

PET-Health as inducer of professional education to Unified Health System

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Abstract *PET-Health is configured as a program developed by health courses guided by the principle Unified Health System (SUS), with the preceptorship of a professional from health public service. The aim of the research was to compare the performance between PET-Health undergraduate of Dentistry, Medical and Nursing courses by the results of National Student Performance Exam (ENADE) in 2010 with those who did not participate in the program. The study population consisted of 49,758 students, which 761 participated in PET-Health. To analyze the performance of students in 2010 were considered the mean scores in general education, expertise skill and public health. Students who participated in PET-Health had superior performance in all means (55.48) when compared to those who did not (50.96). The shared investment between the Ministries of Health and Education in PET-Health, strategy involving students, professionals from public services and professor, contribute to the reorientation of health training, producing a great relationship between public health services and university.*

Key words *Educational measurement, Unified Health System, Dentistry education, Medical education, Nursing education*

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Introduction

The training of health professionals in Brazil has become the subject of analysis and reflection in recent decades with concerted efforts between the Ministry of Health and the Ministry of Education. This articulation has sought to build a health professional training policy having the National Curriculum Guidelines (DCN) and the Unified Health System (SUS)^{1,2} as guiding principles.

These strategies seek alternatives to the fragmentation of teaching by disciplines, the organization of the university into departments, the extreme technical division of labor and the dichotomy between theory and practice^{3,4}.

The training of human resources for health requires the reorganization of the teaching-learning process to overcome the Flexner model, to be based not only on the biological model, but extrapolating to the social, psychological and economic health⁵. A set of technical, cognitive, organizational, communicative and behavioral skills is required from these professionals in order to confer diagnostic ability in solving everyday professional problems, the ability to make decisions, to work as a team and the ability to adapt to changes in dealing with continuing education processes, ethics and a commitment to citizenship^{6,7}.

Partnerships between the Ministries of Health and Education have yielded integration policies between Higher Education Institutions (IES) and health services in order to provide a refocused training for care practices, the work process and the construction of knowledge from the needs of health services and the population^{8,9}.

The Educational Program for Health Work (PET-Health) was one of these alternatives and came to support the training of health professionals to attend to the epidemiological profile of the population by integrating teaching, health service and community^{10,11}. The PET-Health is a challenging political strategy for SUS consolidation¹, since it depends on inter-sectoral actions for primary care, assists in the realization of the DCN and proposes the implementation of collective projects in the Family Health Strategy^{12,13}.

Strategies of this nature require a continuous evaluation, considering the necessity of identifying strengths and weaknesses which allow continuous adjustments for its improvement. In this sense, the National Student Performance Exam (ENADE) aims to evaluate student performance in relation to the contents provided in the curricular guidelines for undergraduate courses, the

development of necessary skills and abilities for the deepening of general and vocational training, and to upgrade the level of students in relation to the Brazilian and global reality¹⁴. ENADE is configured, therefore, as an official tool to evaluate student performance throughout their training.

The aim of this study was to compare the performance of the 2010 ENADE undergraduate Dentistry, Medicine and Nursing students who participated in the PET-Health with those who did not participate in the program.

Methods

This is an observational, analytical, cross-sectional study to identify the effects of the pedagogic intervention "PET-Health" in the years 2009 and 2010 for the undergraduate students of Dentistry, Medicine and Nursing. The research sought to identify the impact of implementing PET-Health on the training of health professionals compared to those who graduated in these areas, but did not participate in the Program.

The study population consisted of all undergraduate students of Dentistry, Medicine and Nursing courses who participated in the 2010 ENADE, totaling 49,758 students.

For the study, one database was first composed of all the undergraduates who participated in the PET-Health, obtained from the Department of Management of Work and Education - Ministry of Health (SGTES) in the years 2009 and 2010. This identification was taken from the Brazilian Registry of Individuals (CPF), without identifying the name of the student or their institution. A linkage to the Anísio Teixeira National Institute of Educational Studies (INEP) database was made from this database, which provided all information relating to the students' performance on the 2010 ENADE.

Researchers did not have access to students' names or their Higher Education Institution in order to maintain secrecy and to protect the identity of the 2010 ENADE participants.

The dependent variable refers to the participation of the Dentistry, Medicine and Nursing students in PET-Health, and the independent variables were related to the results students in ENADE (performance in General education and in a Specific area) and the perception of students about the importance of monitoring, scientific initiation and extension training.

ENADE is an examination consisting of tests for General education and a Specific area. The

overall performance of ENADE corresponds to the average of the standardized score on General education and the Specific training. The part concerning General education contributes 25% of the final grade, while the Specific area contributes 75%¹⁵.

General education tests are composed of relevant issues of topics related to ethical behavior, social commitment, and understanding of issues that transcend the very environment of their training relevant to the social reality; scientific, humanistic and reflective spirit; capacity for critical analysis and integrated with reality; and the ability to socialize knowledge in various contexts and different audiences¹⁶.

Specific area tests are based on the specific competencies provided in the DCN and was, in this study, classified in Specific skills (matters related directly to professional practice) and Public health (issues related to training for the SUS, social sciences and humanities).

The independent variables related to the participation and perception of students in complementary activities (monitoring, scientific initiation and extension training) was obtained through the 2010 ENADE student questionnaire.

Data were stored in Microsoft Excel®. The database was exported to the R version 3.1.1 software¹⁷. Descriptive statistical analysis of the present study was performed using Stata program version 20¹⁸. To analyze the performance of students were considered the mean scores in overall performance, general formation, public health and specific knowledge in ENADE 2010, considering the participation or not in PET-Health. The perceptions of students about the contribution of scientific projects, monitoring and extension in the formation were also analyzed by means scores in ENADE.

The research development was supported by the Department of Work Management and Education (SGTES - Ministry of Health) and Anísio Teixeira National Institute of Educational Studies (INEP). Both were the institutions responsible for providing the data. This research was submitted to the Ethics Committee of the Hospital Onofre Lopes Search - UFRN (CEP-HUOL), considering the principles set out in Resolution 466/2012 of the National Health Council and was approved.

Results

Of the 49,758 students who composed the study, 31,645 were Nursing students (63.6%), 6,707

(13.5%) Dentistry students and 11,406 (22.6%) Medicine students. Of these, 761 (1.5%) students participated in the PET-Health. The vast majority of undergraduate students participating in the PET-Health took their course in a public institution (90.8%) and almost all (95.9%) in universities.

A key element in the study was to identify if the students who participated in the PET-Health had a different performance on the ENADE compared to those who did not. The results are provided in Figure 1.

Students who participated in the PET-Health outperformed the other students on all areas of the examination. Mean Global performance on the 2010 ENADE between the participating students of PET-Health was 55.49, while it was 50.96 among students not participating in the PET-Health. The performance on the General education test was also higher for PET students with an average of 52.2, and 48.68 in the group of non-participants.

The PET students also had higher averages on Specific area tests. The average performance of these students on Specific skills was 47.25, while among non-PET it was 44.36. The same can be observed in Public health; however, in these tests the difference was greater between PET and non-PET groups with averages of 47.90 and 41.43, respectively.

Whereas the averages are based on summary data measures, scatter plots were built to see all the data and compare the performance of PET students compared to non-PET (Figures 2, 3, 4).

It is noticed that most students participating in PET-Health offer above average performance (points with positive coordinates), which enhances the possible difference in the identified mean.

In seeking to compare the performance of PET-Health students and non-PET on ENADE, we tested the possibility that relatively high performance could be linked to the fact that PET-Health students have participated in other complementary activities. To check this possibility, plots were constructed with performance in General education and the Specific area (Specific skills and Public health), according to students' perceptions on the contribution of participation in activities such as scientific initiation, monitoring and extension training.

It was observed that, regardless of the perception of students, when it comes to scientific research, there is no evidence of a difference in performance on the ENADE. Regarding the contribution of monitoring and extension activities,

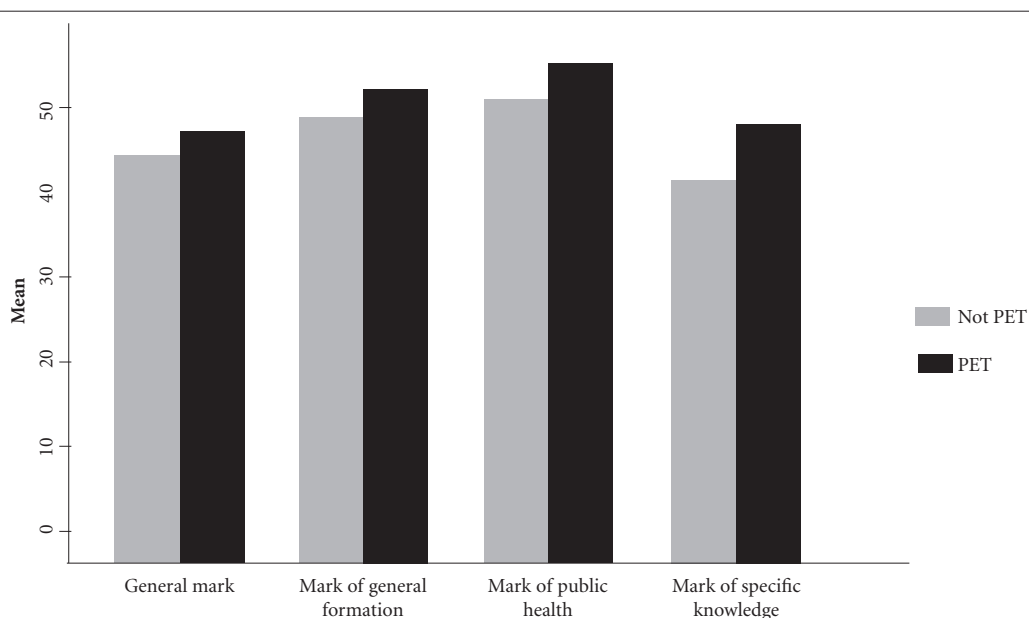


Figure 1. Mean of marks in overall performance, general formation, public health and specific knowledge, in ENADE 2010, according to participation in PET-Health, Brazil - 2010.

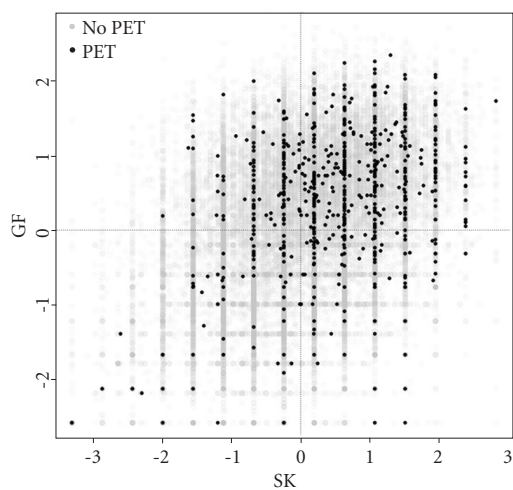


Figure 2. Distribution of marks in general formation (GF) and specific knowledge (SK) standardized by participation in the PET-Health, Brazil – 2010.

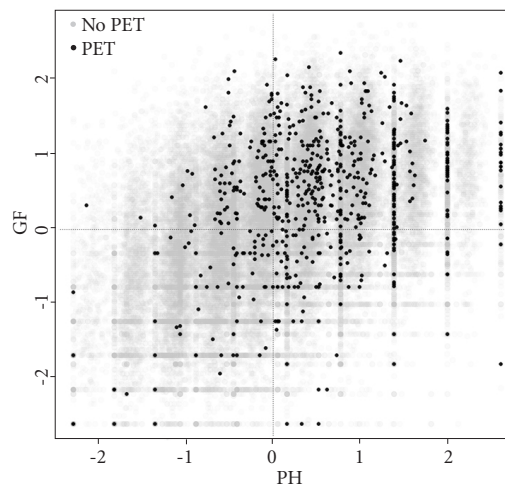


Figure 3. Distribution of marks in general formation (GF) and public health (PH) standardized by participation in the PET-Health, Brazil – 2010.

there is better performance among students who participated in these activities, but this difference is very small. The differences in average performance are relatively small in all components, which lead us to believe that participation in

these activities did not influence the performance achieved by students on the ENADE.

It was also considered whether the evidence of non-influence of the contribution of these complementary activities in student achievement

was maintained when participation in PET-Health was observed.

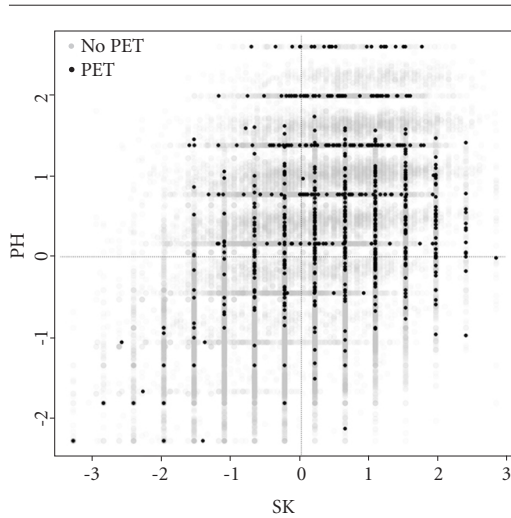


Figure 4. Distribution of marks in specific knowledge (SK) and public health (PH) standardized by participation in the PET-Health, Brazil – 2010.

In Figure 5 it can be seen that the performance does not change depending on the perception of students on the contribution of complementary activities, regardless of their participation in the PET-Health, meaning there is evidence that the affirmation of the students did not influence these training activities is reasonable to be accepted.

Discussion

This study aimed to evaluate the effectiveness of PET-Health’s contribution to the training of undergraduate students, using the results of the 2010 ENADE as reference. Being that the ENADE is a mechanism to assess student performance in relation to content, skills and competencies set out in the curriculum guidelines, it is understood that its principles are directly related to the benchmarks proposed by the PET-Health. It started from the assumption that the ENADE is an evaluation based on course profile and student performance is a great framework to identi-

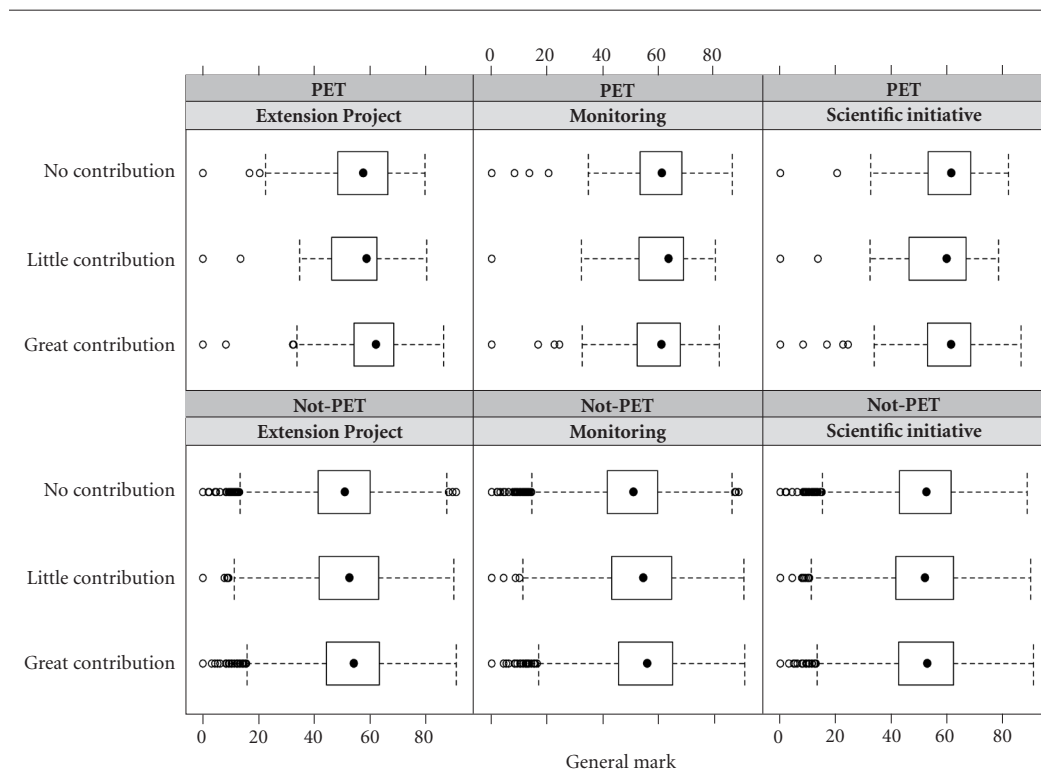


Figure 5. General mark according to participation in the PET-Health and perceptions of students about the contribution of scientific projects, monitoring and extension in the formation of students, Brazil-2010.

fy how the curriculum of the courses have sought to target their training to the DCN.

It was evident in this study that the vast majority of courses that were developed in the PET-Health were referred to by public universities, mainly in the Southeast and Northeast. This strategy is quite relevant, since the intention of the program is to decisively influence the development of curriculum proposals consistent with the principles of the SUS and be focused on the skills and competencies needed for educating a generalist. As most of these institutions should have vocation to discuss the public sector, as well as the best evidence of excellence in teaching, research and extension, it was intended that the necessary discussion of adherence to DCN by these courses would be detailed¹⁹ with the implementation of PET-Health.

Several studies have reported the impact of PET-Health on education, however, most consider experiments involving one^{11,20,21,22,23,24} or two institutions of higher education^{25,26}, in most cases only reporting situations present in specific groups^{27,28}. The purpose of this study was to extrapolate these specific situations, seeking an analysis of all the undergraduates of Dentistry, Medicine and Nursing who participated in the 2010 ENADE, which would allow for comparing the performance of those linked to the PET-Health with non-PET students, whereas the program should display the same references in all participating higher education institutions.

The study revealed that in view of ENADE, PET-Health has contributed to the training of undergraduate students in Dentistry, Medicine and Nursing, considering the best student performance on all tests analyzed (General education, Specific skills and Public health). This result can be explained by the fact that the PET-Health establishes a differentiated program by itself, especially for producing socially shared knowledge. This program brings with it the possibility of developing teaching work and intervention research built and run together, strengthening the partnership between health units and the university²⁹.

The performance of the participants in the PET-Health in training students in public health was notably higher than among those students who did not participate. This result was expected since the multidisciplinary and transdisciplinary action and the integral vision of health is strongly worked on PET-Health.

These results are above average in Public health, and corroborate the students' perception of two recent studies^{12,30} on the PET-Health's contribution to their graduation training. In these studies, students bring contributions to the PET-Health in their training, such as in the development of interdisciplinary work, the practices of health promotion and disease prevention, and the development of research directed to the needs of SUS.

It should also be pointed out that the performance of PET-Health students was also higher in issues related to general training of ENADE, which are those which allow us to understand issues related to the global and Brazilian reality, as well as other areas of knowledge and principles set out in the scope of PET-Health. It is interesting to note that this research reveals that, contrary to the perception of the students who joined the program³⁰, PET-Health also contributed to training in specific knowledge, since its performance was also higher on this part of the exam.

It is noteworthy that one of the limitations of the study refers to the short time of implementation of the PET-Health when performing on the 2010 ENADE, which may have influenced the results. The study also indicates the need for the ENADE conducted in 2013, which may more broadly demonstrate the PET-Health contribution. It also considers that the massive presence of public universities in the PET-Health refers to the need for a comparative study of this population in order to further examine the program's contribution in the training of graduating students of Dentistry, Medicine and Nursing courses.

Conclusion

The results of this study can state that the shared investment between the Ministries of Health and Education in PET-Health strategy involving undergraduate students, professionals from public services (in the role of preceptors) and teachers of higher education institutions (provided tutors), has significantly contributed to differentiated education of students. It can mean a closer relationship between health and university services and promote the constant discussion of curricular proposals that are effectively articulated in the DCN.

Collaborations

BCS Farias-Santos and LRA Noro participated equally in all stages of preparation of the article.

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