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ORIGINAL ARTICLE

Validation of an instrument to assess Barriers and Facilitators of Collaborative Interprofessional Practice

Validação de um instrumento para avaliar Barreiras e Facilitadores para a Prática Interprofissional Colaborativa

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ABSTRACT The objective of this study was to develop and validate an instrument entitled Barriers and Facilitators of Collaborative Interprofessional Practice in Primary Health Care (BFCIP-PHC), which was developed in three stages. The first stage involved the development of the initial version of the instrument, which contained 12 items and was evaluated by 20 experts, who indicated that the questions were adequate in terms of content (lower bound 85%, higher bound 95%). The reproducibility of this approach was subsequently verified by reference to 27 health professionals. All the items exhibited a relative agreement greater than 74%. Finally, the content validity and internal consistency were assessed by reference to 799 Primary Health Care professionals. The results revealed a tri-factorial structure (Factor 1 – Team composition and opportunities for knowledge sharing; Factor 2 – Working conditions; and Factor 3 – Knowledge, attitudes and skills). The Cronbach's alpha coefficients ranged between 0.76 and 0.87. The final model exhibited excellent goodness of fit and good values with respect to convergent and discriminant validity. The BFCIP-PHC was thus associated with good indicators of validity and may be recommended as a tool that can be used to evaluate the barriers and facilitators of collaborative interprofessional practice.

KEYWORDS Psychometrics. Health evaluation. Patient care team. Interprofessional education. Primary Health Care.

RESUMO *O objetivo foi desenvolver e validar o instrumento intitulado Barreiras e Facilitadores para a Prática Interprofissional Colaborativa na Atenção Primária à Saúde (BFPIC-APS), sendo desenvolvido em três etapas. A primeira foi o desenvolvimento da versão inicial do instrumento com 12 itens e avaliação por 20 especialistas que indicaram as questões como adequadas quanto ao conteúdo (menor valor 85% e maior 95%). Após, foi verificada a reprodutibilidade, com 27 profissionais de saúde. Todos os itens atingiram uma concordância relativa maior do que 74%. Por fim, foi verificada a validade confirmatória e consistência interna, com 799 profissionais da Atenção Primária à Saúde. Os resultados apontaram uma estrutura tri-fatorial (Fator 1– Composição das equipes e oportunidades para compartilhamento de conhecimentos; Fator 2 – Condições de trabalho; Fator 3 – Conhecimentos, Atitudes e Habilidades). O alfa de Cronbach mostrou valores que variaram entre 0,76 e 0,87. O modelo final apresentou qualidade de ajustamento excelente e bons valores de validade convergente e discriminante. O BFPIC-APS apresentou bons indicadores de validade, podendo ser recomendado para avaliar BFPIC-APS.*

PALAVRAS-CHAVE *Psicometria. Avaliação em saúde. Equipe de assistência ao paciente. Educação interprofissional. Atenção Primária à Saúde.*

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Introduction

Primary Health Care (PHC) is the main gateway to the Brazilian health system and plays an important role in health promotion, in the prevention and treatment of various diseases, and in the pursuit of comprehensive and humanized care, including in terms of not only physical and biological aspects but also psychological, social, environmental, political, economic and cultural aspects, in a manner that is suited to the characteristics of each territory[1]. In light of these characteristics, teamwork among the various health professionals involved in PHC is of fundamental importance[2-7].

Teamwork in the context of PHC must enable professionals to share their knowledge, skills and experiences as well as to discuss cases and make decisions in a more assertive and integrated manner[5], thus improving the effectiveness of PHC and contributing to the delivery of comprehensive and quality care to the population[2]. Notably, the justification for teamwork in health should not refer exclusively to the logic of care rationing. That is, efforts to improve the cost-effectiveness of work and to expand access and coverage within the population in question in this context are also related to the need to promote greater integration among the various disciplines and professions involved in this context, which are fundamental with respect to the improvement of health practices, especially in light of a broader view of health[8].

Since the 2000s in particular, various researchers have studied teamwork in the context of health care and, more specifically, in PHC[2-7,9-14]. These discussions have highlighted certain conceptual inaccuracies regarding terms that are occasionally used synonymously, such as 'teamwork', 'interprofessional collaboration' and 'network'[5]. Despite these inaccuracies and various differences among the concepts cited, the same authors have claimed that the literature on these concepts has consistently highlighted the relevance of relational aspects and the organization of work among different professionals, thus allowing effective, integrated and collaborative teams to be established. Furthermore, it is necessary to highlight the difference between multidisciplinary and interprofessional work since different professionals work in these two contexts. However, in multiprofessional contexts, work can be individualized without the professions involved being integrated, whereas interprofessional contexts require collaborative practice.

Collaborative Interprofessional Practice (CIP) occurs when professionals who exhibit different backgrounds associate and share their expertise, knowledge and skills with the goal of providing comprehensive care that can impact the health of individuals[15]. Although the number of productions pertaining to interprofessional practice in the national literature has increased in recent years, the operationalization of this practice in the service context remains a major challenge.

Studies on this subject have even highlighted important challenges pertaining to the implementation and consolidation of CIP in PHC. In this context, professional training in the field of health has been highlighted; such training remains hegemonically fragmented and has little ability to stimulate interprofessional work; furthermore, the scarcity of financial, human and technological resources[3,5,7,16,17]; and even users' expectations of health services, given the fact that they occasionally expect essentially biomedical care, are relevant issues in this context[18]. Specifically, studies on the perceptions of professionals working in PHC have identified little articulation of the teams involved, the difficulty of shared work, a lack of collaboration and cooperation practice, excessive amounts of work and a lack of professional support as issues in this context[19,20].

Although the cited studies make important contributions to the task of improving our understanding of teamwork, specifically of

CIP, no validated instruments that can be used to investigate the barriers and facilitators of CIP in PHC are yet available.

Given this context, the objective of this study was to develop and validate an instrument that can be used to assess the barriers and facilitators of CIP; this instrument has been named Barriers and Facilitators of Collaborative Interprofessional Practice in Primary Health Care (BFCIP-PHC), and it focuses on the perceptions of health professionals actively working in PHC. This instrument should be capable of being employed as a useful tool in efforts to obtain a better understanding of the reality of this situation, evaluating interprofessional work and planning actions that seek to promote CIP in the context of health.

Materials and methods

This study is part of a multicenter research project titled 'Multi and interprofessional access to treatment and treatment adherence among people with CNCDs in small municipalities in the state of Paraná', which was approved by the Committee on Ethics in Research Involving Human Beings of the State University of Londrina – UEL (CAAEE: 39012820.8.0000.5231; opinion number: 4,414,235) under CNS Resolutions No. 466/2012[21] and No. 510/2016[22].

In the following, information regarding the three stages involved in the construction and validation of the instrument is presented.

Stage 1 – Construction of the initial version of the instrument and evaluation by the experts – Content validity

On the basis of the literature on this topic[5,14,19,20,23-29], an initial version of the instrument was developed, which featured 12 questions; these questions were associated with five possible responses, i.e., two for barriers, one for neutral and two for strengths (*box 1*).

Box 1. Final version of the instrument

INSTRUMENT USED TO ASSESS THE BARRIERS AND FACILITATORS OF COLLABORATIVE INTERPROFESSIONAL PRACTICE IN PRIMARY HEALTH CARE (BFCIP-APS)

THE OBJECTIVE OF THIS INSTRUMENT IS TO HELP WORKERS TO ASSESS THE BARRIERS AND FACILITATORS OF COLLABORATIVE INTERPROFESSIONAL PRACTICE, THUS FACILITATING THE IDENTIFICATION OF THE POTENTIAL AND WEAKNESSES OF THESE INTERVENTIONS.

THE INSTRUMENT MAY BE COMPLETED INDIVIDUALLY OR BY A GROUP OF WORKERS WHO WORK AS A TEAM. In this case, the respondents should discuss each item and reach a consensus or use some measure that is based on the average of the individual assessments.

DURING THE COMPLETION OF THE INSTRUMENT, THE FOLLOWING OPERATIONAL CONCEPT SHOULD BE CONSIDERED:

COLLABORATIVE INTERPROFESSIONAL PRACTICE: THIS FORM OF PRACTICE OCCURS WHEN PROFESSIONALS FROM DIFFERENT HEALTH FIELDS SHARE THEIR KNOWLEDGE AND SKILLS TO PROMOTE THE COMPREHENSIVE CARE OF USERS.

TO EVALUATE THE EXTENT OF TEAMWORK WITHIN YOUR WORKPLACE, MARK THE NUMBER THAT BEST REPRESENTS HOW MUCH YOU AGREE WITH THE FOLLOWING SENTENCES ON THE FOLLOWING SCALE:

1	2	3	4	5
DOES NOT FAVOR collaborative interprofessional practice	SLIGHTLY FAVORS collaborative interprofessional practice	DOES NOT FAVOR OR IMPEDE	FAVORS collaborative interprofessional practice	GREATLY FAVORS collaborative interprofessional practice

No	ITEM	1	2	3	4	5
1	The composition of the professional teams with which I work.					
2	The physical structure(s) of the location(s) in which I work.					
3	My workload at the location(s) in which I work.					
4	The organization of the work process at the location(s) in which I work.					
5	The management/coordination of the location(s) in which I work.					
6	My current knowledge of interprofessional work.					
7	My disposition for interprofessional work.					
8	My current skills (technical skills) pertaining to interprofessional work.					
9	My knowledge of the functions and potential of each profession that is represented on the team(s) on which I work.					
10	The receptivity of users to care in an interprofessional context.					
11	The opportunities that I have to share my knowledge with other professionals.					
12	The opportunities that I have to learn from other professional(s) on the team.					

Source: Own elaboration.

Subsequently, the instrument was sent to 32 experts, specifically to professors who had completed higher education, who had produced research in the field of public health, and who had experience with monitoring undergraduate and/or graduate students in the context of PHC. The questionnaires were distributed via a Google Forms® link that was

sent by e-mail. Some of these experts were chosen by convenience sampling, and others were chosen on the basis of their production on the subject of teamwork in PHC, as identified through searches of the Scientific Electronic Library Online (SciELO) database. In addition, experts from different regions and different educational institutions were considered.

Twenty experts from three regions of Brazil (i.e., the South, North and Northeast regions) and six different educational institutions (i.e., UEL, State University of the Midwest—Unicentro, Federal University of Paraíba—UFPB, Federal University of Santa Catarina—UFSC, Federal University of Amazonas—UFAM and Federal University of Fronteira Sul—UFFS) responded to the questionnaire content evaluation form. In terms of the initial training (degrees) of the specialists, five had undergone training in nursing, four in physical education, three in physical therapy, three in speech therapy, two in nutrition and one each in the following areas: dentistry, pharmacy and psychology.

The introductory text of the electronic message sent to the experts focused on clarifying the objectives of the instrument and ensuring that professionals who worked in PHC were the target audience of this instrument. The experts were asked to rate each question on a scale of 1 to 4 to indicate whether it was a valid tool for investigating the barriers and facilitators of CIP. In addition, after each question, space was provided to enable the experts to include comments or suggestions. Answers of 3 and 4 indicated that the question was adequate in terms of content validity; i.e., in the expert's judgment, the question was a valid tool for investigating the barriers and facilitators of CIP.

To analyze content validity of this instrument, the Content Validity Index (CVI), which measures the proportion of experts who agree with the inclusion of the indicators of which the instrument was composed, was calculated. All the comments and suggestions made by these experts with regard to possible changes to the questions were analyzed and discussed by three of the authors of this study (MRL, LJB and SSC), who reached a consensus on the basis of the evaluators' notes, which were generally quite punctual.

Stage 2 – Reproducibility

To verify the reproducibility of the instrument, professionals who were working in PHC in two municipalities in Paraná, including one small municipality (which contained fewer than 20,000 inhabitants) and one medium-sized municipality (which contained approximately 180,000 inhabitants), were selected via convenience sampling. Contact was made with health managers from these two municipalities, who invited health professionals to participate via WhatsApp messages that contained links to the research instrument on the Google Forms. These professionals were invited to complete the instrument on two occasions, and a second invitation was sent five days after the first date of participation. The difference between the professionals' first and second responses ranged from five to 11 days.

Overall, 27 professionals responded to the instrument on both occasions, six of whom had received degrees in physical education, five in nutrition, four in physiotherapy, two in nursing, two in psychology, one in dentistry, and one in social work; the sample also included three community health workers, two pandemic agents and one nursing technician.

Reproducibility was calculated on the basis of relative agreement, and this value was considered to be adequate when the level of agreement was greater than 70%[30].

Stage 3 – Content validity and internal consistency of the instrument

This stage aimed to analyze the content validity and internal consistency of the instrument used to measure barriers and facilitators of CIP among health professionals.

Therefore, health professionals working in PHC from all small municipalities in Paraná (n = 58), who were associated with five health regions (Curitiba, Irati, Ivaiporã, Londrina and União da Vitória), were eligible to participate in this study. The municipalities that participated during this stage did not participate during the previous stage.

Initially, regional health supporters and/or intermunicipal health consortia as well as secretaries working for each municipality were contacted with the goal of explaining the objectives and procedures of the study. These individuals sent an invitation to participate in the study to PHC workers or forwarded the contacts of coordinators to enable those workers to become further sources of recruits for this research.

Subsequently, a link to the Google Forms page that contained the data collection instrument was sent directly to professionals via email or WhatsApp. The attached message explained the study and procedures; if the professional agreed to participate in this research, he or she indicated his or her agreement to participate and that he or she had read and agreed to the informed consent form.

In total, 799 professionals from 52 different municipalities, participated in this study by completing a questionnaire that contained 76 questions and was divided into four sections (characterization; general aspects of teamwork; barriers and facilitators of CIP; and general). Regarding the characterization of the subjects who participated in this stage of the study, the majority were women (88.1%), between the ages of 30 and 49 years (68.1%), self-declared white (74.3%) and married (69.7%). Half of the subjects had completed higher education (50.1%), and 24.8% had at least one completed postgraduate course (191 at the specialization level, four at the master's level and three at the doctoral level). Regarding participants' tenure in PHC, 35.9% reported working in this field for at least 10 years. The participants represented 17 professional categories, and the most responses were provided by participants who were community health workers (38.2%), nursing professionals (17.6%) and nursing technicians (16.6%).

On the basis of this dataset, the structure of the instrument was tested by conducting exploratory factor analysis with varimax orthogonal rotation, which aimed to determine the basic structure of the instrument. Cronbach's alpha coefficient was used to determine the internal consistency of the instrument. The content validity of the instrument was subsequently tested via the Maximum Likelihood Estimation (MLR) method, which indicated that a model that exhibits good fit should have fit indices of <0.05 and an upper limit of the confidence interval of 90% below 0.08 in terms of the Root Mean Square Error of Approximation (RMSEA)[31]; it should also have Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) values above 0.90[32]. Finally, the convergent validity, which requires the items used to indicate a specific factor to exhibit a high proportion of variance in common, and the discriminant validity, which measures the degree to which a construct differs from the others, of the items were analyzed. To apply these measures, the correlations among the factors and the Average Variance Extracted (AVE) of each item included among the factors were used in this research[33].

Results

Stage 1 – Content validity

The results of the first stage (content validity) indicated that in all the items that the experts considered, the questions were largely adequate in terms of content validity (i.e., answers 3 and 4 on the scale). The lowest CVI was 85%, and the highest was 95%, with a mean value of

90%. Among the 12 questions, five exhibited a CVI of 95%, two exhibited a CVI of 90%, and five exhibited a CVI of 85%.

On the basis of these results and an analysis of the comments provided by the experts, small changes were made to the instrument; however, it was considered to exhibit adequate content validity.

Stage 2 – Reproducibility

All items included in the instrument exhibited relative agreement values that were greater than 74%, and the percentages of agreement ranged from 74.1% to 96.3% (*table 1*).

Table 1. Kappa index and percentage of agreement regarding the questions pertaining to the barriers and facilitators associated with collaborative interprofessional practice (n=27 professionals who were recruited from one small and one medium-sized municipality, Paraná, Brazil, 2022)

	Kappa	Agreement (%)
The composition of the professional teams with which I work.	0.289	85.1
The physical structure(s) of the location(s) in which I work.	0.645	85.1
My workload at the location(s) in which I work.	0.439	74.1
The organization of the work process at the location(s) in which I work.	0.682	85.1
The management/coordination of the location(s) in which I work.	0.658	88.9
My current knowledge of interprofessional work.	0.260	85.1
My disposition for interprofessional work.	0.080	85.1
My current skills (technical skills) pertaining to interprofessional work.	0.649	96.3
My knowledge of the functions and potential of each profession that is represented on the team(s) on which I work.	*	92.3
The receptivity of users to care in an interprofessional context.	0.575	85.1
The opportunities that I have to share my knowledge with other professionals.	0.502	81.2
The opportunities that I have to learn from other professional(s) on the team.	0.289	85.1

Source: Own elaboration.

* Not calculated because none of the professionals identified this variable as a barrier in the first evaluation.

Stage 3 – Structure analysis

The instrument exhibited a tri-factorial structure, and the factors were named as follows:

- Factor 1 – Composition of teams and opportunities for knowledge sharing, which included three items: the composition of professional categories, existing opportunities for professionals to share knowledge and opportunities for professionals to learn from other professionals (Items B1, B11 and B12);

- Factor 2 – Working conditions, which consisted of four items: physical structure, workload, organization of the work process and management/coordination (Items B2, B3, B4 and B5);

- Factor 3 – Knowledge, attitudes and skills, which included five items: knowledge of collaborative interprofessional work, willingness to collaborate in the context of interprofessional work, current skills pertaining to collaborative interprofessional work, knowledge of relevant functions, the potentialities of each profession and receptivity of the users to care in an interprofessional manner (Items B6, B7, B8, B9, and B10).

The composition of the three factors explained 67.6% of the total variance in the instrument and exhibited adequate values in terms of sample size (Kaiser–Meyer–Olkin test = 0.914; p <0.001) and Bartlett's test of sphericity (chi-square 4820.6; p<00.1) with regard to the factor structure (these data are not presented in the tables).

ANALYSIS OF THE INSTRUMENT'S INTERNAL CONSISTENCY

The analysis of internal consistency on the basis of Cronbach's alpha coefficients revealed values of 0.76 for Factor 1 and 0.87 for Factor 3. The 12 items included in the final version of the instrument contributed to its ultimate structure, and other items were excluded (*table 2)*.

Table 2. Analysis of the internal consistency of the items contained in the instrument developed to measure the barriers and facilitators associated with collaborative interprofessional practice among health professionals. Paraná, Brazil, 2022 (n = 799)

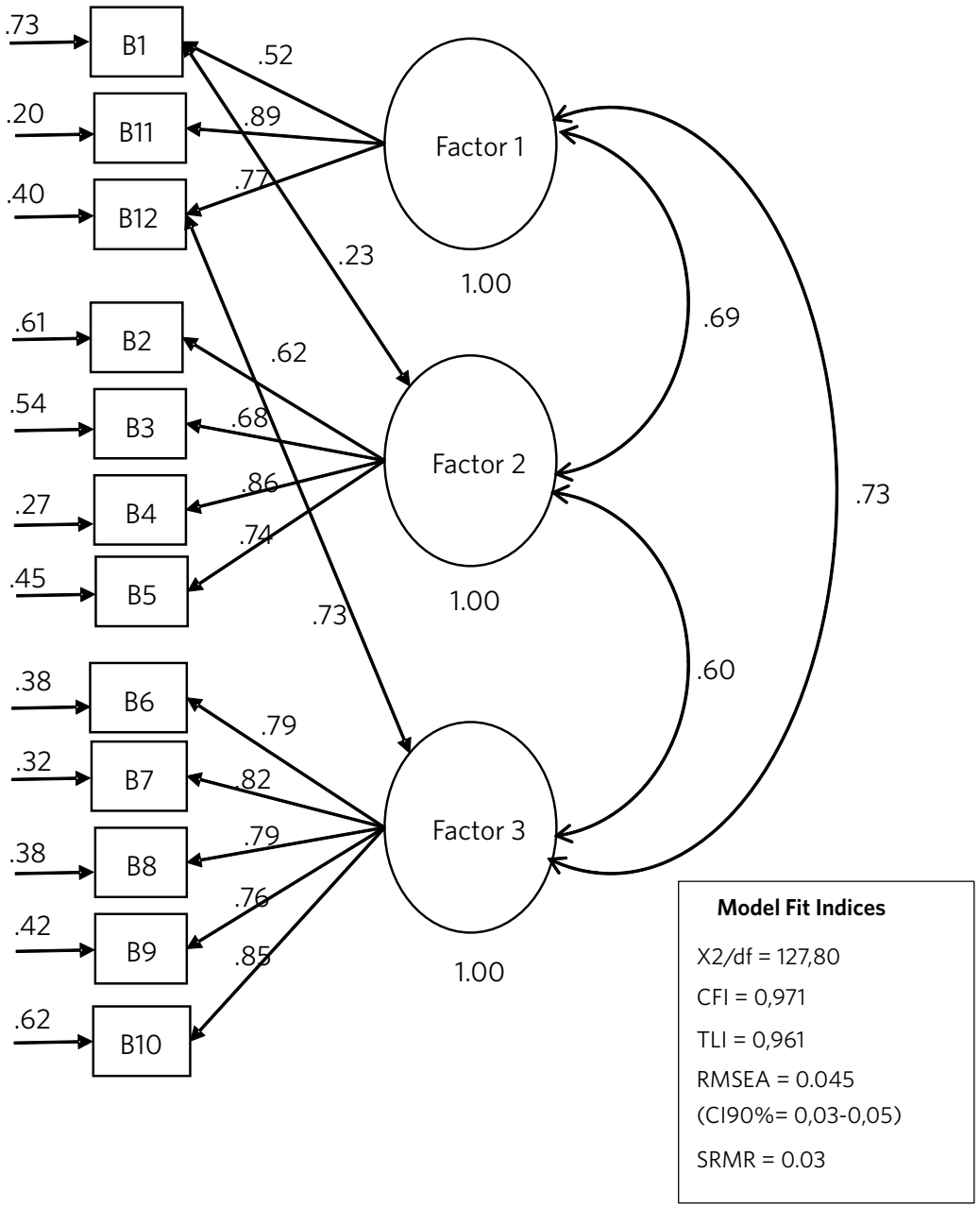
Alpha	Items	Alpha if item is deleted
Composition of teams and opportunities for knowledge sharing Alpha= 0.76	Item B1 - Composition of the professional teams with which I work	0.72
	Item B11 - The opportunities that I have to share my knowledge with other professionals	0.59
	Item B12 - The opportunities that I have to learn from other professionals	0.61
Working conditions Alpha= 0.81	Item B2 - The physical structure	0.79
	Item B3 - My workload	0.77
	Item B4 - The organization of the working process	0.71
	Item B5 - Management/coordination	0.77
Knowledge, attitudes and skills Alpha= 0.87	Item B6 – My current knowledge of interprofessional work	0.84
	Item B7 – My willingness to work in interprofessional contexts	0.83
	Item B8 – My current skills pertaining to interprofessional work	0.83
	Item B9 - My knowledge of the functions and potential of each profession that is represented on the team on which I work	0.84
	Item B10 – Users' receptivity to interprofessional care	0.86

Source: Own elaboration.

CONTENT VALIDITY ANALYSIS

The initial model exhibited reasonable goodness of fit in terms of the RMSE (value = 0.085). On the basis of the modification indices, adjustments were performed to account for correlations between Items B1 and Factor 2 and between Items B12 and Factor 3. On this basis, the final model exhibited excellent goodness of fit (X2/df = 127.80; CFI = 0.971; TLI = 0.961; RMSEA = 0.045; P [rmsea≤0.05] 1.0; SRMR = 0.03). *Figure 1* presents the values of the standardized factor loadings and the individual reliability of each item included in the measurement model. All the standardized factor loadings were greater than 0.52, and the correlations among the factors were lower than 0.74.

Figure 1. Results of the confirmatory factor analysis of the facilitators scale for interprofessional collaborative practice among healthcare professionals. Paraná, Brazil, 2021 (n= 799)



Source: Own elaboration.

CONVERGENT AND DISCRIMINANT VALIDITY ANALYSIS

The AVE values were 0.55 for Factor 1, 0.53 for Factor 2 and 0.64 for Factor 3. All these values were greater than 0.50, thus indicating that the items of which the factors were composed exhibited convergent validity. To measure convergent validity, the square root of the AVE value was calculated for each factor

and compared with the correlation coefficient obtained in the analytical model (*table 3*). Values of 0.74 (between F1 and F2), 0.72 (between F1 and F3) and 0.80 (between F2 and F3) were observed in this context (these data are not presented in the tables).

Table 3. Correlation coefficients and average variance extracted (AVE) values of the instrument developed to measure the barriers and facilitators associated with collaborative interprofessional practice among health professionals. Paraná, Brazil, 2022 (n = 799)

	Factor 1	Factor 2	Factor 3
Factor 1	(0.55)[a]		
Factor 2	0.69	(0.53)[a]	
Factor 3	0.73	0.60	(0.64)[a]

Source: Own elaboration.

[a] Average variance extracted (AVE) value.

Note: AVE values greater than 0.50 indicate that the model is adequate and exhibits good convergent validity[24,25]. The square roots of the AVE values must be higher than the values of the correlation coefficient to ensure discriminant validity[24,25].

Discussion

The teamwork of professionals in PHC is related to several factors, which may represent barriers to or facilitators of CIP. An examination of how these factors appear in the daily routines involved in a service in a simple and objective way, thus facilitating the evaluation of a greater number of professionals in a short time, may be an important way of subsidizing managers' efforts to implement measures that can enhance relevant facilitators or overcome existing barriers. In this manner, effective collaboration among professionals can be promoted, thus contributing to comprehensive care in PHC. In addition, the consolidation of a care model that is grounded on the logic of collaboration, support and interprofessionalism requires relevant actors to overcome various paradigms that are rooted in our culture, which operate both in undergraduate training spaces and in the actual activities of health services.

In this sense, the proposed instrument may help to fill a gap, given that, despite the existence of a scale that can be used to assess interprofessional collaboration (AITCS II - BR)[23], no specific instruments that can facilitate the identification of the barriers and facilitators of CIP in PHC are available. The present instrument (BFCIP-PHC) is limited by the fact that it can facilitate the identification of possible barriers and facilitators only according to the perceptions of health care professionals, not including managers.

In addition, evaluating any element related to CIP is a complex task, especially because this task must be performed in contexts that can exhibit great differences and particularities. For this reason, many previous studies on this subject have relied on qualitative methods of analysis, which can facilitate a more in-depth evaluation of the specificities that characterize each context.

An instrument such as the BFCIP-PHC, which seeks to be simpler and more objective, certainly cannot provide (at least if it is applied in isolation) the same level of in-depth study as can be obtained through qualitative methods. On the other hand, precisely because of its simplicity and objectivity, it can be useful to

apply this instrument to a greater number of professionals in a short time, thus generating results that can facilitate a good evaluation of the barriers and facilitators of CIP.

In addition, like any instrument of this nature, this measure is limited by its inability to support further exploration of macrocontextual issues, which can be highly relevant and influence the operationalization of CIP. These issues include funding, which is always a central issue in PHC; the priorities of municipal health management; and aspects of the characteristics of each territory, among others. In other words, the instrument facilitates the evaluation of various aspects of the work of professionals. However, this limitation does not entail that the application of this instrument does not allow information that may be useful at the macro level to be collected.

The evaluation of the three factors proposed by the BFCIP-PHC (namely, 1- Team composition and opportunities for knowledge sharing; 2- Working conditions; and 3- Knowledge, attitudes and skills) is important because it can facilitate reflection on how structural aspects, which depend more directly on public policies and funding, affect the daily routines associated with the service and teamwork, namely, in this specific case, CIP. For example, the first two groups of factors contained in the instrument include issues related to work management, which play a key role in the task of promoting CIP[24-27,34].

In this context, studies have indicated that the opportunity for professionals to engage in shared, frequent and informal communication[27,34], the existence of established spaces, the possibility of frequent meetings among professionals working in PHC[24-27], and the ability to share responsibilities and practices[18] are essential with respect to interprofessional collaboration. These elements are directly related and can be evaluated by reference to the first factor included in the BFCIP-PHC: 'team composition and opportunities for knowledge sharing'.

Another aspect that must be considered in this context is the important governance role that management/coordination plays in the process of implementing strategies aimed at articulating and integrating professionals and in the process of encouraging collaborative practices to integrate the work process in question into the unit[5,24]. Among the strategies that can be used to organize work processes, the following are notable: the establishment of spaces for matrix support in team meetings, the articulation of agendas for collective work, and the organization of logistics/physical space for the development of groups and collective activities[24].

A review revealed that a favorable configuration of the physical space is one of the main facilitators of CIPs[27]; it also indicated that work overload[33] and a large number of visits affect collaboration[35,36]. These questions can be assessed by the second group of factors included in the BFCIP-PHC.

The third group of factors focuses on issues that pertain to the knowledge, attitudes and skills of professionals in the context of interprofessional work. Studies have indicated that, in Brazil, the training of professionals is mostly uniprofessional as a result of the profession-related centrism that permeates the training environments in the field of health, a situation which entails that interprofessional practice and the potential of collaborative practices in health care are not addressed[37]. The recognition and problematization of these aspects are essential elements of efforts to promote interprofessional competence in PHC spaces[38], which can be facilitated by the application of the BFCIP-PHC instrument.

Specifically, with respect to attitudes, the main question that the instrument asks PHC workers pertains to how they perceive their 'willingness for interprofessional work'. This item is highly important, as it helps assess the extent to which a given worker is willing to open up to the possibility of developing their work alongside another worker in an interprofessional manner. Studies that have

evaluated teamwork have included various items related to teamwork, thus highlighting the need to develop subjective aspects among team members that are related to the ability to establish trust, resolve conflicts, listen to and become familiar with each other and exercise collaborative leadership[20,23-28] ; in turn, these factors are complex and require the worker to extrapolate the limits of a strictly uniprofessional intervention and exhibit an attitude of openness toward the possibility of sharing actions and emotions[39].

Investing in the evaluation of health work on the basis of an instrument that can be used to identify the barriers and facilitators of CIP in daily experiences of PHC can even impact the quality and costs of the system, as some evidence indicates CIP can help reduce absenteeism, increase satisfaction with the work environment, promote patient safety and improve the quality of care[29]. Thus, the proposed instrument may be important with respect to efforts to evaluate CIP and may even trigger processes of change, especially those pertaining to continuing education.

In addition, we emphasize the fact that this instrument can be useful with regard to efforts to plan actions that are more directly linked to a specific context, for example, based on an analysis of data obtained in a specific basic health unit, as well as to support actions at other levels, such as among health secretaries or even, for example, as a way of influencing the improvement of professional training in health, which has often been identified as one aspect that can hinder the operation of CIP.

Thus, the importance of the process of evaluating health actions, specifically CIP, is reinforced. Notably, a broader view of evaluation is needed in this context. Such a view must understand evaluation not as an end in itself, as it is often understood, but rather as a fundamental component of the evaluation of work processes and the impacts of the corresponding actions; furthermore, this process must not be used to punish the individuals involved but rather employed as a natural process that can help relevant actors rethink actions, review objectives, and reorganize planning, among other contributions.

Conclusions

The results of this research indicate that the BFCIP-PHC instrument exhibits acceptable content validity, measurement reliability and factorial structure; it can thus be used to assess the barriers and facilitators of CIP among PHC professionals.

This tool is an evaluation tool that can support the planning of services; however, other diagnostic resources must also be incorporated into this process. This instrument should also be applied in different scenarios, and longitudinal studies should be conducted to evaluate its ability to promote CIP.

Collaborators

Loch MR (0000-0002-2680-4686)*, Borges LJ (0000-0002-0142-3641)* and Coutinho SS (0000-0002-5398-4352)* contributed to the conception of the idea for this research, the coordination of the research project, data collection, preliminary writing, and review of the manuscript; they also approved the final version of the article. Carvalho BG (0000-0003-3850-870X)* contributed to the critical review of the content and approved the final version of the article. Rech CR (0000-0002-9647-3448)* contributed to the data analysis, preliminary writing, and critical review of the manuscript and approved the final version of the article. ■

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