obtains relevant information by answering one or more hypothesis to expand, explain, test, correct and use knowledge about something unknown <sup>(1, 2)</sup>. In this context, universities are responsible for training researchers who in the future will dedicate their efforts to new discoveries that will benefit society <sup>(3)</sup>. This being said, research at the university level is of utmost importance, in addition to being an indicator of educational quality in universities <sup>(1)</sup>. Health research has allowed the development of countless advances in preclinical and clinical aspects, it is considered the path that links theory with practice <sup>(4)</sup>. Therefore, as fundamental members of the health care team, nursing professionals must be able to manage and value research, which is why nursing undergraduate degrees address methodological aspects <sup>(5, 6)</sup>. As a result, nursing students will have to acquire competencies to solve the professional problems they face in their daily work <sup>(7, 8)</sup>. In this regard, the attitude of nursing students towards research in the face-to-face



educational mode has been studied worldwide <sup>(1, 9-12)</sup>. The studies have found a high variability in the results; in some cases, there is a high disposition and positive attitudes towards research, in others a positive attitude was found, but with limited or deficient knowledge; in general, there is a low scientific production <sup>(3, 6, 10, 12-14)</sup>.

It should be noted that no studies of attitude towards research in distance education mode were found. On the other hand, in March 2020, the World Health Organization (WHO) issued a press release informing that the infectious disease Coronavirus Disease-19 (COVID-19) would be considered a pandemic due to the accelerated levels of transmission and severity <sup>(15)</sup>. This fact changed the lifestyle worldwide, including the way of providing education at all educational levels, being in many cases an emergency remote education without established bases for a distance education (e-learning) or mixed education (b-learning) <sup>(16)</sup>. Thus, governments around the world authorized work and educational activities to be carried out at home, in order to achieve social distancing and therefore a decrease in the number of contagions, resulting in the closing of doors of educational institutions <sup>(17)</sup>. Nursing schools were no exception and had to adapt to the restrictive measures of institutional, state and federal health committees, implementing a transition from traditional face-to-face education to virtual and distance education (e-learning) and/or blended learning (b-learning) <sup>(18, 19)</sup>, which possibly affects university education from a scientific perspective. This is why this topic is especially relevant for nursing education. Therefore, the following hypothesis arises: Nursing students have a good attitude towards research in a distance education context; so the objective was to know the students' attitude towards research in a distance education context.

## Methodology

Descriptive and correlational cross-sectional quantitative study. The population included 1211 students enrolled in a bachelor's degree program in nursing at a public university in Hidalgo, Mexico <sup>(20)</sup>. The sample size of 376 students was determined by probability sampling <sup>(21)</sup>. Students were grouped by academic year. The inclusion criteria were: undergraduate nursing students of all academic years, enrolled in the semester



from July to December 2020, who are academically active. Students from other universities, students on academic stays, those who had temporarily withdrawn, and those who did not want to sign the informed consent form were excluded. Data from students who answered the questionnaire incompletely were eliminated. The following variables were evaluated: age, sex, parents' schooling, school year and attitude towards research. The questionnaire: Attitude towards research in university students <sup>(22)</sup> was applied, which consists of 28 items on a Likert-type scale, with two dimensions: positive attitude and negative attitude, and four categories: research skills, positive evaluation, obstacles to research, and negative evaluation. To obtain the total score of the questionnaire, the percentiles proposed by the authors were used (33rd and 66th percentiles, to identify a good, fair and poor attitude towards research). The validity of the questionnaire was performed with factor analysis with 2 factors (positive attitude and negative attitude) that explained 30.2% of the variance. Cronbach's Alpha value of 0.726 determined its reliability.

The research was approved by the Research Ethics Committee of the Instituto de Ciencias de la Salud (Health Science Institute) (Official Letter No. 1/2021). The research was conducted in compliance with the principles and provisions set forth in the Declaration of Helsinki <sup>(23)</sup> and the Ley General de Salud en Materia de Investigación para la Salud (General Law of Health in the Field of Health Research), where it is classified as research without Risk <sup>(24)</sup>.

Data collection was carried out online using Google Forms in April 2021. The link was sent to the nursing students with the support of the head of nursing, who allowed its distribution and invitation through chat groups by group representatives. The questionnaire guaranteed anonymity and was answered voluntarily after authorization by means of online informed consent.

Statistical analysis was performed with IBM Statistical Package for the Social Sciences (SPSS Statistics 23) software. Descriptive and inferential statistics were performed with the data expressed as the mean  $\pm$  standard deviation of each variable. The difference between means was estimated with a one-way analysis of variance (ANOVA) with a Tukey's post-hoc test ( $p < 0.05$ ).

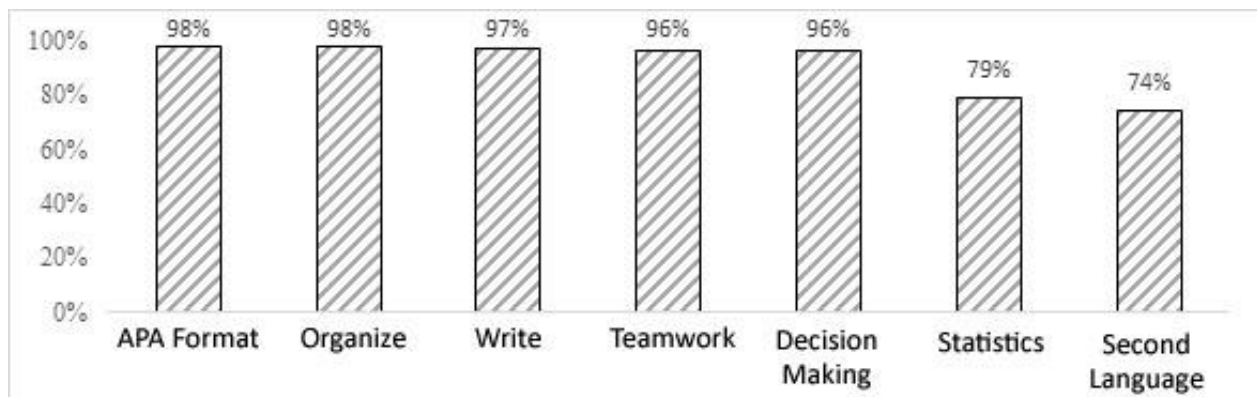


## Results

The average age of the students was 20.9 years. The sex distribution was 82.7% female and 17.3% male. The schooling of the students' parents was high school 37.7%, middle school 34.1%, undergraduate 18.6%, and elementary school and postgraduate (5.2% and 4.4%, respectively). 36% Thirty-six percent (36%) of the participants had a bad attitude towards research, 35% had a fair attitude and 29% had a good attitude, so there was not enough evidence to reject the null hypothesis.

Figure 1 indicates that the students considered the use of the American Psychological Association (APA) format and the ability to organize as indispensable skills for doing research, with 98% each. While the skills they considered less necessary were the use of statistics (79%) and knowing a second language (74%).

Figure 1. Research skills of nursing students, 2020. (n=376).

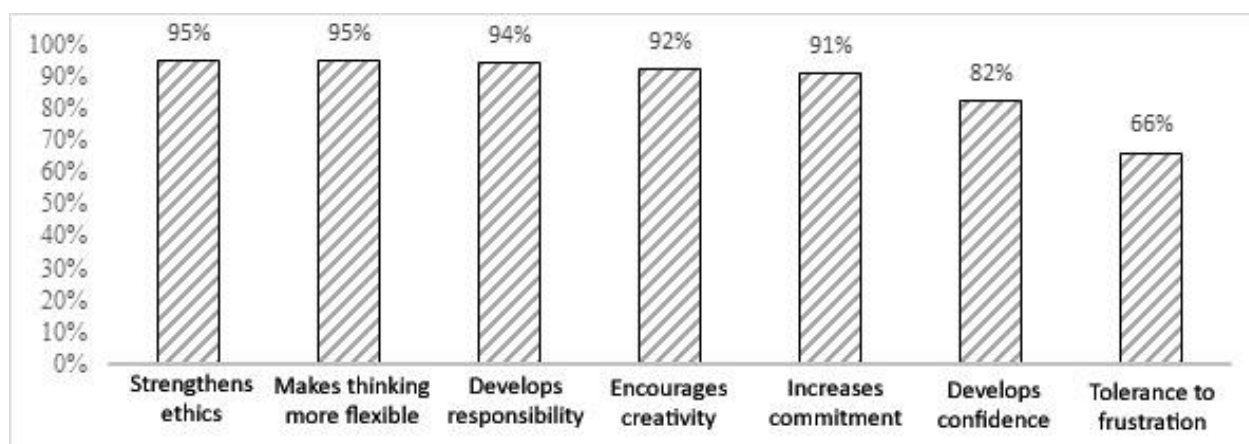


Source: Own development.

In the category of positive evaluation of research, the students considered that research mainly allowed them to strengthen their ethics and make their thinking more flexible, with 95% each. On the other hand, the least positive aspects were personal confidence (82%) and tolerance to frustration (66%) (Figure 2).



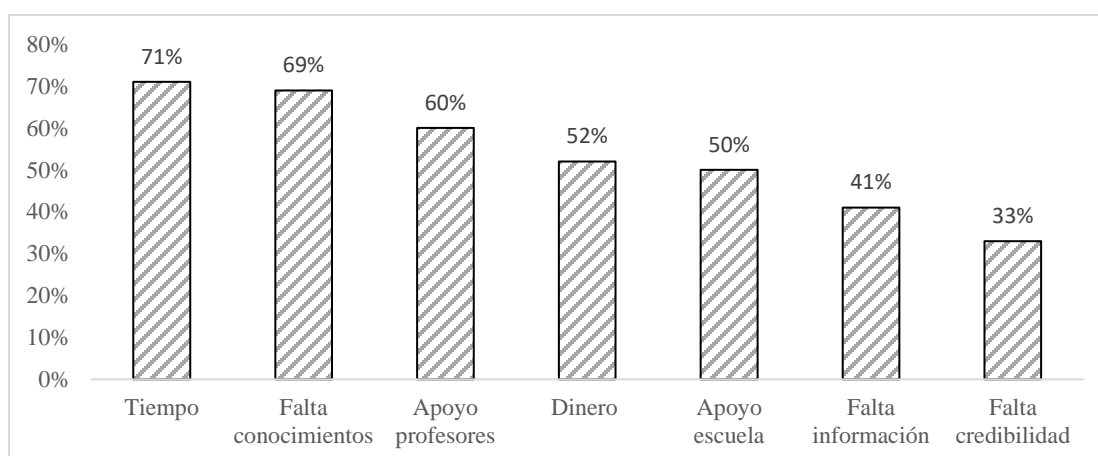
Figure 2. Positive evaluation of research by nursing students, 2020. (n=376)



Source: Own development.

Figure 3 shows that students considered lack of time (71%) as the main obstacle to conducting research, followed by lack of knowledge (69%), to a lesser extent lack of information (41%) and lack of credibility as students (33%).

Figure 3. Research obstacles for nursing students, 2020. (n=376)

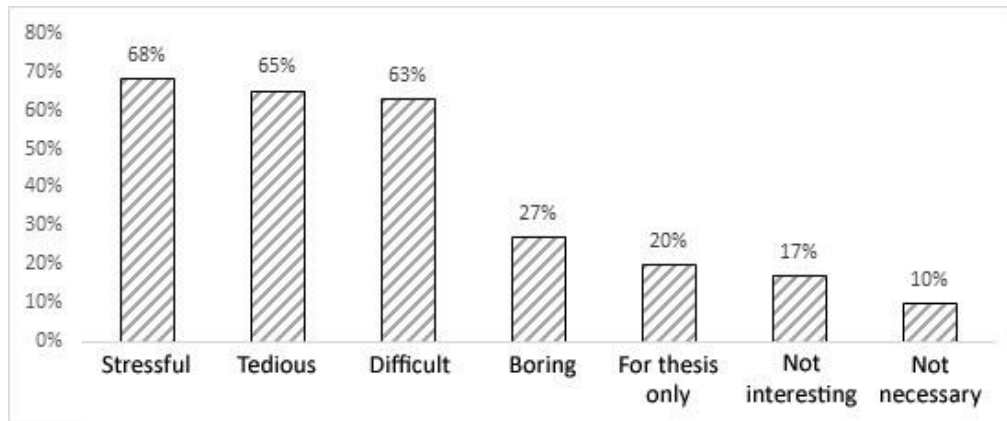


Source: Own development.

Figure 4 shows that students considered that doing research was stressful (68%) and tedious (65%), a smaller percentage considered that research was neither interesting (17%) nor necessary for their profession (10%).



Figure 4. Negative evaluation of research by nursing students, 2020 (n=376).

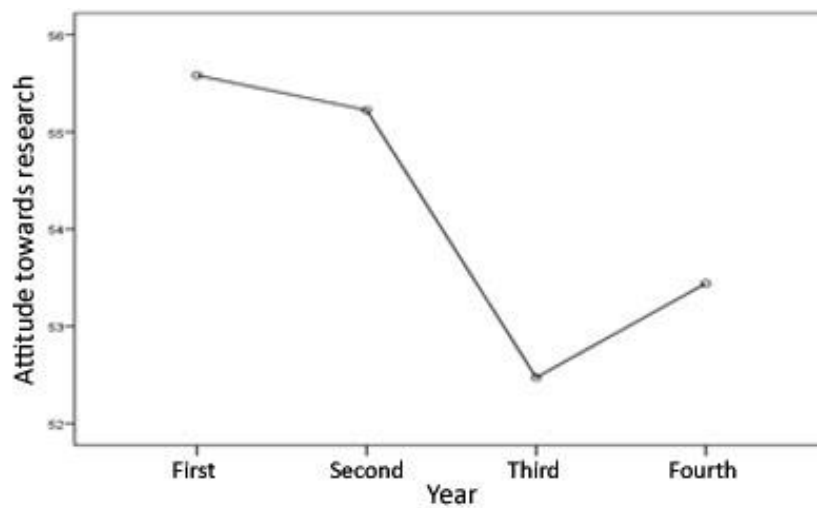


Source: Own development.

The students were classified by academic year, the sample was distributed as follows: 26.8% first year students, 20.2% second year students, 19.6% third year students, 21.3% fourth year students and 11.8% fifth year students. Among them, there was a significant statistical difference in the variable "academic year of university studies" ( $F=3.128$ ,  $p<.026$ ), where a decrease in the attitude towards research was observed, except for the last academic year when it showed an upturn, (Figure 5).

No statistically significant relationship was found between attitude towards research and sex ( $p<.265$ ), age ( $r= -.008$ ,  $p<.871$ ), parental schooling ( $r=.008$ ,  $p<.870$ ).

Figure 5. Attitude towards research of nursing students by academic year, 2020 (n=376).



Source: Own development





## Discussion

The aim of this study was to analyze the attitude towards research held by nursing students at a public university in Mexico in a distance education context. Within the research skills category, the largest number of nursing students considered that using APA format, along with organization and writing are the main skills they should have; however, it is especially relevant that they do not consider statistics and a second language as basic research skills. In this regard, a study of scientific research readiness in health students found that the responses with the lowest scores were those of statistical analysis and search for scientific information <sup>(9)</sup>. Likewise, the attitude of students in the health area towards scientific knowledge was evaluated, and it was found that they gave little value to the mastery of the methodology, perhaps due to lack of knowledge of the subject <sup>(25)</sup>, which matches what was found in this study. Thus, this may be an indicator of lack of knowledge or naivety about the subject on the part of the students, who do not see themselves as researchers and believe that mastering these subjects is something "beyond" their current needs as students or simply think of their clinical practice as absolute. Finding this behavior in a distance education context reinforces this idea. In the category of positive valuation towards research, the results of the students surveyed highlighted ethics, flexibility of thought, responsibility, creativity and commitment as indispensable assets, and to a lesser extent the development of confidence and tolerance to frustration. The students' attachment to ethical values, responsibility and commitment is a reflection of the great importance they place on values and ethics in this profession <sup>(26)</sup>.

The results obtained in this study indicate that the attitude toward research of the students was poor to fair. In this regard, it was found that studies with positive attitude results that were carried out in representative samples of undergraduate nursing students from other regions of Mexico and the world, a considerable number of these studies concluded that there was a good attitude towards research, considerable interest in scientific research and positive perception by nursing students in the face-to-face education mode <sup>(11, 13, 22, 25, 27-35)</sup>. There were also studies with fair or average attitude <sup>(3, 34)</sup>. Considering the poor to average attitude



found, we looked for the rate of graduation by dissertation in the academic area of nursing at the university where the study was conducted, according to the university statistical directory 2020 <sup>(20)</sup>, there were no records of graduation by dissertation in the bachelor's degree program in nursing, since all students graduated through a standardized knowledge test that in Mexico is called "Examen General de Egreso de Licenciaturas (EGEL)". These data suggested that poor to average attitude towards research is determining for undergraduate students not to conduct research. In this regard, researchers <sup>(27)</sup> found a positive attitude towards research, but a negative attitude towards research training. One research indicated that positive attitude was not related to more research <sup>(30)</sup>; another study found that almost the totality of a sample of medical students showed great interest in research and when asked if they wanted to engage in research, slightly more than half answered positively <sup>(36)</sup>. Researchers who had studied the relationship between attitude towards research and good grades in the subject of statistics found that having a positive attitude towards research was not enough to achieve high school performance, but that this depended on their autonomy to learn <sup>(13)</sup>; evidence was also found that there was no relationship between a positive attitude towards research and being involved in research <sup>(5)</sup>. Finally, researchers reported that historically nursing students had shown little interest in research topics, because they focused on improving their knowledge and skills related to clinical practice, so nursing research courses were not relevant for most of them <sup>(37)</sup>.

Regarding the results of the category of obstacles faced by research, the students considered that lack of time and knowledge were the main obstacles, and to a lesser extent lack of information and credibility as students. These results are consistent with what was previously found in an article where researchers determined in a sample of university students, which indicates that the main obstacle that students had was the lack of time, followed by the lack of support from teachers and institutions <sup>(38)</sup>. It is believed that this trend continues until they are professionals, because similar results have been reported in practicing nurses; for these professionals, lack of time was the first barrier they identified to conducting research, followed by inability to assess the quality of research, lack of knowledge of the topics, and perceived low authority <sup>(32)</sup>.



Likewise, nursing professionals stated that research improved their clinical practice, but their superiors were opposed to their academic development <sup>(27)</sup>, and if they were to do research, it would be in specific areas of nursing <sup>(27, 28)</sup>.

The results of the negative valuation of research revealed that for seven out of ten students doing research is stressful and tedious; a smaller percentage considered that it is difficult and that it is not interesting or necessary for their profession unless they are working on a thesis. One of the data found in our study about attitude toward research was that a little more than one third of the students surveyed showed a poor attitude towards research. In this regard, a recent study indicates that slightly more than half of the participating students showed a negative attitude towards scientific research, and factors such as participation in scientific activities, the amount of research work done, and the research subject were correlated with their attitude towards research <sup>(1)</sup>. In a group of health science students, they found that there was a low disposition towards research, and the items with the lowest scores were those related to statistical analysis and the search for bibliographic sources <sup>(9)</sup>; another study with students from 29 medical schools concluded that in general the level of knowledge about research methodology was deficient, and the attitude towards it was inadequate <sup>(39)</sup>. Additionally, the students considered that research was not important unless it is to conduct a thesis; in this regard, researchers <sup>(40)</sup> found for nursing students writing a thesis had a significant effect on the attitude towards research; they also found that those students who conducted an undergraduate project, showed better disposition and attitude towards this activity <sup>(41)</sup>; but for some reason, according to the evidence, the nursing students in our study mostly will not conduct thesis as a mechanism to receive their degree. The negative attitude towards research by teachers may be a factor that influences the negativity of students; there is evidence from a study conducted on a group of teachers that reports that a test (which included affective, behavioral and cognitive dimensions) found evidence of a negative attitude towards research (poor to neutral attitude) with a negative trend in the dimensions studied, indicating that there was no relationship between exercising or performing research and a positive attitude



towards it <sup>(5)</sup>, therefore, it would be interesting to evaluate the attitude towards research by teachers who teach methodological subjects, as an extension of this work.

There were no significant differences in the attitude toward research between men and women; this coincides with most of the studies reviewed, except for an unpublished work that reported that female undergraduate nursing students at a university in southern Mexico had a better attitude toward research, especially in the cognitive aspect <sup>(34)</sup>.

The results of the attitude towards research by academic year showed a significant decrease as the students progressed in their studies, especially between the second and third year, where there was a sudden decrease in the attitude towards research. The exception was the fourth year students, in whom the attitude increased, but not enough to be comparable with the first and second year students (presumably because in that year they take methodology and thesis seminar subjects). The above coincides with what has been previously reported in nursing and medical students, where the new students had a better attitude towards research, and as they advanced in their careers, their knowledge increased, but their attitude towards scientific research decreased <sup>(22, 30, 42)</sup>, largely due to the obstacles and bad experiences they faced <sup>(38)</sup>. Therefore, we can affirm that incoming and first-year nursing students tend to idealize their future with a certain degree of naivety. Although the incoming students had a better attitude towards research, the age of the respondents had no direct relationship with the attitude towards research. The variable parental schooling was included, expecting to find a positive correlation between students' attitude towards research and parental schooling; however, the result was not as expected and no correlation was found.

A recent study evaluated the attitude towards online education by Guatemalan university students <sup>(43)</sup>. It was observed that students with technological experience, or who had previously taken online courses, had a better attitude towards online education and experienced less stress. In this context, we can hypothesize that there is a correlation between technological literacy and attitude towards research in the context of online education. It is recommended that this possibility be further researched in the future.



Finally, it was considered that an important limitation of this study is that no reports were found to make a direct comparison with another similar study carried out in a distance education context, so the results were compared with antecedents of studies of attitude towards research in the face-to-face education mode, as has been disclosed in this discussion. This fact invites to conducting studies in a larger sample of health students from public and private schools, in order to establish new study variables and correlations.

## **Conclusions**

The attitude towards research in undergraduate students from Hidalgo, Mexico, in a distance education context was poor, with a tendency towards a regular attitude. Although, the fact that students considered research as an important component in their education is highlighted, in the first years of their studies, students seem to have a good attitude towards research; however, this declines as a result of the experiences in their education. The strategies used to promote research in students should be reconsidered, since it is a necessary competence in their training, but a bad attitude can generate a rejection towards research. In this sense, a continuous improvement has to be expected in terms of training human resources with basic knowledge in research, and to improve their relationship with sciences and their environment. Developing a positive attitude towards research will allow students to approach from a scientific perspective the problems they face in the academic, work and personal environments; this situation is of great importance for nursing since it will open the way to new ideas and the generation of new knowledge in the processes of this science. It is recommended that the new generations learn how to do research.

## **Conflicts of interests**

The authors declare that there is no conflict of interest.



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