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RESEARCH ARTICLE

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## EVALUATION OF INTERPROFESSIONAL ATTITUDE BY THE JEFFERSON SCALE

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### ABSTRACT

Within Interprofessional education is a strategy developed in order to train professionals capable of teamwork, being an essential practice for comprehensive health care. This study aimed to evaluate the level of attitude towards interprofessional collaboration of students and professors of the Academic Unit of Health Sciences and to diagnose possible differences in this attitude between the courses that make up this academic unit: Physical Education, Physiotherapy, Nursing, Biomedicine and Medicine. It was a descriptive cross-sectional study, whose sample was for convenience, composed of 597 volunteers. They received an online link in which it was possible to access the validated version in Brazil of the Jefferson Scale of Attitudes Related to Interprofessional Collaboration - EJARCI. Observing the results found between students and teachers, it was possible to infer that there was no statistical difference ( $p = 0.98$ ) in the comparison between these two large groups, pointing to a similar level of collaborative capacity. As for the five courses, medicine was the one with the highest average related to the interprofessional domain with  $122.55 \pm 10.35$ , indicating greater ability for interprofessional work. The Physical Education course stood out with the lowest score of  $117.10 \pm 13.90$ .

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## INTRODUCTION

Health, in its complexity, seeks not only to cure, rehabilitate and prevent diseases, but also to take care of human beings in an integral way and to promote broad quality health. Comprehensive health care is dynamic and requires the deconstruction of practices based on individualized, fragmented and specialist work models (Souza et al., 2020). This demand for health transcends the specialties of each profession and projects the valorization of collaborative and team work to best meet the local health needs. Understanding this, to achieve a new way of looking at health, one of the proposals that is gaining ground is Interprofessional Education (EIP). This strategy was developed with the aim of training professionals able to work in teams, which is an essential practice for comprehensive health care (Casanova et al., 2018). Kostoff et al. (2016), Costello et al. (2017) and Albalushi (2020) highlight that the main objective of the EIP consists of a collective practice for shared learning between two or more professions. They also mention that the greatest deficiency among professionals in health systems is the lack of communication,

which directly reflects in the drop in the quality of patient care and among providers, making it difficult for professionals to act in a humanized way. In this sense, interprofessional education comes to prepare health professionals for their collaborative role, partially addressing this health care problem (Scotten et al., 2015; Lestari et al., 2016; Peduzzi and Agreli, 2018). However, interprofessional cooperation is not so visible and presents difficulties in its practice, such as ineffective communication, precarious interprofessional relationships, lack of trust in team members and devaluation of the roles of health professionals. These reasons hinder the effective involvement of team members, in relation to the patient, in collaborative decision-making and execution of health services (Page et al., 2009; Lestari et al., 2016; Lochner et al., 2018). This issue acquires special relevance about the role of different health professionals for the development of a positive interprofessional collaborative work in a health institution. The benefits of teamwork are visible not only in patient care and results, but also in the development of professional skills, such as: communication, innovation, creativity, decision-making, empathy and lifelong learning skills. (Pedrazza et al., 2017; Tuirán-Gutiérrez et al., 2019).

Professionals who learn about EIP understand that teamwork goes far beyond just cooperation. They learn to respect, communicate and empower others for a more welcoming and mutually supportive work environment, knowing that integration is for the purpose of collaboration (Câmara 2015; Barr et al., 2016; Tompsen et al., 2018). It is also understood that the importance of interprofessional practice goes beyond caring for patients and is effective in minimizing spending on health care, reducing rates of medical errors, increasing user safety and patient satisfaction (Rocha et al., 2016; Mishoe et al., 2018; Jung et al., 2020). Although professionals are expected to work interprofessionally, attention to the actual process of interprofessional practice is still frequent and limited, within the organizational strategy, in planning the development of the local workforce and continuous individual professional development. Therefore, Nuto et al. (2017) emphasize the paramount importance of EIP before professionals enter the workplace, as, in universities, students will learn together with and about professions, thus providing better health results. Teamwork brings improvements for users and health workers, as the EIP practice developed with responsibility promotes respect for others, tolerance and communication so that there is clarity in the roles, minimizing the isolated work of professionals and encouraging action collaborative and as a team (Tompsen et al., 2018; Bekkink et al., 2018). To reduce the difficulties of health care and increase the value of practices among the various professions, the World Health Organization (WHO) recommends that the implementation of Interprofessional Education should take place early in universities, as a way to assist and guide future professionals to work collaborative. Through EIP, students will be prepared for a professional technical and humanistic scenario, learning from and about the various health professions, developing their role with more security and cooperation (Jacobsen and Lindqvist, 2009; Costello et al., 2017; Albalushi, 2020). It is understood that there were great difficulties for the insertion of interprofessional education in the teaching of universities or hospitals. Thus, from the implementation and formation of the National Curriculum Guidelines (NCG's), health courses have made great strides in reorienting the preparation of professionals. Chamber (2015). Consequently forming students aware of working together, thus, not only having a technical background, but a humanistic, critical, reflective, ethical profile that is prepared to care for patients in an integral way, being essential for excellence in the results of users (Scotten et al., 2015; Jung et al., 2020). One of the mechanisms used for the most effective implementation of EIP in universities was the creation in 2009 of the Education through Work in Health Program (PET-health), launched as a strategy to stimulate learning groups, experiences and internships that have as a consequence the promotion and interest in the research of the interprofessional subject in the students participating in the program. Thus, the desire to research about EIP and to deepen the knowledge on the theme of collaboration of teaching and student professionals came from the members of PET - health. As it was considered relevant, it was decided to track the level of understanding interprofessionalism, since it is capable of contributing to the quality of health care; influence interpersonal relationships and mainly to rethink actions that contribute to the development of multiprofessional activities, through a teaching plan at universities; and, to support interprofessional health practices in hospitals (Scotten et al., 2015; Lestari et al., 2016; Peduzzi and Agreli, 2018). In this sense, the objective of this study is to measure the level of attitude for interprofessional collaboration of students and professors of the Academic Unit of Health Sciences and to diagnose possible differences in this attitude between the courses that make up this academic unit: Physical Education, Physiotherapy, Nursing, Biomedicine and Medicine, in relation to interprofessional education.

## METHODS

It is a cross-sectional descriptive study, whose sample was for convenience, composed of 597 volunteers. The participants were students and teachers of the courses that make up the Academic Unit of Health Sciences. The courses that belong to this unit are: Biomedicine, Physical Education, Nursing, Physiotherapy and

Medicine. The inclusion criteria of the study for students considered the fact that they are enrolled and considered active in the institution's Academic System; in addition, all active periods up to the second semester of 2019 were included. Teachers should be linked to the institution by the start of the research. In order for the participants to be included, they needed to agree with the informed consent form and correctly fill in the response fields until the end. Students and teachers who were not covered by the inclusion criteria were excluded; and those involved in the development of this research. Participation in the study was spontaneous in line with the provisions of Resolution No. 466/2012 of the National Health Council, the research is linked to the Teaching Project for Education through Work for Health (PET) Interprofessionality project, submitted to the Ethics and Research Committee Federal University of Jataí under the opinion of nº 4,429,216. Data collection was carried out over an eight-month interval, starting on November 18, 2019 and ending on June 23, 2020. Participants received an online link where it was possible to access a form developed in Google Forms. For the approach of the students, the researchers, previously trained, initially made an appointment to visit the classroom of each class and when they entered, the link was shared by the WhatsApp mobile application.

The researchers remained in the room until the end of data collection, that is, filling out the questionnaire. According to the operation of the Google Forms platform that we host the questionnaire, responses were only computed when all questions were filled out. If the participant gave up in the middle of the questionnaire, their development was lost and the researchers had no access. Thus, the participants were instructed to complete until the end and confirm the submission. During the application of the questionnaire to the researchers, they were only allowed to answer questions from the participants related to access to the questionnaire and the mechanism for filling in the platform's responses. Questions related to concepts and content were not answered, since the scale of responses aims to understand the level of knowledge of the topic, the interferences that could impact the result of the study and thus would not be reliable to reality. Due to the social distance caused by the Covid -19 pandemic that was installed in the year 2020, classroom visits to classes were suspended. In this way, the researchers contacted the students individually through the WhatsApp application, they introduced themselves, explained about the study, presented the ICF and shared the link to the online form. The approach for teachers from the beginning was by e-mail, in which they received an invitation made by the same researchers to contribute with their answers and the link to the form; this approach was maintained until the end, and was also complemented by the sharing of the link by the WhatsApp application for teachers. The form on the link was initially composed of the Free and Informed Consent Form and after acceptance it was taken to the participant's identification questions. They answered three initial questions, referring to their age, sex and institutional category, whether student or teacher.

When identifying his category of belonging, the respondent was asked five questions; in the case of students in relation to their graduation; and teachers in relation to their professional performance. After identification, he was directed to a brief introduction of the use of the ordinal seven-point scale that was used throughout the instrument. Below, the validated Brazilian version of the Jefferson Scale of Attitudes Related to Interprofessional Collaboration-EJARI was accessed, also known in English as Jefferson Scale Of Attitudes Toward Trade Collaboration-JeffSATIC (ABED, 2015). This structure contains twenty items that must be answered using an agreement / disagreement scale using a seven-level Likert scale, the lowest level being completely disagree (1), and the highest level being completely agree (7). The attitude towards collaboration is portrayed in the total score on the scale, which can vary from 20 to 140, in which the higher scores will indicate more positive attitudes. For our analysis of the 20 items on the scale, items 3, 5, 8, 9, 12, 15, 16 and 19 are quoted inversely; this is because these items are statements in which the level of agreement determines negativity, for which the points were inversely equivalent, as recommended by the

authors of the instrument. To assess the internal consistency of the instrument, we used the Cronbach's alpha test, with values greater than 0.7 being considered a good level of consistency. The data were analyzed statistically using the Statistical Package for the Social Sciences (SPSS), version 24.0. Continuous variables were described by means and standard deviations. Categorical variables were represented in absolute frequency (n) or percentage. The univariate General Linear Model (GLM) test was used to compare continuous data. The Chi Square test was used to compare categorical data. For hypothesis tests, a significance of  $\alpha \leq 0.05$  was assumed.

## RESULTS

The sample included 545 students and 52 teachers. When analyzing the predominant courses in the sample, we identified, in table 1, that the students of the Physiotherapy course responded in greater quantity, even though the course with the largest number of students did not reach a total of 141 responses, representing 26.2%; secondly, the medical course with 132 respondents, with 24.5% of the total. As for the teachers, the Physical Education and Medicine course had a tie, both with 13 respondents in total and each representing 25% of the sample; followed by the Physiotherapy course with 11 responses, of which 21.1%. In the analysis of the most frequent age group of the studied population, we found that among teachers, the most frequent was 35 to 39 years old, with 14 respondents, representing 26.9% of the total sample among teachers. While the most representative age group among students was 20 to 24 years old, with 350 responses, representing 78.6% of the total sample among students.

**Table 1. Number and percentage of students and teachers belonging to each course**

Course	Discent		Teacher	
	N	%	N	%
Biomedicine	87	16,1	8	15,4
Physical Education	88	15,2	13	25,0
Nursing	97	18,0	7	13,5
Physiotherapy	141	26,2	11	21,1
Medicine	132	24,5	13	25,0

Source: Author data, presented in Average and Standard Deviation.

**Table 2. Comparison of the average of the EJARCI questionnaire between the sample groups**

Groups	N	Mean $\pm$ SD	p-value
Discents	545	121,00 $\pm$ 11,70	0,98
Teachers	52	121,00 $\pm$ 10,70	

Source: Author data, presented in Average and Standard Deviation.

**Table 3. Comparison of the total domain of interdisciplinarity between undergraduate courses**

Course	N	Mean $\pm$ SD	p-value
Biomedicine	86	122,33 $\pm$ 8,85	0,005*
Physical Education	82	117,10 $\pm$ 13,90	
Nursing	97	122,40 $\pm$ 12,30	
Physiotherapy	141	120,50 $\pm$ 11,20	
Medicine	132	122,55 $\pm$ 10,35	

Source: Author data, presented in Mean and Standard Deviation, univariate GLM, \*  $p < 0.005$ . Post hoc Bonferroni.

**Table 4. Comparison between sexes and category of students and teachers**

Gender/group	Total Sample Mean $\pm$ SD	Teachers Mean $\pm$ SD	Discents Mean $\pm$ SD
Female	122,00 $\pm$ 11,15	125,00 $\pm$ 7,60	121,85 $\pm$ 11,35
Male	117,60 $\pm$ 12,35	115,60 $\pm$ 12,00	118,00 $\pm$ 12,40
P-value	<0,001*	0,001*	0,001*

Source: author's data, presented in Mean and Standard Deviation, univariate GLM, \*  $p < 0.05$ . Post hoc Bonferroni.

The average value demonstrated by the EJARCI questionnaire was  $120.96 \pm 11.60$ , in addition, we measured scores achieved by the two large groups: students and teachers to understand the total level of the interprofessional domain, shown in Table 3. When comparing these two large groups we observed that they did not obtain statistical difference. We can thus say that they presented a similar level of interprofessional domain (Table 3). Of the five courses present in the Academic Unit of Health Sciences, Medicine was the one with the highest average related to the interprofessional domain with  $122.55 \pm 10.35$ ; while the Physical Education course stood out with the lowest score with  $117.10 \pm 13.90$ . Therefore, when comparing the average score achieved by the students of the Physical Education course, we noticed that there was a difference between the Physical Education and Biomedicine courses ( $p = 0.02$ ), Physical Education and Nursing ( $p = 0.01$ ) and Physical Education and Medicine ( $p = 0.007$ ). In the three comparisons, the Physical Education course showed a lower score than the others. Regarding gender, the population was mainly composed of women in both groups, students with 411 women, representing 75.5% of the total sample in this category; teachers with 30 teachers, representing 57.7% of the total. When evaluating the difference in interprofessional attitude between the sexes between the groups of teachers and students (table 5), we found that the female sex performed better when reaching a higher score in both groups. The female gender in the total sample showed a total of  $122.00 \pm 11.15$  and when we measured it, we realized that the statistical difference between the sexes is relevant. We can thus affirm that the female gender, in the total sample, presented a greater domain of interprofessionalism. When evaluating the internal consistency of the scale determined by Cronbach's Alpha, we obtained a value of 0.77 in the total sample. In the group of students, the alpha value was 0.78 and in the group of teachers it was 0.73, which represents acceptable internal consistency in the use of the instrument.

## DISCUSSION

In the current context, the need for an interdisciplinary training process has been realized, both in the area of health and in other areas of knowledge, for the development of multiple competences and skills that facilitate an approach to the human being in an integral way. This study aimed to verify the interprofessionalism in the scenario of practices of courses in the area of health, through the Jefferson Scale of Activities Related to Interprofessional Collaboration (EJARCI). With the applicability of the questionnaires and data collection, it was possible to make an interpretative statistical analysis of what can be observed in the context of interprofessional education at this institution. When observing the results found between students and teachers, it is possible to infer that there was no statistical difference in the comparison between these two large groups, pointing to a similar level of interprofessional domain. Thus, it is believed that interprofessionalism is present in the student-teacher context and both know how to denote the importance of its practicability. Lopes et al. (2014) affirm that the institutionalization process of interdisciplinarity begins with the union, commitment and motivation of a teaching staff that aims at the growth of their own profession and the quality of health care of the population referred to this professional in the future. Today, the technical view on the work of health professionals, including teachers, is still present, which is probably a reflection of the probable academic training process. In the study by Vendrusculo et al. (2019), it was noticed that most of the teachers who responded to their research were trained more than 10 years ago, reporting in their speeches that, previously, there was a greater fragmentation of teaching, with individualized subjects and focused on the area of expertise. However, due to the change in the context in which students are more likely to develop interdisciplinarity in practice with early insertion in different fields, in addition to projects such as PET, among others, it has been debated and put into practice through strategies such as projects, early insertion of students in practice, debates to improve the pedagogical project of the course, among other actions inducing an EIP.

This reflects the student's initial contact with Interdisciplinarity if it is due to what is taught and presented by the teacher, and thus depends directly on the training process and experiences of this, which may justify the equivalence of the results found in the present study. Sometimes teacher training interferes with the understanding of interdisciplinarity among students of a given course, and thus both will have a similar understanding. Even so, difficulties are still observed in the implementation of interdisciplinary activities, ranging from the resistance of students and teachers, and simplified initiatives as a cost reduction strategy, to the lack of follow-up studies on the topic (Batista, 2012; Reeves et al., 2017). The benefits of interprofessional education demonstrate that this approach raises students' readiness for more collaborative performance, reduces bad postures between professions, promotes the development of participatory skills, offers knowledge and communication skills for teamwork with influences in organizational practice and in solving patients' problems. In this dimension, educational institutions are faced with the need to value interprofessional initiatives and qualify teachers for this (Batista et al., 2015; Peduzzi et al., 2013; Reeves, 2016; Filho, 2018). As mentioned in the five courses in the Health Sciences area of the studied university; the highest score was achieved by medical students when compared to other courses. A result that contrasts with the study carried out at a Peruvian private university in Lima comparing the courses of Health Sciences also with the JeffSATIC scale; Gonzalez et al. (2019) found that the medical course reached the lowest score with only 86.4 in its total domain of collaborative interprofessional attitude in relation to the 3 other courses of that faculty.

Gonzalez's result was similar to that found by Hojat et al. (2015), in his study two universities in the United States of America, the first Thomas Jefferson and the second Midwestern; the medical course also achieved the lowest score in relation to the other health courses that comprised the universities. The fact that medicine occupies most studies, the lower scores can be explained by the biomedical and hierarchical model centered on the disease that the Health area is struggling to break, when the medical course would occupy a space superior to the others, demonstrating a less availability for a collaborative activity (Peduzzi and Agreli, 2018). As stated, the health area is struggling to break this model; for this, the pedagogical projects of courses are being restructured and planned in terms of patient-centered and collaborative health.

The medical course of the studied institution is the newest course at this university, founded in August 2014; and in its structuring, measures were implemented to build a humanistic vision with a collaborative perspective; therefore patient-centered; and breaking through the hierarchical barrier, adopting an interprofessional view (UFG, 2017). We also noticed that in this study, the Physical Education course was the one that reached the lowest score; the score achieved by the course, in addition to being the lowest, showed a statistically significant difference when comparing it with the other courses, thus demonstrating that there is a negative discrepancy in the interprofessional domain of students in the Physical Education course, showing that the course has a less interprofessional vision among those studied. This result found highlights the problem observed by Manske et al. (2019), who conducted a survey with participants in a professional residency program in health who have training in the area of Physical Education. In this study, it sought to understand the conceptions of health and professional performance of Physical Education in public health that professionals had in the period prior to entering the residence. According to the answers found in the study by Manske et al. (2019), the concept of health that physical educators developed during graduation, was extremely limited to the definition of the World Health Organization (WHO), in addition, residents indicated that during graduation the construction of the concept of health was restricted, being possible to perceive that there is only a replication of the concept of health stipulated by the WHO aiming at the biological care of the being; and a need to criticize the curriculum in the Physical Education course, which has little public health focus.

In addition, the residency program aims to promote professional training appropriate to the principles of SUS, thus, residents now realize that the concept of health built during graduation was extremely deficient and superficial, when compared with the understanding of health promulgated by SUS. For these residents, when asked about the necessary changes, they emphasize the need for multi-professional exchanges to strengthen care (Manske et al., 2019). This thinking corroborates Oliveira and Gomes (2019), who in their literature review noted that the Physical Education course presents challenges related to its curricular structure, as it is a course that is subdivided into a bachelor's degree and a licentiate degree. Sometimes there is an understanding that only the bachelor would be the professional to work in the health area, while the degree would work in basic education. However, according to Costa (2019), the new national guidelines indicate that knowledge about collective health would benefit both courses; and in expanding this understanding, the work in formal teaching of the degree, as well as in the other axes covered by the bachelor's degree, also requires collaborative work from professionals, in their fields of interdisciplinary intervention. Following this thought, regardless of the course, a training policy for the health field is necessary, which allows both formations to act in public health.

When comparing the scores between the different sexes, we observed that there was a significant difference, showing higher scores for women than for men. Thus, we can infer that women were more involved with interdisciplinarity than men, responding more positively to the questions listed and showing greater interest in developing activities that correlate to the participation of different professionals in the construction of teamwork and collaboration. In the study by Hojat et al. (2015) women also obtained higher average scores than men in all three universities he studied. In agreement with these same results, the study by Smith et al. (2019) also using the Jefferson scale, the female gender presented higher values, with a statistical difference in the pharmacy course. Corroborating these results, Shankar et al. (2015) found similar results, in his study also using the same instrument, with students from the first to the fifth semester of the medical course at Xavier University, located in Aruba, United Kingdom. When dividing into subgroups, women had the highest score, with an average of 105.7 when compared to the opposite gender, which reached a value of 102.8 on average. The study by Câmara (2015) shows that there is evidence of a significant difference in the "teamwork and collaboration" index between the sexes, with the female gender having a higher median compared to the male gender, which reinforces the result found in the present study. It justifies the greater female insertion in the collaborative practice, both because they are the majority in terms of numbers quantified in the sample, and because of the understanding that interdisciplinarity is necessary and is recognized as a positive practice.

A relevant finding is that in both studies, in this and Shankar et al. (2015), the sample consisted mainly of women. In this study, female students represented 75.5%, in the study by Shankar et al. (2015), they represented 53.7%. This revelation may be strictly related to the fact that females occupy a large space in health courses. Some theories like the one cited by Cebrián and Moreno (2015) describe that the job market reflects the social reality of gender stereotypes, and, therefore, the predominantly female presence in the health professions is explained due to the close relationship of the activities performed are associated in caring and serving, which are socially understood as a woman's vocation, and an extension of what is already accomplished in the family context. In the study by Vieira et al. (2019), the undergraduate courses with a greater predominance of sex from the Federal University of Minas Gerais were analyzed, and it was found that the presence of females in the health area totaled 89%, and males only 11%. These data highlight the gender difference in the health area, showing that the university is a micro social space representative of society as a whole.

## CONCLUSION

After analyzing the collected data, the study revealed that at the Health Sciences Academic Unit, health professors and students had a similar level of collaborative capacity. In addition, the medical course indicates greater capacity for interprofessional work and the Physical Education course indicates less capacity for this type of work. In our study, we found a limitation that can be recognized, the absence of documented studies of the application of EJARCI, since it restricted the interpretation and comparison of data in relation to other audiences and locations. Therefore, we emphasize the need for further studies with this same instrument.

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