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Matrix of interprofessional competencies in multiprofessional health residencies: construction of a proposal

Matriz de competências interprofissionais nas residências multiprofissionais em saúde: construção de uma proposta

Matriz de competencias interprofesionales en residencias multiprofesionales de salud: construcción de una propuesta

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ABSTRACT

Objective: To construct a matrix of interprofessional competencies produced in Multiprofessional Health Residencies in the interior of Rio Grande do Norte.

Method: Qualitative study, with a deductive method for theorization and construction of the competency matrix. It was organized into three phases: theoretical, field and analytical phase. Developed in multi-professional residencies in the interior of northeastern Brazil, with a sample of 41 subjects: 30 students, 06 preceptors, 04 professors and 01 municipal health manager. Focus group and interview data collection techniques were used, carried out from November 2022 to August 2023. Deductive thematic analysis was applied. All ethical principles were respected.

Results: The matrix was organized on three levels of competencies: common, professional-guiding, and collaborative. It is demonstrated using a table that organizes the type of competency, the interviewees' speeches and the competencies identified in the study, guided by international literature.

Conclusion: It was possible to construct the interprofessional competencies matrix. The matrix foresees a contemporary professional profile, demonstrating the need for improvements to professional reorientation from an interprofessional perspective to meet the demands of this new professional profile.

Descriptors: Interprofessional relationships. Interprofessional education. Professional competence. Professional training in health. Health residency.

RESUMO

Objetivo: Construir uma matriz de competências interprofissionais produzidas nas Residências Multiprofissionais em Saúde no interior do Rio Grande do Norte.

Método: Estudo qualitativo, com método dedutivo para teorização e construção da matriz de competências. Organizou-se em três fases: fase teórica, de campo e analítica. Desenvolvido nas residências multiprofissionais do interior do nordeste brasileiro, com uma amostra de 41 sujeitos: 30 discentes, 06 preceptores, 04 docentes e 01 gestor municipal de saúde. Utilizou-se como técnicas de coleta de dados grupo focal e entrevista, realizadas no período de novembro de 2022 a agosto de 2023. Aplicou-se análise temática dedutiva. Todos os princípios éticos foram respeitados.

Resultados: A matriz foi organizada a partir de três níveis de competências: comuns, orientadoras da profissão e colaborativas. É demonstrada a partir de um quadro que organiza o tipo de competência, os discursos dos entrevistados e as competências identificadas no estudo, sendo guiada pela literatura internacional.

Conclusão: Foi possível a construção da matriz de competências interprofissionais. Evidencia-se que a matriz prevê um perfil profissional contemporâneo, demonstrando as necessidades de melhorias à reorientação profissional na perspectiva interprofissional, a fim de atender a este novo perfil profissional.

Descritores: Relações interprofissionais. Educação interprofissional. Competência profissional. Formação profissional em saúde. Residência em saúde.

RESUMEN

Objetivo: Construir una matriz de habilidades interprofesionales producidas en Residencias Multiprofesionales de Salud en el interior de Rio Grande do Norte.

Método: Estudio cualitativo, con método deductivo para la teorización y construcción de la matriz de habilidades. Se organizó en tres fases: teórica, de campo y analítica. Desarrollado en residencias multiprofesionales del interior del nordeste de Brasil, con una muestra de 41 sujetos: 30 estudiantes, 06 preceptores, 04 docentes y 01 gestor municipal de salud. Se utilizaron técnicas de recolección de datos de grupos focales y entrevistas, realizadas desde noviembre de 2022 hasta agosto de 2023. Se aplicó análisis temático deductivo. Se respetaron todos los principios éticos.

Resultados: La matriz se organizó en base a tres niveles de competencias: común, profesional y colaborativa. Se demuestra mediante una tabla que organiza el tipo de competencia, los discursos de los entrevistados y las competencias identificadas en el estudio, guiándose por la literatura internacional.

Conclusión: Fue posible construir la matriz de habilidades interprofesionales. Es evidente que la matriz prevé un perfil profesional contemporáneo, demostrando la necesidad de mejoras en la reorientación profesional desde una perspectiva interprofesional, para atender a este nuevo perfil profesional.

Descriptores: Relaciones interprofesionales. Educación interprofesional. Competencia profesional. Formación profesional en salud. Residencia de salud.

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INTRODUCTION

Interprofessional Education (IPE) emerged in the United Kingdom in 1966. It is based on the principles of interprofessionalism and seeks to overcome uniprofessional education that is disconnected from practice, given the inevitability of responding to the complex needs of the population that exceed the capacity of any profession acting in isolation[1-2].

According to the author[3], IPE is characterized by the opportunity for more than two professions to learn together and in an integrated manner, developing skills for teamwork and professional collaboration, with the common goal of developing comprehensive patient care and improving the quality of health care. However, the mere exposure of students to the training process based on IPE does not subside the development of this educational modality[4-5].

It is believed that through interprofessional learning, one can ensure the transformation of knowledge into interprofessional competencies. Competence is understood as the ability to perform tasks in specific situations, that is, it is a set of knowledge, attitudes and skills that allow the execution of certain tasks related to a specific position. It is related to practical intelligence and the qualifications necessary for a role. It should produce social value for the individual and economic value for the organization[5-6].

In undergraduate and graduate health programs, the aim is to develop general and specific competencies during the academic path. The first is recognized as a necessary skill for all health professionals, regardless of their training. The second refers to the technical-scientific, ethical-political and socio-educational skills specific to the work process of each professional category[7-8]. These concepts are assumed as guiding principles of this article.

When the training process is guided by the principles of IPE, it is also necessary to develop collaborative competencies, which are related to the values and skills to produce an interprofessional practice, with clear roles, shared responsibilities, effective communication and teamwork[9].

Regarding collaborative skills, it is important to emphasize that there are several proposals for competency domains in the literature, which complement and discuss each other regarding IPE. According to the Interprofessional Education Collaborative Expert Panel (IPEC)[7], there are four domains necessary for the consolidation of interprofessional competencies, namely: 1-Values/Ethics for interprofessional practice; 2-Roles and Responsibilities; 3-Interprofessional communication; and; 4-Teamwork[7]. For the Canadian Interprofessional Health Collaborative (CIHC), interprofessional competencies consist of: interprofessional communication; patient-centered care; family and community; clarity of professional roles; team dynamics; resolution of interprofessional conflicts; and collaborative leadership[9]. These domains are widely used in health education as guiding axes for the development of collaborative competencies among health professionals at national and international levels, acting as essential elements for quality in health care and as evaluation criteria for integrated competency-based curricula[9-10].

It is important to highlight that the competency domains promoted by IPEC[7] and CIHC[8] are the most used and recommended in the international literature as the gold standard for interprofessional education in health and, therefore, are essential in improving knowledge, skills, attitudes and values for interprofessional collaborative practices, and can be applied in different contexts[9-10]. For this study, the discussion assumed is the framework by IPEC[7], was used, given the better organization of competencies into categories in a broader way and a more relevant to the research proposal.

Therefore, courses guided by a comprehensive curriculum based on competencies tend to prioritize the ability to perform actions and meet real needs, and not only the accumulation of knowledge, in addition to improving the performance of health professionals and expanding their response capacity to current complex health issues[11-12].

IPE develops a teaching-learning process planned in an interprofessional manner and based on a system of specific, common and collaborative competencies[13], which strengthen the training of professionals capable of working in teams, respecting professional identities and the existing boundaries between them[14-15].

In Brazil, some courses have already adopted the integrated curriculum based on IPE, as is the case of six undergraduate courses at the *Universidade Federal de São Paulo* (UNIFESP) in Baixada Santista. While others have already launched the proposal and advanced in the implementation of Interdisciplinary Bachelor's Degrees in Health (*Bacharelados Interdisciplinares em Saúde* – BIS) courses, such as at the *Universidade Federal da Bahia* (UFBA), *Universidade Federal do Recôncavo da Bahia* (UFRB) and *Universidade Federal do Sul da Bahia* (UFSB)[16].

Although Multiprofessional Health Residencies (MHR) are a favorable setting for the development of IPE, it is unclear whether this learning model is consolidated and which basic competencies are built during the interprofessional training process. Given that, in the Pedagogical Plans of the Courses (PPC) of the MHR in the interior of Rio Grande do Norte, there is an approach with interprofessional education as a guiding pedagogical axis of training, encouraging the development of common, specific and collaborative skills in the courses, seeking to strengthen interprofessional practice[12]. Thus,

the guiding question of this research is: What professional competencies are developed in practice by students in Multiprofessional Health Residencies?

There are many descriptive studies[17-18] that discuss training in MHR. However, no research was found that indicates the skills developed by residents in these postgraduate courses, demonstrating a gap in knowledge. It is worth highlighting the importance of recognizing the competencies formed as a thermometer for evaluating health education and as a consequence of this training process, since interprofessional education is an imminent reality and therefore it is necessary to identify its development in the courses and the ability to form real competencies in students, assuming that they will become health workers and will put these principles into practice.

In view of the above, the objective of this study was to construct a matrix of competencies produced in Multiprofessional Health Residencies in the interior of Rio Grande do Norte.

METHOD

Study design

This is a descriptive study with a qualitative approach, which uses the deductive method to theorize and construct the matrix of interprofessional competencies based on the experiences of the social actors of the residency. Established theories and categories were used a priori, serving as scientific foundations and guiding threads for the research[19]. The method is appropriate because it starts from the hypothesis of interprofessional education present in multiprofessional residencies until reaching the specific data, predicting and verifying the occurrence of this phenomenon in the context studied, helping in the construction of a matrix of interprofessional competencies.

The study progresses by proposing a matrix that is more appropriate to the specific context, since there are still difficulties in envisioning interprofessionalism, despite existing domains and competencies. It is believed that a matrix closer to reality can encourage subjects to use and implement interprofessional education in practice. Despite starting from the general to a particular context, this matrix allows inductive research, which starts from particular experiences, to form new generalizations and theories about the phenomenon, hereby contributing to scientific advancement in the field.

Thus, theoretical research is used to aggregate information and expand the knowledge within a discipline to enhance its understanding, create and refine a theory[19]. It was organized into three phases: theoretical, field, and analytical. The theoretical phase, in which the theoretical framework was used[9;12;20], indicates domains and competencies necessary for the consolidation of IPE and was articulated with the data from the field stage. In this phase, the pedagogical plans of the courses (PPC) of the residencies were also analyzed, which proved to be guided by principles of interprofessional education and interprofessionalism, in addition to inferring the construction of interprofessional skills during the training process[12].

To construct the Competency Matrix, the framework[9], was used, based on three categories defined a priori: common, specific and collaborative competencies. For the purposes of this article, common competencies are understood as: the skills required by all health professionals, those shared among all members of a team; specific competencies: the specific attributions of the work process of each professional category, from a disciplinary perspective, that is, specialized technical-scientific skills; and collaborative competencies: those related to the values and skills to produce an interprofessional practice, also shared by all members of the health team[8;9;21].

The recommendations of the Consolidated Criteria for Reporting Qualitative Research (COREQ) were followed for the writing of the article.

Research location and sample definition

For the field phase, the Multiprofessional Residency Programs in the interior of Rio Grande do Norte (RN) were used to explore the phenomenon studied. A total of 08 Multiprofessional Health Residency Programs (MHRP) were identified throughout the territory of RN, targeting different areas of activity, linked to the *Universidade Federal do Rio Grande do Norte* (UFRN) and the *Universidade do Estado do Rio Grande do Norte* (UERN) and located in four cities: Natal, Santa Cruz, Caicó and Mossoró.

However, envisioning the interiorization of health education from the perspective of lato sensu postgraduate courses in MHRP, it was decided to work with programs that are located in cities in the interior of RN. Therefore, four MHRP that meet this criterion were included as the research location, namely: MHRP in Family Health UERN/Mossoró, MHRP in Maternal and Child Health UFRN/Santa Cruz, MHRP in Primary Care UFRN/Caicó and MHRP in Maternal and Child Health UFRN/Caicó.

All residency programs listed are aimed at the following categories of health professions: nursing, pharmacy,

physical therapy, nutrition, dentistry, social work and psychology. They are linked to the HEIs (IES) and developed in partnership with the municipal health departments (SMS) and health care services, offering, annually, vacancies that vary between 10 and 24 general vacancies and divided by category, depending on the selection notice. They have a total workload of 5,760 hours, with 60 hours completed per week and a minimum duration of 2 years[12]. The residencies are located in the upper-west region of Rio Grande do Norte, Seridó and the mid-west, which are important health regions in the state of Rio Grande do Norte, both in the areas of health and education.

It is noteworthy that all residency programs are in the interior of Rio Grande do Norte, a state located in the interior of the Brazilian Northeast, with a total area of 52,809.601 km^2, 167 municipalities and 3.3 million inhabitants, being the seventh most populous state in Brazil and the second highest Human Development Index (HDI) in the Northeast. It borders municipalities in Paraíba and Ceará, having a strategic geographic location, mainly for the supply of goods and services and the establishment of inter-institutional partnerships.

Regarding Higher Education, UFRN and UERN are the oldest and most important universities in the state and where the MHRP studied are located. UFRN is in Natal and has some campuses in the cities of Macaíba, Caicó, Santa Cruz and Currais Novos. It offers more than 200 training opportunities, including undergraduate and graduate courses. Its academic community consists of more than 43,000 students and around 5,500 employees, including technical-administrative staff and professors, as well as substitute and visiting professors. UERN is headquartered in Mossoró and has campuses in the cities of Assú, Pau dos Ferros, Patú and Caicó, in addition to advanced centers in Alexandria, Areia Branca, Apodi, Caraúbas, João Câmara, Macau, Nova Cruz, Santa Cruz, São Miguel, Touros and Umarizal. It offers 65 on-site undergraduate courses and more than 22 decentralized graduate courses across all campuses and advanced centers and has already trained around 55,743 professionals with higher education degrees. Therefore, both institutions have an impact on education and regional development, being responsible for the professional qualification of most professionals located in the state.

The study involved 41 participants, organized into four segments: Segment I included 30 students from all the pre-established MHRP; Segment II, with 06 preceptors; Segment III, with 04 professors; and; Segment IV, with 01 manager of the municipal health departments partnering with the MHRP. The groups were formed according to the assumptions about the training process that emerged and needed to be verified.

The delimitation of participants was guided by theoretical sampling and, therefore, was constructed during the collection and analysis of data, not based on a specific sample delimitation. Sampling was carried out by intention, considering that the selected participant groups are close to the object of study and therefore represent the total population[21]. Thus, the sample was constructed during the research and there were no refusals.

The inclusion criteria were: 1-Being a second-year resident, as these are students with more experience in the training process and a greater understanding of the course objectives given the imminent completion of the residency; 2-Being a professor or preceptor, with at least one year of affiliation with the program, given the appropriation of the PPC and greater adaptation and understanding of the course; 3-Being a health manager in the municipalities that host the programs, with at least one year of experience, since the agreements of the residency programs always occur at least one year in advance; 4-Being over 18 years of age. The exclusion criteria were: 1-Subjects on leave from work; 2-Subjects who took more than three months to respond to the researcher's contact; and; 3-Subjects who missed the scheduled interview three times.

Ethical aspects

The research was submitted to the Research Ethics Committee (REC) of the *Universidade Estadual do Ceará* (UECE) for evaluation and approved under opinion No. 5,535,110 and CAAE No. 58810422,5,0000,5534. Therefore, data collection activities began after the publication of the favorable opinion of this REC. To preserve the anonymity of the participants, all interviews were classified only as a sample group and in random numerical order, such as Student 01, Preceptor 01, etc.

Data collection

Data collection took place from November 2022 to August 2023, in person and/or online, depending on the participants' interest and availability. The invitation to participate in the research was made via institutional email, provided by the residency coordinators. After the first contact, the Informed Consent Form (ICF) was sent, and the signatures were collected.

For the online interviews, conducted via Google Meet®, the participants were asked to sit in a private and quiet room, to ensure the privacy and quality of the information; In-person interviews were conducted at the headquarters of the residency programs, in a private room intended for

meetings, with chairs and air conditioning, both modalities with a time previously scheduled with the interviewees. The interviews took place with only the interviewer and interviewees in the room and were conducted by the main researcher of the study, a doctoral student at the time, who already had experience in this type of data collection and analysis through training in research and master's groups, to minimize possible biases in data collection. Furthermore, there was no previous relationship between the interviewer and the research participants.

Initially, the Focus Group (FG) technique was used. Two FGs were conducted. One with the MHRP in Family Health of Mossoró and the other with the participation of the MHRP in Family Health and Maternal and Child Health of Caicó. The participants in the focus groups had a similar profile, consisting of young men and women, with no gender prevalence, between 20 and 35 years old, most of them in their first residency program, and with representatives from all professional categories.

A guiding script was used, constructed according to the theoretical framework with four central questions that were triggered by the moderator: 1- What do you understand by Interprofessional Health Education?; 2- How do you evaluate your training process in the multiprofessional residency from the perspective of interprofessionality?; 3- How do you perceive the achievements of the MHRP in healthcare delivery in this territory and in the health services in which you are inserted?; 4-What are the main competencies and abilities developed throughout the training process in the MHRP? These questions allowed free dialogue on the subject and the expression of individual and collective feelings and representations and lasted an average of 150 minutes for each FG.

Afterwards, professors, preceptors and health managers were invited to participate in the research. The profile of the interviewees was slightly different from that of the students, since it was composed mostly of women aged between 35 and 60 years old, from all professional categories. Thus, individual semi-structured interviews were conducted guided by a framework, for professors and preceptors, with the following questions: 1-What is your role within the multiprofessional residency?; 2-How is your work process organized in the residency?; 3-How do you evaluate the training process in the multiprofessional residency from the perspective of interprofessionalism?; 4-How do you perceive the achievements of the MHRP in the production of care in this territory and in the health services in which you are inserted?; 4-What are the main competencies and skills developed throughout the training process in the MHRP ? And for health managers, the following script: 1-What is the role of health management in managing the MHRP?; 2-How does the municipal administration work with the institution that forms the MHR?; 3-What incentives or strategies does the municipal administration establish to strengthen the MHRP?; 4-How do you perceive the impact of the MHRP in the production of care in this territory and in the health services in which you are inserted?. The individual interviews lasted an average of 36 minutes each.

All data collection was recorded using digital recorders, transcribed and analyzed. During the interviews, a field diary was kept with notes on impressions, key statements and concepts used. These notes were added to the statements made in the interviews to clarify some situations. The observations recorded in the diary were revisited and formed part of the reflections during data analysis. Data collection was concluded when theoretical saturation was reached and there was no feedback on the results from the participants.

Data processing and analysis

Deductive thematic analysis was used to construct the matrix, since there were already pre-established categories, within which the findings that best explained the concepts were identified[22]. The pre-defined categories facilitated the analysis by establishing clear rules and a structure for grouping information, identifying patterns and trends consistent with the literature.

The field phase integrated the theoretical analysis with the empirical data related to the phenomenon in the context in which it manifested itself (training in multiprofessional residencies based on interviews with the actors). The following steps were followed: transcription of the interviews and reading the data; coding, in which 1004 codes were generated; search for themes through codes, in which 335 themes that emerged from the data were identified; reviewing themes, with which grouping was performed, consolidating them into 120; improvement of the theme. The data were organized according to thematic categories, already defined according to international literature, and classified as defined a priori; and, a final analysis of the selected excerpts or production of the final report[23]. The refinement of the themes occurred after a critical-reflective exercise by the researcher, establishing relationships between the competencies and domains indicated by the theoretical

framework and how this phenomenon appeared in the collected data. This pre-defined structure was crucial for verifying interprofessional education in the context studied and developing the proposed matrix.

No software was used for data processing. This decision was made due to the authors' belief in the importance of interpretative and theoretical exercises in qualitative research. To ensure reliability and internal validity, more experienced authors with doctorate assisted in the development of the research and data interpretation. Furthermore, the material analyzed was carefully read multiple times to ensure data accuracy. The results were not presented to the participants, meaning there was no feedback or participant verification, which represents a limitation in terms of external validity.

Thus, in the end, the competencies that emerged in the participants' statements were organized within the previously established competency categories[4-22]. In the final analytical phase, the data resulting from the initial theoretical phase and the empirical observations were compared, with the final product being the presentation of the Competency Matrix proposal[24].

Based on the synthesis between the literature and the theoretical framework used, the participants' statements were classified into specific, general and collaborative competencies, constructing the proposition of a matrix of interprofessional competencies of the residents and their associated behaviors, guided by the literature[7-14].

RESULTS

Considering the data from the research, in which the participants were identified only by the sample group and in random numerical order, making it impossible to identify them, it was necessary to recognize the role of the social actor in the residency. The set of common, professionally guiding and collaborative competencies that supported the construction of the Matrix of interprofessional competencies developed in the Multiprofessional Health Residencies was identified, described in the following charts.

In the category of common competencies, the skills shared among all health professionals emerged, regardless of the professional category, as shown in Chart 1 below. It is important to emphasize that these skills were evidenced by all professionals from different categories.

In the specific competencies, the unique attitudes of each profession were demonstrated, that is, each professional category demonstrated the skills required and developed in the specificities of their profession and, therefore, a matrix of specific competencies for each profession would be necessary. However, given the limitations of the findings that reflected all the specific competencies of each profession involved in the MHR in a detailed and reliable manner, these competencies were organized in a more general manner, recognized as guiding for the professions, as demonstrated in Chart 2.

Finally, collaborative competencies, which were organized into four domains: 1- Values/Ethics for interprofessional practice, which indicated the construction of a new professional identity based on a common purpose of patient-centered care; 2- Roles and responsibilities, which referred to the professional's commitment to understanding their role and that of their colleagues in teamwork for collaborative practice; 3- Interprofessional communication, which suggests effective conversation between team members for integrated and quality care; and 4- Team and Teamwork, related to the development of group work skills, since these domains are indicated as structuring axes for the formation of competencies in interprofessional education by international literature and, therefore, were used to organize this category.

It is important to remember that only collaborative competencies have domains of analysis, since this is an organization recommended by national and international literature. It is worth noting that these domains are necessary to clarify the formation of collaborative competencies in all structuring axes and do not compromise the understanding or demonstration of skills and, therefore, as guided by the international reference, these data were structured in this way and only in this matrix, evidenced in Chart 3 below.

Thus, it was inferred that most of the interprofessional competencies outlined in the literature were visualized in the statements of the social actors and, thus, included in the competency matrix, while those that were not mentioned probably did not occur and were not developed and, consequently, were not included in the matrix.

Chart 1 – Matrix of interprofessional competencies, focusing on common competencies, developed in the Multiprofessional Health Residencies, Mossoró, RN, Brazil, 2023.

COMPETENCY LEVEL	COMPETENCIES	DISCOURSES
COMMON COMPETENCIES	Recognition of the social determinants in the health-disease process of the population; Recognition of the social and health needs of the population; Recognition of the principles of the SUS as guiding axes of care; Recognition of reality and intervention in the territory; Development of a singular therapeutic project (PTS); Development of home visits and bedside visits; Establishment of an effective bond with users of health services; Production of comprehensive and patient-centered care; Identification of people in vulnerable situations and vulnerable people; Development of a humanized practice;	*"[...] we start doing something called bereavement home visits... the whole team goes to the family's house... we managed to accompany this patient while still alive, and during this care process, the person passed away... And the bereavement home visit is precisely about arriving at this family, sitting down, and talking, encouraging them to share how they are experiencing this grieving process, how they are feeling." (Student 15 – FG 01)* *"It's about providing more comprehensive care to the user, right... So when we see a need, we refer the colleague and... we also conduct shared consultations. For example, the nurse works with the dentist, with the nutritionist during a home visit, the physiotherapist with the social worker, depending on the user's needs, we try to complement each other to facilitate this care for the user." (Preceptor 02)*

Chart 2 – Matrix of interprofessional competencies, focusing on the guiding competencies of the profession, developed in the Multiprofessional Health Residencies, Mossoró, RN, Brazil, 2023.

COMPETENCY LEVEL	COMPETENCIES	DISCOURSES
GUIDING COMPETENCIES OF THE PROFESSION	Development of individual and specific care for the professional category; Development of health interventions specific of the profession; Development of techniques and/or procedures specific for each profession; Monitoring of the individual from a uniprofessional perspective; Development of case discussions among professionals of the same category; Development of professional autonomy;	*"We provide a lot of shared care, but we also work on our specificities and do things related to our profession alone." (Student 01 – FG 02).* *"The core preceptorship meets once a week, we have 1 fixed day for the preceptorship meeting and we address the most diverse topics in the case of psychology, specifically, since we do not have psychologists in the units, the psychologist is the resident, we deal with everything (laughs)." (Preceptor 04)*

Chart 3 – Matrix of interprofessional competencies, focusing on collaborative competencies, developed in Multiprofessional Health Residencies, Mossoró, RN, Brazil, 2023.

COMPETENCY LEVEL	DOMAIN	COMPETENCIES	EXAMPLES OF DISCOURSES
COLLABORATIVE COMPETENCIES	Values/Ethics for interprofessional practice	Development of shared care/ interconsultations with different professions; Development of professional collaboration; Development of patient-centered care, considering the individual, family, and community; Development of the ability to adapt to complex situations; Consideration of individual differences among team professionals and patients Establishment of trust between professionals-patients and professionals-professionals; Management of dilemmas and conflicts;	*"It's what they are doing now; patients arrive, they listen and assess the demand. In this moment of interprofessional reception, they manage to share among themselves what each one has—like today I have one language, social work has another. We've seen how this improves the situation of demands." (Management 01)* *"We always keep in mind the importance of the patient's needs, to take action centered on the patient." (Student 08 – FG 01)*
	Roles and responsibilities	Development of clarity regarding professional roles among all team members; Recognition of the importance of different work processes involved in health care; Recognition of the professional limits of their category; Sharing of experiences; Cooperation among team members;	*"We perceive that the residents use the argument of education and interprofessional work as... a strategy, as an excuse to do everything together... We've had several experiences, including residents who refused to do individual uniprofessional care. However, we always guided them to recognize professional limits and each one's role in health care."(Professor 01)*
	Interprofessional communication	Establish a more horizontal and effective dialogue among all professions involved in the process; Availability for conversation among professionals; Effective communication with patients; Recognition of the technical language of different professional categories; Development of qualified listening;	*"We work a lot on collaboration, establishing communication to understand if the patient is in a care network, to have a holistic view of the patient." (Student 03 – FG 01) "One strength that I see is... communication, the way you dialogue with the community, understand, each person is formed with their own language, which is the technical language of dentistry, nutrition and so on..." (Management 01)*

Chart 3 – Cont.

COMPETENCY LEVEL	DOMAIN	COMPETENCIES	EXAMPLES OF DISCOURSES
COLLABORATIVE COMPETENCIES	Team and teamwork	Development of effective teamwork; Development of integrated work among all professions, including medicine; Development of collective case discussions; Development of group dynamics involving staff and patients, such as therapeutic groups; Planning activities collectively; Development of team meetings.	*"This case discussion that used to only happen in primary care, now also happens in maternal and child health, family and community medicine, and this is because we understand that, historically, when we advance in the interprofessional discussion, it occurs with the health professions without the participation of medicine, but in our reality, there is a movement and interest for this function to also go to medicine." (Professor 03)* *"When working with love, teams can collaborate effectively, complementing each other in care during assistance. We work a lot like this, as a team, residents and professionals" (Preceptor 02)*

Source: Prepared by the author.

DISCUSSION

The MHR propose an interdisciplinary integration in their theoretical and practical pedagogical actions, as a modality of in-service training. They aim to aggregate teaching-service-community with a focus on social needs and territorial realities, guided by the principles of the Unified Health System (*Sistema* Único *de Saúde* – SUS)[25].

This articulation between teaching-service-community allows the development of learning on the workplace, which strengthens the role of SUS workers, stimulates greater professional autonomy, promotes critical socio-educational processes, transforming the local reality and stimulating the development of professional competencies[20]. Strengthened in the discourses of the research participants, evidencing a more autonomous, critical and reflective professional profile.

The construction of competencies in the MHR training process should be shared from the perspective of multiprofessional and interdisciplinary interactions, using the principles of interprofessional learning, assuming activities of collaboration and integration at work[26]. It is observed that in the MHR studied, there is a strong integration between teaching-service-community, with the development of collaborative teamwork.

According to the study[11], competency is the ability to put into practice knowledge, values and skills necessary to efficiently develop an activity, built from training and responding to the various needs existing in the work context.

Therefore, the concept of competence is polysemic and is situated in the complexity of work, in the reorientation of the care model and in the health paradigm of the SUS. It explains the skills necessary to perform certain technical, professional and sociocultural activities. These are built throughout life and work based on individual and collective experiences[23-26].

In the health area, competence-based teaching is one of the strategies for transforming the reality in health and reconfiguring the professional profile desired for working in health services[27]. Given that current health education

must be committed to comprehensive health care, overcoming social inequities and addressing the real needs of the territory[24].

Expressing the need to build a professional profile capable of collective work in health as a social practice, acting for comprehensive health care in an interdisciplinary and interprofessional manner, effectively implementing teamwork from a collaborative perspective and with the skills to overcome modern challenges[12-23].

Research[12] indicates, for example, that the Pedagogical Plans of the Courses (PPC) of the MHR are based on integrated curricula based on IPE, thus indicating the existence of a training process that consolidates the teaching-service-community integration and values the construction of interprofessional competencies. In a previous analysis of the PPC of the residency courses, the presence of IPE principles and interprofessional competencies propositions were identified. Therefore, it is possible to identify the pedagogical articulation of IPE with the PPC of the MHR in the interior of Rio Grande do Norte, corroborating the discourse of the interviewees, who strengthen the organization of the integrated curriculum with competency-based training, with multiple activities based on active methodologies, which foster the construction of the subject's autonomy, but, develop proactivity and a greater ability to face problems, as well as providing the tools for forming broad professional competencies.

In this perspective, the formation of common, specific and collaborative competencies is necessary. Common competencies are, for example: Providing comprehensive health care to the population; Carrying out health care actions according to the health needs of the local population; Participating in the reception of users; Providing humanized care; Providing comprehensive individual, family and community care; Conducting home visits; Conducting interdisciplinary and team work; Conducting permanent and continuing education activities, among others[28]. Many of them appeared in the participants' statements, except for permanent and continuing education activities that did not appear as a category, strengthening the idea that most of the common competencies for residents are successfully built.

The specific competencies are related to the professional category, for example, in nursing, the nurse is expected to perform nursing consultations, supervise the actions of the nursing technician/auxiliary, supervise the patient reception, while for the physician, the aim is to perform clinical consultations, indicate hospital admission, among other tasks[4-29].

Many specific competencies appeared in the participants' discourse, particularly the development of professional autonomy. However, what stands out is the way in which the residencies are organized to build these competencies, based on the maintenance of individual and disciplinary care in the residents' work process, with the support of the core preceptors who meet weekly with the residents of their respective discipline to refine these processes and have modules aimed at disciplinary discussions.

It was not possible to delimit all the specific categories that emerged in the data, since the residencies are multidisciplinary and have several professional categories, which would imply the construction of different matrices for each learning core. Therefore, the guiding competencies of the professions were listed so that, in general, the competencies proposed in the matrix could be applied to any category. Nonetheless, it is evident that specific competencies are strengthened throughout the training process.

In collaborative competencies, the research[9], used as a basis, considers the existence of four domains necessary for the consolidation of interprofessional competencies: 1-Values/Ethics for interprofessional practice; 2-Roles and Responsibilities; 3-Interprofessional communication; and; 4-Teamwork[9]. During the data analysis, the identified competencies were best classified in this proposition.

The research findings closely dialogue with the international literature[9], however not all expected competencies were evidenced in the discourses. For example, in the Values/Ethics domain, the most discussed competency was shared care among professionals, however respect, dignity and privacy of patients, cultural diversity and the appreciation of ethical conduct were not mentioned. In the Roles and Responsibilities domain, the definition of professional roles, their limits and importance in health work were discussed by most of participants, yet there was no mention of defining patients' treatment plans or the organization of the team concerning this activity[7].

The Interprofessional Communication domain was widely discussed as a structuring axis of the training itself, highlighting the competencies related to dialogue, language and listening, but tools used by professionals for effective communication and feedback regarding their teamwork performance were not discussed. And finally, in the Team and Teamwork domain, it was clear that professionals are able to work as a team involving all professionals, using the appropriate categories in specific situations and are able to describe the dynamics of this process. However, the presence of leaders emerged indirectly in some speeches, while the competencies related to individual and team performance and strategies to increase effectiveness were not mentioned at any moment. Therefore, it is possible to identify that there is the formation of collaborative competencies in general

among all residents, although there are still difficulties and needs for improvement[7-8].

When the construction of this knowledge in health education is put into practice, it is clear that postgraduate students have greater skill in developing competencies, which has a greater impact on organizational practice and patient care[30]. Furthermore, they are aware of the competencies and skills necessary for the development of professional and teamwork, clearly identifying the strengths and weaknesses of the courses, based on the recognition of the competencies formed during the process.

Currently, competency-based training is the trend for health courses, given the need to change the professional profile to meet new health needs and adapt to new work processes. However, there is a difficulty in putting this education model into practice due to the hegemonic model of disciplinary teaching, which reinforces outdated and limited professional profiles. Among those who manage to develop it, a more flexible, autonomous, problem-solving, and modern professional profile capable of teamwork becomes evident[13-15].

The training process based on IPE should be aimed at improving individual and collective skills to develop patient-centered care. It is based on learning experiences that provide opportunities for group dynamics, case discussions, construction of unique therapeutic projects (PTS), to strengthen communication, trust and teamwork, which debates ideas, defines central objectives and tasks, makes decisions in a shared manner, assumes responsibility and manages conflicts[5-15]. This is demonstrated in all statements by participants in all residency programs, showing that IPE acts as a guiding thread in the training process and that the indicated methodologies are actually used in the MHR[20-31].

Scientific evidence shows that professionals involved in the IPE field are better able to work in interprofessional teams, minimizing the fragmentation of health care, building interprofessional skills and competencies necessary for health care[30-32]. This is reflected in the participants' statements, in which the students demonstrated greater integration among themselves, as well as greater ease in developing interdisciplinary teamwork, recognizing the importance and difference in the roles of each health professional. Additionally, the inclusion of preceptors and professors who graduated from these programs also strengthens the training principles and facilitates the work, since the professional profile of graduates from these MHR exhibits greater skill in developing interprofessional work and more fluid communication between team members.

As demonstrated by research[19], for example, which shows that collaborative interprofessional practice improves the confrontation of complex problems in the health area, qualifying professional practice and comprehensive health care. Additionally, they help to restructure healthcare services more efficiently, improving organizational capacity and health indicators, reducing the adverse events associated with health care. This was highlighted in data collection, through statements about the importance of residencies in transforming health care in the territories and in municipal health indicators.

Moreover, interprofessional teamwork increases the sense of belonging, strengthens bonds, increases mutual respect among professionals, integrates work, improves the identification of the population's health needs, and strengthens the construction of skills and competencies necessary for the new profile of health professionals[4]. This indicates that the development of competencies provides benefits for workers, users, and health system, improving the quality of services and health care, and is an important tool for professional enhancement[32]. This was evident during the data collection, given the bond and sense of belonging demonstrated by the social actors.

The proposal for the Matrix of interprofessional competencies produced by the MHR clearly demonstrates the skills produced in the training process, functioning as a quality indicator, as well as guiding professional practice and monitoring the quality of residency programs. It helps to understand the conflicts that exist in professional practices and the strategies for dealing with them, managing and overcoming conflicts in the health area.

Furthermore, it works as an assessment tool for training, providing a reliable diagnosis of the competencies developed in the courses and that meet the professional profile required and encouraged in the PPC. Therefore, it is important to emphasize the impact of direct or indirect assessment of postgraduate courses to ensure the excellence and relevance of the academic system and the improvement of health care[33].

This research may contribute to the teaching-learning process and to health care, as it can be used as a guiding tool for the training of future health professionals and for the management of courses to better develop and align residency programs. The lack of feedback from participants is noted as a limitation, which may compromise the external validity of the study, and the lack of evaluation and validation of the competency matrix in the scientific community, through judges and application in the referred context, which will be conducted subsequently.

CONCLUSION

It was possible to construct a matrix of interprofessional competencies developed in the MHR, supported by the common, professionally oriented and collaborative competencies expected in this training process, achieving the research objective. This matrix recognized the existing skills, highlighted advancements of health training from an interprofessional perspective, even with difficulties, and outlined a professional profile existing in the interdisciplinary training present in the residencies.

It can be inferred that the residencies, even with difficulties, are progressing in interprofessional training and are able to sensitize their social actors to work with IPE as a teaching-learning strategy, successfully developing collaborative competencies and skills, thus fostering a sensitive professional profile capable of teamwork.

The construction of the competency matrix reinforces these findings and can be used and replicated in other postgraduate studies, serving as important feedback on the profile of trained health professionals, contributing to the qualification of health practice.

The research advanced the discussion on IPE and interprofessionalism, since it constructed a novel practical competency matrix that reflected the health training developed, corroborating international literature. However, not all of the expected competencies indicated by the literature were identified in the participants' statements, which may be related to the difficulties in developing IPE in Brazil.

The competency matrix represents an advancement in the construction of an instrument for assessing the quality of interprofessional health training, which can assist social actors to reflect on and understand the training process, identifying the main needs for change. It also provides support for managing residency programs, to promote the quality of teaching, research and extension, and to improve the functioning of the courses.

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