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RESEARCH ARTICLE (ORIGINAL)

Development of an Instrument to Measure the Workload of Family Nurses in Portugal

Construção de um Instrumento de Medida da Carga de Trabalho do Enfermeiro de Família em Portugal

Creación de un Instrumento para Medir la Carga de Trabajo de los Enfermeros de Familia en Portugal

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Abstract

Background: Nursing workload affects the quality of care, patient safety, and professional satisfaction. Measuring nursing workload in primary health care is a challenge.

Objective: To develop an instrument that measures the workload of family nurses during consultations with people with noncommunicable diseases.

Methodology: Methodological study with a mixed-methods approach using the e-Delphi technique. This study was conducted in two stages. The first stage refers to the development of the instrument and the second stage involves its evaluation by 10 experts.

Results: The *Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família para a Gestão da Doença Crónica* (Family Nurse Workload Assessment Instrument for Chronic Disease Management, IACTENFF-CE-GDC) includes five grids. The overall content validity index was 1.0 for the layout and between 0.98 and 1.0 for each grid.

Conclusion: The instrument showed strong expert consensus and high potential for measuring the workload of family nurses during consultations with people with noncommunicable diseases.

Keywords: nursing; family nurse practitioners; workload; chronic disease; primary health care

Resumo

Enquadramento: A carga de trabalho dos enfermeiros impacta a qualidade dos cuidados, segurança do utente e a satisfação profissional. Medir a carga de trabalho de enfermagem nos Cuidados de Saúde Primários constitui-se um desafio.

Objetivo: Construir um instrumento de medida da carga de trabalho dos enfermeiros de família na consulta à pessoa com doença crónica.

Metodologia: Estudo metodológico de abordagem mista com recurso à técnica *e*-Delphi. O estudo foi conduzido em duas etapas, a primeira etapa reporta-se à construção do instrumento e a segunda etapa à avaliação da proposta por 10 peritos.

Resultados: O Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família para a Gestão da Doença Crónica (IACTENFF-CE-GDC) é composto por cinco grelhas. A validade de conteúdo geral foi de um para a definição do *layout* e entre 0,98 a um para cada uma das grelhas apreciadas.

Conclusão: O instrumento demonstrou elevado nível de consenso e elevado potencial de traduzir a carga de trabalho do enfermeiro de família na consulta à pessoa com doença crónica.

Palavras-chave: enfermagem; enfermeiros de saúde da família; carga de trabalho; doença crónica; cuidados de saúde primários

Resumen

Marco contextual: La carga de trabajo de los enfermeros repercute en la calidad de los cuidados, la seguridad del usuario y la satisfacción profesional. Medir la carga de trabajo de enfermería en la atención primaria supone un reto.

Objetivo: Crear un instrumento para medir la carga de trabajo de los enfermeros de familia en la consulta a personas con enfermedades crónicas.

Metodología: Estudio metodológico de enfoque mixto mediante la técnica e-Delphi. El estudio se llevó a cabo en dos etapas: la primera se centró en la elaboración del instrumento y la segunda en la evaluación de la propuesta por parte de diez expertos.

Resultados: El Instrumento de Evaluación de la Carga de Trabajo del Enfermero de Familia para la Gestión de Enfermedades Crónicas (IACTENFF-CE-GDC) está compuesto por cinco cuadrículas. La validez del contenido general fue de uno para la definición del diseño (*layout*) y entre 0,98 y uno para cada una de las cuadrículas evaluadas.

Conclusión: El instrumento demostró un alto nivel de consenso y un gran potencial para traducir la carga de trabajo del enfermero de familia en la consulta a personas con enfermedades crónicas.

Palabras clave: enfermería; enfermeros de salud familiar; carga de trabajo; enfermedad crónica; cuidados de salud primarios

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Introduction

Noncommunicable diseases (NCDs) account for 75% of all premature deaths worldwide each year (World Health Organization [WHO], 2022). The leading causes are cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes mellitus (DM), which together are responsible for 80% of all premature NCD deaths (WHO, 2022).

In the European Union (EU), NCDs are also the leading cause of death and contribute significantly to a reduced quality of life, particularly when not properly managed (Organisation for Economic Co-operation and Development, 2022). In 2024, 42.3% of the Portuguese population aged 16 and older was diagnosed with an NCD or long-term health condition, mostly affecting older individuals (68.1%). This places Portugal as the EU country with the third highest NCD prevalence (Instituto Nacional de Estatística, 2025). When poorly managed, NCDs can lead to serious complications, permanent disabilities, and a significant loss of healthy life years. These consequences affect individuals' quality of life, autonomy, and productivity, often resulting in permanent physical, cognitive, or sensory disabilities. Consequently, there is an increase in years of life lost due to premature mortality and years lived with disability, which contributes to a high global burden of disease (Ferrari et al., 2024). The impact of poorly managed NCDs also extends to families, communities, and health systems, which face rising costs related to hospitalization, rehabilitation, and long-term care. In Portugal, NCD surveillance and management are primarily conducted in primary health care (PHC) settings by multidisciplinary teams that include family nurses (FNs). FNs carry out monitoring and surveillance activities during consultations with people with NCDs, namely DM, hypertension, and respiratory diseases (Administração Central dos Serviços de Saúde, 2022). As the number of people with NCDs continues to rise, the demand for healthcare services is also expected to grow, leading to an increased workload for nurses in PHC settings (Schäfer et al., 2020). To understand the impact of this demand and the associated workload, it is necessary to use instruments that allow for its measurement. Most studies on nursing workload have focused on hospital settings, particularly in intensive care units. These studies have measured professional effort, perceived workload, and its implications for patient safety (Fischbacher et al., 2024; Li et al., 2025). The following instruments have been used: Nursing Activities Score (NAS), Therapeutic Intervention Scoring System-28 (TISS-28), Nine Equivalents of Nursing Manpower Use Score (NEMS), NASA Task Load Index (NASA-TLX), Belgian Nursing Minimum Data Set II (B-NMDS II), and MIDENF® (Li et al., 2025). The PHC context has been less studied, particularly in Portugal. The following instruments have been used: Workload Indicators of Staffing Need (WISN), Individual Workload Perception Scale-Revised (IWPS-R), and the *Instrumento de Medida da Carga de Trabalho dos Profissionais de Saúde na Atenção Primária* (Instrument to Measure the Workload of Health Professionals in Primary Health Care, IMCTPSAP). Among these, the IMCTPSAP served as inspiration for the instrument described in this study, despite the significant differences in the working methods of FNs in Portugal and the original context in which it was developed. However, these instruments are not suitable for measuring workload due to the specific nature of FNs' clinical practice. Therefore, this study aims to develop an instrument for measuring the workload of FNs during consultations with people with NCDs.

Background

FNs, whose activity in PHC is regulated by Decree-Law No. 118/2014 (Decretolei nº 118/2014 do Ministério da Saúde (2014) in mainland Portugal, are part of multidisciplinary teams that provide comprehensive care to families as a unit throughout the life cycle and in different community contexts. FNs play a key role in health promotion; primary, secondary, and tertiary prevention; early detection of NCDs; chronic disease management and home visits; and coordination with other professionals and community resources (Decreto-Lei n.º 118/2014, 2014). FNs are responsible for providing care to 1,550 users, equivalent to 1,917 weighted units (Decretolei nº 103/2023 da Presidência do Conselho de Ministros, 2023) or one nurse per 350 families. In nursing consultations, FNs deliver care related to the diagnosis and planning of complex interventions, which are linked to a heavy workload (Melo, 2021). Although multiple definitions of nursing workload exist, there is no clear consensus. There is a lack of studies on the workload associated with nursing consultations in PHC settings. Therefore, this study adopts Alghamdi's (2026) definition of nursing workload as the amount of time and care that a nurse can devote (directly or indirectly) in a given care setting. Based on this definition, nursing workload should be measured by the total time required to perform nursing care-related activities and non-care-related activities, regardless of the setting.

Nursing workload is recognized as a key indicator for determining appropriate staffing in a given service (Martin & Gaidzinski, 2014) and is essential for establishing safe nurse-to-patient ratios (Maghsoud et al., 2022). Although several methods and instruments exist to measure nursing workload, none have proven effective in accurately determining the workload of nurses in PHC settings (Griffiths et al., 2020). While these tools can map interventions, assess dependency levels, and identify care needs, they cannot effectively reflect the interventions and workload of FNs during consultations with people with noncommunicable diseases.

Research question

What nursing interventions should be included in an instrument to measure the workload of family nurses during consultations with people with noncommunicable diseases?

Methodology

Study design

A methodological study was conducted using the e-Delphi technique with a mixed-methods approach, aimed at developing an instrument to measure the workload of FNs.

Stage 1: Development of the instrument

At this stage, a tool was developed to measure the specific interventions of FNs during consultations with people with NCDs in PHC, namely people with DM, hypertension, cardiovascular disease treated with anticoagulants, stomas, and chronic obstructive pulmonary disease. The development process began with the identification of technical and methodological standards for instrument development, item construction, and layout design. Then, comprehensive research was conducted on the functional framework of FNs, their professional competencies, nursing care quality standards, and other key documents related to the nursing profession. One of these documents is Regulation No. 743/2019 (Regulamento nº 743/2019 da Ordem dos Enfermeiros, 2019) from the Portuguese nursing regulatory body (*Ordem dos Enfermeiros*), which defines the duration of nursing consultations, among other aspects. The International Classification for Nursing Practice (ICNP®) was considered when defining nursing interventions and documenting care provided in the PHC information system - SClínico - CSP®. The interventions were based on the guidelines of the National Health Plan and several national priority health programs of the Directorate-General for Health (DGS), including those focused on DM, cerebrovascular diseases, healthy eating, physical activity, and oncological and respiratory diseases. Various DGS standards and circulars (e.g., Nos. 9/2002, 23/2007, 07/1998, and 008/2011), as well as orders (No. 3052/2013) were also considered. In addition, national and international guidelines for managing NCDs were considered, including those from the Portuguese Society of Cardiology, the Portuguese Society of Hypertension, the American Diabetes Association, and the International Diabetes Federation.

Instrument and variables

The instrument under validation is part of a broader tool designed to measure the overall workload of FNs, known as the *Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família* (Family Nurse Workload Assessment Instrument, ACTENFF). The ACTENFF consists of five dimensions that reflect the scope of FNs' activities: Chronic Disease Management (GDC), Health Management (GS), Infectious Disease Management (GDI), Continuity of Care (CC), and Interdependent Care (CI). This study aimed to develop and validate the following grids of the Chronic Disease Management dimension (IACTENFF- CE-GDC): instrument for assessing the workload in nursing consultations with people with diabetes (IACTENFF-CE-DIA); instrument for assessing the workload in nursing consultations with people with hypertension (IACTENFF-CE-HTA); instrument for assessing the workload in consultations with people with hypocoagulable conditions (IACTENFF-CE-HIPO); instrument for assessing the workload in consultations with people with a stoma (IACTENFF-CE-OST), and instrument for assessing the workload in consultations with people with chronic obstructive pulmonary disease (IACTENFF-CE-DPOC). The IACTENFF-CE-GDC aims to assess both care-related and non-care-related activities that increase the workload of FNs. Each grid includes multiple categories of interventions, such as: Assessing (health status, vital signs, blood glucose); Monitoring (patient progress, control of physiological parameters); Teaching (health education, promotion of disease self-management); Planning (setting personalized therapeutic goals and strategies); Administering (medications or specific therapies); Promoting and Motivating (therapeutic adherence, lifestyle changes); Admission; Documentation, Infection control procedures; Continuity of care procedures.

Stage 2: e-Delphi study

The e-Delphi method (Keeney et al., 2011) was applied through the following steps: i) selection of experts; ii) contact/invitation to participate; iii) distribution of grids via email; iv) assessment of the grid layout; v) assessment of proposed items/interventions; vi) feedback from experts; vii) analysis of feedback; viii) adaptation of item content based on expert suggestions; ix) redistribution of grids; x) feedback from experts; xi) analysis of data received; and xii) development of the final grids by consensus (Coluci et al., 2015).

Population and sample

Participants were selected through convenience sampling from a list of 17 potential national experts with relevant experience in the area under study. The eligibility criteria were as follows: being a higher education faculty member in the field of nursing with experience in the development and validation of measurement instruments and affiliated with a nursing school in Portugal; being a nurse specialist in community or family nursing working in PHC and involved in research; being a nurse manager in a PHC unit with experience in research; or being a clinical nurse at a family health/PHC unit. All potential participants were invited via email and informed of the study's objectives and implementation strategy.

Data collection and analysis

Given the specific nature of the instrument under analysis, the process began with an overall assessment of the grid layout, as it served as the basis for all of them. The following criteria were used: 1) items presented in graphic format and logical sequence, 2) objective, 3) clear, 4) easily interpreted, and 5) applicable to the reality under analysis. Each grid included a dedicated space for experts to provide comments and/or suggestions. A minimum consensus level of 95% was defined. After each round, the content validity index (CVI) for each item/intervention was calculated, and the experts' comments and suggestions were analyzed. In the following rounds, only the grids with

items that did not reach the minimum item-level (I-CVI) of 0.95 (95% consensus) were redistributed. In addition, the scale-level CVI (S-CVI) was calculated according to the recommendations of Polit and Beck (2019). At the end of each round, the experts were invited to comment on items lacking consensus, giving them the opportunity to keep or change their opinions and decide whether to include new items. All IACTENFF-CE-GDC grids underwent the same validation procedure.

Ethical considerations

This study was authorized by the Board of Directors and the Clinical and Health Council of a Health Cluster in northern Portugal and was approved by the institution's Health Ethics Committee (Opinion no. 34/2019 – CES). All participants were asked to sign an informed consent form.

Results

Ten experts agreed to participate in the panel, corresponding to a participation rate of 58.8%. With regard to their socio-professional profile, 50% were nursing faculty members, 40% worked in PHC units, and 10% held nursing management positions in PHC.

Layout assessment

In Round 1, the overall layout of the first version of the IACTENFF-CE-GDC grids was assessed.

Figure 1

Pre- and post-Delphi version of the Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família – Gestão da Doença Crónica

Versão pré-Delphi							
Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família - IACTENFF							
IACTENFF- Gestão da Doença Crónica – IACTENFF-GDC							
Grelha de registo das intervenções a realizar pelos enfermeiros de família na consulta à pessoa com...							
Itens	Intervenções	Concordância		Tempos realização			
		Não	Sim	≤3min	4-6 min	7-9 min	≥10 min
1	(...)						
2	(...)						
(...)	Outras intervenções						

Versão pós-Delphi				
Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família - IACTENFF				
IACTENFF- Consulta Enfermagem – Gestão da Doença Crónica – IACTENFF-CE-GDC				
Grelha de avaliação das intervenções a realizar pelos enfermeiros de família na consulta à pessoa com...				
Itens	Intervenções	Execução		
		Não	Sim	
			Tempo seg.	Tempo min.
1	(...)			
2	(...)			
(...)	Outras intervenções			

Source. Authors' own work.

Figure 1 shows the pre- and post-versions of the grid layout. The initial version proposed identifying agreement on the performance of the intervention and the documentation of the time spent performing it. However, a critical assessment by the experts led to reconfiguring the grid. The term *concordância* (agreement) was replaced with *execução* (performed) (No/Yes). The time recording format was changed from fixed intervals to free entry, which was considered more flexible and better aligned with the reality of clinical practice. At the end of Round 1, the CVI for the grid was calculated, and the experts' comments were analyzed. In Round 2, the grids were resubmitted with the proposed changes (time recording in seconds and/or minutes and other layout adjustments). At the end of Round 2, unanimous agreement (100%) was reached, which allowed the final layout of the grids to be validated and defined by consensus. The layout includes the following elements: Title – *Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família* (IACTENFF); Identification of each dimension of the instrument (e.g., GDC); Identification of the consultation type (e.g., CE-DIA); Identification of the domains; Sequential organization of items; Possibility of selecting the interventions performed (items/interventions); and Recording of the time spent on each intervention, as illustrated in Figure 1.

Validation of the items in the IACTENFF-CE-GDC grids

The content assessment of the items/interventions proposed in each grid began with IACTENFF-CE-DIA. The initial version included 67 items/interventions. In Round 1, all of the experts accepted the proposed items. However, 20% of the experts suggested adding interventions: *Training self-monitoring/self-control* (blood glucose/blood pressure) and *Promoting adherence to the immunization regime* (National Vaccination Plan and others). These suggestions were incorporated into the grid and sent back to the experts for Round 2. The return rate was 95%. The final version of the grid includes 69 items: 65 related to care-related activities and four to non-care-related activities.

The care-related domain is organized into 11 subdomains: Assessing (29 interventions); Teaching (19 interventions); Monitoring (8 interventions); and Guide (2 interventions). It also included the following subdomains: Planning, Training, Promoting, Administering, Referring, Assisting, and Motivating, each with one intervention.

Table 1

Grid of the interventions to be performed during consultations with people with diabetes mellitus

Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família - IACTENFF			
IACTENFF-Nursing Consultation - Chronic Disease Management – IACTENFF-CE-GDC			
Record sheet for interventions to be performed during consultations with people with diabetes mellitus – IACTENFF-CE-GDC-DIA			
Items	Interventions	Performed	
		No	Yes
			Time s. / Time min.
1	Initial assessment		
2	Monitoring (…)		
(….)			
(…)	Training self-monitoring/self-control (blood glucose/blood pressure)*		
(…)	Promoting adherence to the immunization regime (National Vaccination Plan and others)*		
69	Documentation (records, etc.)		
(…)	Other interventions		

* Items suggested by the experts to be included

Next, the IACTENFF-EC-GDC-HTA grid was assessed. The initial version consisted of 57 items/interventions. In Round 1, all proposed items/interventions were accepted. However, 30% of the experts suggested replacing the item *Promover a aceitação do estado de saúde* (Promoting acceptance of health status) with *Assistir a pessoa a promover a aceitação do estado de saúde* (Assisting the person to promote acceptance of health status). In addition, 20% of the experts suggested adding three new items/interventions: *avaliar a dor; avaliar o conhecimento e o potencial para melhorar o conhecimento sobre estratégias não farmacológicas de alívio da dor; ensinar estratégias não farmacológicas para o alívio da dor* (assessing pain; assessing knowledge and potential to improve knowledge of non-pharmacological pain management strategies; and teaching about non-pharmacological pain management strategies). These suggestions were accepted. Round 2 reached a consensus level of 98%. The final version of the IACTENFF-CE-GDC-HTA grid consists of 60 interventions: 56 related to care-related activities and four to non-care-related activities. The care-related domain is organized into 10 subdomains: Assessing (25 interventions); Teaching (17 interventions); Monitoring (6 interventions); Elaborating (2 interventions); and one intervention each in the Training, Promoting, Administering, Referring, Assisting, and Motivating subdomains.

Table 2

Grid of the interventions to be performed during consultations with people with hypertension

Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família - IACTENFF			
IACTENFF- Nursing Consultation - Chronic Disease Management – IACTENFF-CE-GDC			
Record sheet for interventions to be performed by family nurses during consultations with people with hypertension – IACTENFF-CE-GDC-HTA			
Items	Interventions	Performed	
		No	Yes
			Time s. / Time min.
1	Initial assessment…		
(….)	…		
11	Assessing knowledge and potential to improve knowledge of disease		
(….)	Assessing pain*		
	Assessing knowledge and potential to improve...*		
	Teaching about non-pharmacological pain management strategies…*		
47	Assisting the person to promote acceptance of health status**		
60	Documentation (records, etc.)		
(…)	Other interventions		

* items suggested by the experts to be included

** suggested change *assistir a pessoa a promover* (assisting the person to promote)

The IACTENFF-CE-GDC-HIPO, IACTENFF-CE-GDC-OST, and IACTENFF-CE-DPOC grids were assessed in a single round. All interventions proposed in each grid were accepted by all experts, with no additional suggestions. The IACTENFF-CE-GDC-HIPO grid includes 63 items: 59 related to care-related activities and four to non-care-related activities. The care-related interventions are organized into the following 10 subdomains: Assessing (26 interventions), Teaching (18 interventions), Monitoring (7 interventions), Guide (2 interventions), and one intervention each in the Training, Promoting, Administering, Referring, Assisting, and Motivating subdomains. The IACTENFF-CE-GDC-OST grid includes 40 items: 36 related to care-related activities and four to non-care-related activities. The care-related domain consists of the following seven subdomains: Assessing (14 interventions), Teaching (8 interventions), Monitoring (4 interventions), Motivating (3 interventions), Instructing (3 interventions), Training (3 interventions), and Encouraging (1 intervention). The IACTENFF-CE-GDC-DPOC grid includes 17 items: 13 related to care-related activities and four to non-care-related activities. The care-related domain is organized into four subdomains: Assessing (6 interventions), Teaching (5 interventions), Instructing (1 intervention), and Training (1 intervention). In all IACTENFF-CE-GDC grids, the non-care-related domain consists of the following four subdomains: Admission, Infection control procedures, Continuity of care procedures, and Documentation. All grids include the option to add new items/interventions performed by nurses during consultations that were not previously defined.

Overall, the grids achieved over 95% consensus among experts on the predefined items, while 5% of the items were reformulated based on their suggestions. Regarding the layout, the experts suggested refinements to make it more user-friendly. The grid assessment process was completed in one or two rounds, depending on when the 95% consensus level was reached.

Table 3

Summary of the content validity index of the IACTENFF-CE-GDC grids

Instrumento de Avaliação da Carga de Trabalho do Enfermeiro de Família - IACTENFF		
IACTENFF - Nursing Consultation - Chronic Disease Management - IACTENFF-CE-GDC		
Dimension	I-CVI (Round 1)	I-CVI (Round 2)
IACTENFF-CE-GDC-DIA	0.8	0.95
IACTENFF-CE-GDC-HTA	0.7	0.98
IACTENFF-CE-GDC-HIPO	1	1
IACTENFF-CE-GDC-OST	1	1
IACTENFF-CE-GDC-DPOC	1	1

The IACTENFF-CE-GDC is designed for self-administration. During consultations, FNs must identify the interventions they perform and record the time spent on each one. This process is expected to accurately reflect the workload associated with FN consultations.

Discussion

The IACTENFF-CE-GDC stands out among other available instruments because it is specifically designed to measure nursing interventions during consultations with people with NCDs. No other instrument identified in the literature measures nursing workload in this care setting or maps nursing interventions using the ICNP®. Most studies measuring nursing workload use the Nursing Interventions Classification (NIC; Rodríguez-Suárez et al., 2022; Trovó et al., 2021), an example of which is the Belgian Nursing Minimum Data Set (B-NMDS-2). Thus, this study can be considered a precursor to further research on the topic since it systematizes the interventions that FNs can perform during consultations with people with NCDs. Rodríguez-Suárez et al. (2022) and Twigg et al. (2021) found that few studies have explored this approach to measuring nursing workload, as most studies use the minimum nurse-to-patient ratio. Using the e-Delphi technique to validate the grids was appropriate and aligns with other studies that have used this methodology to validate nursing workload measurement instruments (Bonfim et al., 2015; Martin & Gadsinski, 2014). The e-Delphi technique allowed participants to review their suggestions in each new round. The inclusion of free-text fields in the grid supported the development and modification of its items. This technique ensured an adequate assessment based on expert knowledge. Involving professionals from one or more related areas enriched the suggestions and enhanced the instrument's capacity to measure FNs' workload during consultations with people with NCDs. In this study, no experts withdrew during the e-Delphi process, and all participants remained involved throughout the validation process. Overall, 98.6% of the proposed interventions in the IACTENFF-CE-GDC grids reached consensus. Measuring nursing workload can help determine the appropriate number of FNs needed to provide safe, quality, and accessible care to people with NCDs. It should be noted that the IACTENFF-CE-GDC instrument and its grids (IACTENFF-CE-GDC-DIA, IACTENFF-CE-GDC-HTA, IACTENFF-CE-GDC-HIPO, IACTENFF-CE-GDC-OST, and IACTENFF-CE-GDC-DPOC) can measure nursing workload. Although its potential is recognized, this instrument has some limitations, such as the lack of validity and reliability testing. Given its dynamic nature, the instrument must be applied in clinical practice to confirm its reliability and enhance its accuracy. The IACTENFF-CE-GDC is an integral part of the IACTENFF available on the online platform actenff.pt. The IACTENFF is registered in the General Inspection of Cultural Activities.

Conclusion

This study resulted in the development of the IACTENFF-CE-GDC, which includes five grids that measure FNs' workload during consultations with people with NCDs. Expert validation confirmed that the instrument identifies FN interventions and reflects their workload during consultations. The instrument is significant not only because of its innovative nature, but also because of its practical utility in identifying time patterns associated with nursing interventions and aligning them with standards from the *Ordem dos Enfermeiros*, describing FN practices and work processes according to the recommended care model, and reflecting on practice. Empirical studies are needed to explore the multiple functionalities of the IACTENFF-CE-GDC. This study aims to promote quality care practices, support FNs in ensuring care safety, and inform safe staffing. It aligns with the WHO's Sustainable Development Goals, particularly those related to health and well-being. It allows for the assessment of nursing workload and provides information on professional health, decent work, and economic growth by characterizing working conditions and occupational safety indirectly.

Authors' contributions

Conceptualization: Dantas, M. J., Figueiredo, M. H.
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Writing – review & editing: Dantas, M. J., Paiva, I. C., Silva, M. A.

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