



Tool to measure workload of health professionals in Primary Health Care: development and validation

Instrumento de medida de carga de trabalho dos profissionais de saúde na atenção primária: desenvolvimento e validação

Instrumento para medir la carga de trabajo de los profesionales de la salud en la atención primaria: desarrollo y validación

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ABSTRACT

Objective: To develop and validate an instrument that addresses the interventions/activities carried out by the family health team as reference for staff planning. **Method:** Methodological research developed in stages: instrument development, content validation, and pilot test in three units located in the southeastern region of Brazil. **Results:** 39 interventions were validated in a single instrument to measure workload for clinician, dental surgeon, oral health technician/assistant, nurse, nurse assistant, and community health agent. In the pilot test, the instrument contained 100% of the interventions observed and the observers reached 93.7% agreement. **Conclusion:** The proposed instrument is an innovating tool because of its configuration for health team and supports staff planning in primary health care.

DESCRIPTORS

Primary Health Care; Human Resources in Health; Workload; Validation Studies; Planning.

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INTRODUCTION

The advance, expansion, and representation of Primary Health Care (PHC) in the international context, as the basis of health systems is evident⁽¹⁾. International studies show that countries with health systems that are strongly oriented to PHC are more likely to have better and more equitable outcomes due to being more efficient, having lower costs in health care, and achieving better client satisfaction than those whose systems have only a weak orientation to PHC⁽²⁾.

A system based on PHC should be based on planning that provides adequate and sustainable resources appropriate to health needs, since the investment in workforce was emphasized as an essential area requiring attention, since the quality of health services relies heavily on the persons who work in them⁽²⁾. Therefore, the need and importance of understanding staff planning in PHC are highlighted.

In Brazil, PHC has in the Family Health Strategy (FHS) a strategic priority for its expansion and consolidation⁽³⁾, being undeniable that the increased access of the Brazilian population to PHC occurred simultaneously to a continuous process of readjustment and refinement of the FHS itself⁽⁴⁾. Demand for primary health care services by Brazilians increased, between 1981 and 2008, about 450%, with a 42% jump in 1998 and to 57% in 2008⁽⁵⁾. In 2011, a 95% coverage of municipalities and a 53% coverage of population was achieved with FHS⁽⁶⁾.

In recent decades, issues relating to management of workforce in health have been the focus of discussions on health policies in Brazil, being considered an important change factor and identified as highly relevant to any new political direction⁽⁷⁾.

For managers of primary health care, staff planning is directly related to the National Policy for Primary Care that defines the minimum staff of a Family Health Unit (FHU), composed of: a general practitioner or specialist in Family Health or Family and Community clinician, a generalist nurse or a nurse that is a specialist in Family Health, an assistant or nursing technician, and four community health agents, and with the possible addition of oral health professionals to this composition, as part of the multidisciplinary team: a generalist dental surgeon or one that is a specialist in Family Health, and an oral health technician/assistant⁽³⁾.

However, the recommended parameters for the whole country, for the quantity of workers for FHU, do not always meet the local epidemiological characteristics and requirements of the health surveillance model, which requires actions beyond the clinical care that is culturally present at health units⁽⁸⁾. Hence, the question is if the staff proposed by the National Policy for Primary Care for FHU is adequate to meet the workload in these units.

The workforce planning process seeks balance between what is available in terms of workers for health and what is really necessary to carry out the health services. It is considered that planning is the systematic process of estimating the number of people and skills

required to meet the predetermined health policies and goals, considering the health needs of clients, families, and community, as well as the safety of these and of health workers. This planning requires continuous monitoring and evaluation.

The allocation of human resources for health, however, is not restricted only to the use of analytical tools to quantify individuals. It requires the estimation of the required number of professionals with specific skills enabling them to perform tasks consonant to the principles and needs of health services⁽⁹⁾.

This complex process involving technical, ethical, and political aspects lacks consistent, reliable, and available data on the work carried out in a FHU, as well as instruments of easy applicability in the reality of health units.

Instruments to measure time are found in the literature in different areas and with a remarkable concentration in the application and development for nursing professionals⁽¹⁰⁻¹²⁾.

However, despite the significant amount and diversity of interventions/activities that family health teams conduct, there is still shortage of literature on time research instruments for teams composed of different professional categories – as well as for primary health care – describing which are the activities carried out and also, methodologically, what is the best way to conduct investigations about the interventions of health professionals in primary care.

METHODS TO MEASURE WORKING TIME

The literature suggests three methods most often used in time measurement research: self-report, time and motion, and work sampling⁽¹³⁻¹⁵⁾.

The self-report method has lower cost, but is considered the most problematic because intervening factors, such as filling out forms at work, the possibility of behavioral changes, and the effects of social convenience make it less objective, because it depends only on judgment^(13,15). Studies comparing self-reports with other techniques, such as work sampling and time and motion showed that in self-reports time is overestimated⁽¹⁵⁾.

In the method of time and motion, the professional is followed by the observer during all activities, considering the exact length of time required to perform them, being measured and recorded on an instrument. Thus, studies applying this method are intense because they require the proportion of one observer per professional for long periods of time, which may influence the behavior of the professional, in addition to being an expensive method, because it requires many observers to obtain a representative number of observations⁽¹⁵⁾.

Work sampling allows the observation of the work and the time spent in activities. This method consists in intermittent, random, and instantaneous observations of work activities of several workers by independent observers, which register the various activities in data collection forms. The exact activity is registered, but the actual time spent in activities is not registered. The theory of work sampling is based on the laws of probability, which indicate

that repeated observations conducted at random moments will have the same distribution⁽¹⁰⁾.

Several studies have used work sampling to describe how nurses spend their time, as obtaining measurable data is necessary to support decision making. This method has proven to be consistent and useful for analysis of the distribution of the activities of professionals in relation to time, relationship, and distribution between different types of activities, as well as regarding productivity⁽¹⁰⁾.

The method is also ideal for studies with high variability, being considered more accurate than self-reports, in addition to allowing the observation of many professionals at the same time, which results in large data sets⁽¹⁰⁾. Moreover, it has advantages over time and motion studies in terms of effect on participants, cost, and observations, because these observations can be conducted over a prolonged period of time, and, thus, the effects of cyclical variations are reduced^(14,16-17).

In Australia, there was a study in which observational work sampling provided data that seemed to reflect more accurately the work patterns and also had less impact on the team, because it allowed a much faster data collection, although this method requires greater commitment in terms of personnel⁽¹⁸⁾.

Another aspect concerning this method refers to the intervals used to collect data that can be random or fixed. The choice of frequency of observation/warning depends on the technique used and the nature of the study⁽¹⁸⁾. However, the study suggests quantitative explanations of the advantages of fixed sampling interval⁽¹⁹⁾. Several researches have used fixed intervals that can range from 5 to 20 minutes, with a predominance of 10-minute intervals^(10-11,17,20-22).

Thus, with regard to the work sampling technique, studies claim that this is a useful methodology for use in the accurate description of the distribution of time between direct and indirect nursing care⁽²⁰⁾, in addition to providing an analysis of which activities are being carried out, when and in what frequency, providing a means for employees to discuss and verify their opinions on how to manage patient care and personnel, in a particular organizational level⁽¹⁷⁾.

This study is part of a large project on planning of health workforce in primary care. This article reports the methodologically the development and validation of a data collection instrument to measure time patterns of the interventions carried out in Family Health Units (FHU) at the national level.

Thus, this research aims to develop and validate an instrument that includes a list of interventions/activities carried out by family health teams, as a reference for workforce planning.

METHOD

Methodological research with quantitative approach and intentional sampling.

For construction and validation of the workload measurement instrument, the following steps were conducted:

CONSTRUCTION OF THE INSTRUMENT INTERVENTIONS/ACTIVITIES OF PRIMARY CARE HEALTH PROFESSIONALS WORKLOAD MEASUREMENT

The main theoretical basis for the construction of the instrument was the master's thesis of Bonfim⁽²³⁾, which identified and classified the nursing activities in primary health care in 59 interventions, according to the Nursing Interventions Classification (NIC).

The proposition of Bonfim⁽²³⁾ was analyzed, restructured, and expanded in the perspective of public health, by the expertise of the group of researchers of the Workstations of the Human Resources Research Centers of the USP Schools of Nursing of São Paulo and Ribeirão Preto, of the USP School of Dentistry, of the Institute of Social Medicine, Schools of Dentistry and Nursing of UERJ, and by health managers to identify the interventions/activities of the workers in the family health team: clinicians; dental surgeons; oral health technicians/assistants; nurses; nurse assistants, and community health agents.

This collective construction, by the group of expertise in primary care, enabled conceptual adjustments and approximation of the terminology used by the NIC with the most appropriate language for the interventions/activities carried out by all workers of the family health team.

To prepare the instrument, six workshops were held, lasting an average of eight hours each, resulting in a single instrument for the FHU professional team, composed of 38 care interventions.

INSTRUMENT CONTENT VALIDATION

The instrument, with a list of 38 interventions, definition of each intervention, and description of the care activities performed by health workers was submitted to content validation by judges selected based on the following criteria: belonging to the categories: clinician, nurse, and dental surgeon, with experience in PHC and knowledge to assess the activities of the community agents, nurse assistant, oral health technicians/assistants; working in Family Health Units that are consolidated and indicated as having good health practices; being a health worker with experience in classifying health practices; and accepting to participate in the content validation process.

Following these criteria, a selection was conducted: one representative of each category included in the FHUs of the cities of São Paulo, Ribeirão Preto, and Rio de Janeiro and two nurses with experience in the taxonomy of Nursing Intervention Classification – NIC. Therefore, 11 health workers participated.

Validation occurred in two stages: A – handing of and feedback as for the instrument with assessment of the clarity of the naming and definition of each of the 38 interventions, by the judges. It was considered that the answers had to have, at least, 80% agreement per worker category; B – content validation workshop, held on May 10, 2012 for 8 hours, with the presence of all the judges for discussion and analysis of conflicting points and consensual adjustment of the final instrument.

INSTRUMENT PILOT TEST

Pilot testing of the instrument was carried out in June, July, and October 2012 in three FHUs located in the municipalities of São Paulo, Ribeirão Preto, and Rio de Janeiro, which were selected by the researchers as having appropriate standard to verify if the instrument captured the interventions/activities carried out by the health team in everyday practice.

Health workers in FHUs were observed in the performance of their interventions/activities through application of the instrument, using the work sampling technique, with 10-minute intervals between observations.

Field observers had training in healthcare (nursing graduation), all received theoretical and practical training of 20 hours to standardize the collection and provide greater mastery of the instrument and of the work sampling technique. Each observer followed, on average, six workers sequentially.

The dynamics of the observation was organized so that the observer registered the main activity that was being conducted by the professional. In activities carried out behind closed doors, such as appointments, groups, meetings, among others, the observer did not participate in the activity, but the information provided by the professional was considered, with verification at every round of observation if the professional remained in the same activity reported. Talks held between professionals, within offices, were considered of professional nature.

Another aspect that was established was for the situation in which the professional was walking down the corridor at the time of observation. The observer should follow the professional until the subsequent activity was carried out, because walking in the corridor is not considered as an activity.

For Community Health Agents (CHA), an observer was assigned who accompanied them in the performance of their interventions/internal and external activities throughout the workday. The other workers were not followed in the interventions/activities outside the FHU, being registered only the period that they remained outside to perform the intervention/activity.

To test the instrument, we calculated the sample period (in days of observation) needed to perform this observation through the equation proposed by Barbetta⁽²⁴⁾, with

tolerable error of 5%, considering: the proportion of the number of workers of the unit; the working hours of these workers and the 10-minute interval between observations. Sample corresponded to five days, on average, of observation in each site.

The reliability test is an important step, which can be performed during the final stage of the training^(10,13,18,20-21) or during data collection⁽¹⁸⁾. It is recommended that, during the data collection period, random testing of various observers in the coding of the same activity should be conducted, being calculated an agreement greater than 90% is to affirm an adequate internal reliability⁽¹⁶⁾.

To verify the proportion of agreement between observers, a sample of 20% of all observations was carried out in the three FHUs. The test of agreement between observers was conducted by the field supervisor.

Data were stored in a database built, specifically, for statistical analysis. The study was approved by the Research Ethics Committee of the School of Nursing of the University of São Paulo, under number 170278 and by the Ethics Committee of the Municipalities of São Paulo, Ribeirão Preto, and Rio de Janeiro.

RESULTS

In the first instrument content validation step, we obtained, with the judges, 81.1% of agreement among nurses, 61.3% among clinicians, and 84.4% among dental surgeons.

In the workshop, interventions that had disagreements, for one or more categories, were discussed by the judges and the alterations were incorporated, by consensus, to the instrument, such as the inclusion of a new intervention – Organization of the work process. Thus, the final instrument was composed of 39 validated and distributed interventions, according to professional category: clinician (34), dental surgeon (36), oral health assistant (31), oral health technician (32), nurse (38), nurse assistant (37), and community health agent (28).

By the end of the workshop, the judges stated that the instrument included the interventions carried out by health workers in the everyday practice of the FHUs.

Chart 1 shows, briefly, the instrument to measure workload of primary care health professionals, available in full at the site of the HR Research Network of the USP School of Nursing.*

Chart 1 - Outline of the interventions that compose the workload measurement instrument for FHU health workers – São Paulo, SP, Brazil, 2012.

Instrument to Measure Workload of Primary Care Health Professionals		
Intervention/Definition	**Type of care	***Professional Category
[Intervention 01] Educational activities of health workers Development of and participation in permanent education actions.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 02] Medication Administration Preparation, supply, and evaluation of the effectiveness of prescription and non prescription medicines.	D	2, 5, 6, 7
[Intervention 03] Support to student Assistance and support to the student in learning experience.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 04] Support to clinician Collaboration with doctors in assistance to client.	D	5, 6, 7
[Intervention 05] Assistance in examinations/procedures Assistance to client and other health care provider during a procedure or examination.	D	2, 3, 4, 5, 6, 7

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Instrument to Measure Workload of Primary Care Health Professionals		
Intervention/Definition	**Type of care	***Professional Category
[Intervention 06] Assistance to breastfeeding Preparing a mother to breastfeed her baby.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 07] Attending the spontaneous demand Attending a client without scheduling, which includes production and health promotion practices with co-responsibility of staff/client.	D	1, 2, 3, 4, 5, 6
[Intervention 08] Performance assessment Systematic assessment of professional performance.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 09] Scientific research data collection Data collection for scientific research.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 10] Appointment Application of knowledge to provide a set of activities to an individual, aimed at the restoration or maintenance of health.	D	1, 2, 5
[Intervention 11] Community Disease Management Actions directed to a community to reduce and control the incidence and prevalence of communicable diseases.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 12] Electrolytes Management Promoting electrolyte balance and preventing complications resulting from abnormal or undesired levels of serum electrolytes.	D	5, 6
[Intervention 13] Immunization/vaccination management Monitoring of immunization status, facilitating access to immunizations and provision of immunizing agents to prevent communicable diseases.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 14] Infection control Minimizing the risk of contamination and transmission of infectious agents.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 15] Control of supplies Request, acquisition, and maintenance of adequate items to offer care to client.	I	1, 2, 3, 4, 5, 6
[Intervention 16] Organization of work process Organization and distribution of work activities in health services.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 17] Urgent/emergency care Provision of measures to save a life at risk.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 18] Community health development Support to the community in identifying health problems, mobilization of resources, and implementation of solutions.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 19] Development of administrative routines and processes Construction and use of a programmed sequence of administrative routines and processes to improve the desired results for the client, at an efficient cost.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 20] Development of healthcare protocols Construction and use of a carefully programmed sequence of activities to improve the desired results for the client, at an efficient cost.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 21] Documentation Taking note of data and information related to the client, the family, population and territory (record on consultation and clinical procedures; record on home visits; record on monitoring).	I	1, 2, 3, 4, 5, 6, 7
[Intervention 22] Risk Identification Analysis of potential risk factors (biological, social, environmental, and related to labor) to health and prioritizing risk reduction strategies for an individual or a group.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 23] Laboratory data interpretation Client laboratory data analysis to assist in decision making.	I	1, 2, 5, 6
[Intervention 24] Mapping and determining territory Recognition of structural, social, economic, political, cultural, environmental, and social interaction of the health unit's area of reach and its delimitation.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 25] Monitoring of vital signs and/or anthropometric measures Verification and analysis of cardiovascular, breathing, and body temperature data and/or anthropometric measures to determine and prevent complications.	D	5, 6
[Intervention 26] Health System Guidance Facilitating client/population proper access to and use of health services.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 27] Outpatient procedures Application of specialized knowledge and specific ability to conduct clinical and/or surgical procedures.	D	1, 2, 3, 4, 5, 6
[Intervention 28] Collective procedures Educational and preventive actions carried out in the sphere of health units (health team work with the groups of elderly, hypertensive, diabetic, pregnant women, adolescents, mental health, family planning, and waiting room), of households, street groups, schools, kindergartens, associations, club of mothers or other social spaces, and offered on an ongoing basis.	D	2, 3, 4
[Intervention 29] Promotion of educational activities Development of health education activities for individuals, families, groups or communities, as well as specific guidance to a client, family, partner, or caregivers seeking their understanding of a prescribed procedure or treatment.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 30] Puncture of vessel: sample of venous blood Collection of venous blood sample from a noncannulated vein.	D	1, 5, 6
[Intervention 31] Reference and counter-reference Referral and monitoring of clients for secondary care, tertiary care, and other services.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 32] Administration meeting Administration meeting to plan, discuss and evaluate technical and administrative issues related to service organization.	I	1, 2, 3, 4, 5, 6, 7

continued...

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Instrument to Measure Workload of Primary Care Health Professionals		
Intervention/Definition	**Type of care	***Professional Category
[Intervention 33] Meeting for evaluation of multidisciplinary care Planning and evaluation by the multidisciplinary team of the offer of comprehensive care to the client/population.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 34] Unit workers supervision Facilitating the provision of high-quality care to clients by other individuals.	I	1, 2, 4, 5, 6
[Intervention 35] Environmental management: safety Deliberate and continuous collection and analysis of information about the service environment for use in the promotion and maintenance of client safety.	I	1, 2, 3, 4, 5, 6
[Intervention 36] Interinstitutional transport Transport of clients to another health unit.	D	1, 5, 6
[Intervention 37] Exchange of information on health care and/or health service Providing information on the care of client/population and/or health service to other health professionals.	I	1, 2, 3, 4, 5, 6, 7
[Intervention 38] Health surveillance Impacting actions on avoidable causes in the epidemiological, sanitary, and environmental context.	D	1, 2, 3, 4, 5, 6, 7
[Intervention 39] Home Visit Providing care to clients/population to integrate and optimize the use of resources, ensure the quality of healthcare, and achieve the desired results in order to favor interaction with the dynamics of family relationships and the establishment of bonds.	D	1, 2, 3, 4, 5, 6, 7
[Other Activities]		
Associated activity: activities of other professional categories, which are assumed by the health professional, such as clerical work and cleaning.		
Personal activity: necessary breaks in the working day to meet the workers' physiological and personal communication needs.		
Standby time : when the worker is at the work post available for service, waiting for the client and/or professional, because of absence and/or delay of client, lack of demand, or other professional being engaged in another activity.		1, 2, 3, 4, 5, 6, 7
Absence: when the professional, during the workday, is absent to conduct activities unrelated to the health unit, such as delays and early departures.		

*Source:http://143.107.173.8/orh/administrator/components/com_jresearch/files/publications/instrumento_dimensionamento.pdf

**Type of care: [D] Direct care: activities performed with client/family/community; [I] Indirect care: activities performed away from client/family/community, but for their benefit.

***Professional category that executes: 1 – Clinician; 2 – Dental surgeon; 3 – Oral health assistant; 4 – Oral health technician; 5 – Nurse; 6 – Nurse assistant; and 7 – Community health agent.

Pilot testing of the instrument was performed by direct, nonparticipatory observation of the workers who were present and agreed to participate in this study in the three FHUs selected. Thus, 126 professionals were observed,

including 11 clinicians, 8 dental surgeons, 9 oral health technicians/assistants, 14 nurses, 21 nurse assistant, and 63 community health agents. In the three fields, 19,062 observations were conducted (Table 1).

Table 1 - Number of observations per professional category and municipality in the period of June, July, and October 2012 – São Paulo, SP, Brazil, 2012.

Unit/City	Professional Category*							Overall total	
	1	2	3	4	5	6	7		
FHU São Paulo	810	378	162	324	1350	1836	1458	6318	33%
FHU Ribeirão Preto	810	540	432	0	540	1890	1458	5670	30%
FHU Rio de Janeiro	810	756	432	378	1242	1188	2268	7074	37%
Overall total	2431	1676	1029	706	3137	4920	5191	19062	100%

*Professional category: 1 – Clinician; 2 – Dental surgeon, 3 – Oral health assistant, 4 – Oral health technician, 5 – Nurse, 6 – Nurse assistant, and 7 – Community health agent.

Table 2 shows the distribution of the percentage of agreement (A) and disagreement (D) among observers, according to the observations that were conducted to compose the reliability test of the instrument to measure workload of primary care health professionals.

The instrument included 100% of interventions by the observed health workers. The set of interventions provided by professional category and those that were observed in the fields can be seen in Table 3 and Chart 2.

DISCUSSION

A suitable instrument is the most important requirement to identify interventions/activities carried out in practice through the work sampling technique⁽¹⁷⁾.

In the literature, it is possible find instruments developed for the purpose of workload identification, but often they are

directed only to a particular profession. In Belgium, the Belgian Nursing Minimum Data Set (B-NMDS-2) was developed for nurses, consisting of 78 items structured into 6 groups based on the Nursing Interventions Classification (NIC). In Brazil, instruments were developed based on the NIC for the areas of collective rooming, primary care, radiology, medicine practice, surgical clinic, intensive care unit and oncology⁽¹¹⁻¹²⁾.

Currently, a planning geared to a multidisciplinary team is sought, with the combination of two or more methods (triangulation), which produce more consistent results and generate more confidence to managers⁽²⁵⁾.

Thus, the greatest difference of the instrument proposed in this study compared to those found in the literature is the scope and integration of different professional categories into a single validated instrument, which is unprecedented in the national and international literature.

Table 2 - Test of reliability between observers, of the records of interventions/activities, according to professional category in the studied FHUs, in the period of June, July, and October 2012 – São Paulo, SP, Brazil, 2012.

Test		Professional category														Total	
		1		2		3		4		5		6		7		n	%
		n	%	n	%	n	%	n	%	n	%	n	%				
SP	D	9	12.3	9	52.9	0	0	3	17.6	17	15.5	8	5.7	1	5.6	47	12.0
	A	64	87.7	8	47.1	16	100	14	82.4	93	84.5	133	94.3	17	94.4	345	88.0
RP	D	1	5.6	0	0	0	0	0	0	0	0	2	6.1	2	4.4	5	4.0
	A	17	94.4	12	100	0	0	6	100	12	100	31	93.9	43	95.6	121	96.0
RJ	D	8	3.6	5	4.5	2	2.2	1	1.9	10	3.4	14	6.0	7	10.8	47	4.4
	A	217	96.4	107	95.5	87	97.8	52	98.1	281	96.6	218	94.0	58	89.2	1020	95.6
Subtotal	D	18	5.7	14	10	2	1.9	4	5.3	27	6.5	24	5.9	10	7.8	100	6.3
	A	298	94.3	127	90	103	98.1	72	94.7	386	93.5	382	94.1	118	92.2	1486	93.7
Overall total		316	100	141	100	105	100	76	100	413	100	406	100	128	100	1585	100

Note: total retest corresponds to 9.3% of total observations, as follows: 13.4% of the category clinician, 9.4% of the dental surgeon, 16.8% of the category oral health assistant, 8.6% of the category oral health technician, 13.5% of the category nurse, 9.5% of the category Nurse assistant, and 3.4% of the category community health agent. For the category community health agent, retest was performed only when the professional was in the unit.

Professional category: [1] Clinician; [2] Dental surgeon; [3] Oral Health Assistant; [4] Oral Health Technician; [5] Nurse; [6] Nurse assistant; [7] Community Health Agent.

Abbreviations: [SP]: São Paulo, [RP]: Ribeirão Preto, [RJ]: Rio de Janeiro; [D]: disagreeing; [A]: agreeing.

Table 3 - Quantitation of interventions/activities of the Primary Care Health Professionals Workload Measurement Instrument and percentage observed, according to professional category, in June, July, and October 2012 – São Paulo, SP, Brazil, 2012.

Unit/City	Professional category													
	Clinician		Dental Surgeon		Oral Health Assistant		Oral Health Tech./Assistant		Nurse		Nurse Assistant		Community Health Agent	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
São Paulo	14	41	11	30	9	29	10	31	19	50	22	59	9	32
Ribeirão Preto	17	50	14	39	8	26	12	38	23	60	27	73	13	46
Rio de Janeiro	15	44	21	58	14	45	10	31	25	66	23	62	10	36
Total interventions provided in the instrument	34	100	36	100	31	100	32	100	38	100	37	100	28	100

Chart 2 - Interventions by health professionals, according to professional category, in June, July, and October 2012 – São Paulo, SP, Brazil, 2012.

Interventions	Professional Categories Observed						
	1	2	3	4	5	6	7
Health workers educational activities	X	X	X	X	X	X	X
Medication administration	X	-			X	X	-
Support to student	X	-	-	-	X	-	-
Support to clinician						X	X
Assistance in examinations/procedures		X	X	X	X	X	X
Assistance in breastfeeding	-	-	-	-	X	X	-
Attending the spontaneous demand	X	X	X	-	X	X	
Performance assessment	-	-	-	-	-	-	-
Collection of scientific research data	-	-	-	-	X	X	-
Appointment	X	X			X		
Control of communicable diseases	-	-	-	-	-	-	-
Control of electrolytes				X	-	X	
Control of Immunization/vaccination	-	-	-	-	X	X	-
Control of Infection	-	X	X	X	X	X	-
Control of Supplies	X	X	X	X		X	X
Urgent/emergency care	X	X	X	-	X	X	-
Development of community health	X	-	-	-	X	X	X
Development of administrative routines and processes	-	-	-	-	X	-	-
Development of healthcare protocols	-	X	X	-	X	-	X
Documentation	X	X	X	X	X	X	X
Risk identification	X	-	-	-	X	-	-
Interpretation of laboratory data	X	-			X	-	
Mapping and determining territory	-	-	X	-	-	-	X
Monitoring of vital signs and/or anthropometric measures						X	X
Organization of work process	X	X	-	-	X	X	X
Guidance concerning the Health System	X	X	X	X	X	X	X

...continued

...continuation

Interventions	Professional Categories Observed						
	1	2	3	4	5	6	7
Outpatient Procedures	X	X	X	-	X	X	
Collective procedures		X	-	X			
Promoting educational activities	-	X	X	X	X	X	X
Puncture of vessel: venous blood sample	-				X	X	
Reference and counter-reference	-	-	-		X	X	-
Administration meeting	X	X	-	X	X	X	X
Meeting to evaluate multiprofessional care	X	X	X	X	X	X	X
Supervision of workers of the unit	X	X	X	-	X	-	
Safety supervision	-	X	X	X	X	X	
Interinstitutional transport	-				X	-	
Exchange of information on health care and/or health service	X	X	X	X	X	X	X
Health surveillance	X	-	-	-	X	X	-
Home visit	X	X	-	X	X	X	X

Caption: Professional category: [1] Clinician; [2] Dental surgeon; [3] Oral Health Assistant; [4] Oral Health Technician; [5] Nurse; [6] Nurse assistant; [7] Community Health Agent. [] Intervention not provided for the professional category; [-] Intervention not observed for the professional category during instrument pilot test; [X] Intervention observed during instrument pilot test.

The professional categories nurse and nurse assistant have the greatest number of interventions/activities provided by the instrument, since they are part of a wider range of activities when compared to the other team members. Six interventions of the instrument were performed by all categories during the pilot test, strengthening the integration of staff proposed in the Family Health model, including: Exchange of health information; Meeting for evaluation of multidisciplinary care; documentation; Educational activities of health workers and guidance concerning the health care system.

The inclusion of dental surgeons in the Family Health Team is more recent compared to the clinician and the nurse, having expanded more significantly from 2003. Although the list of interventions validated the instrument identifies that the dental surgeon conducts educational activities and participates in activities of the multidisciplinary team, recent studies show a predominance of their work process in primary care still predominantly focused on surgical and repairing procedures and on individual care⁽²⁶⁻²⁷⁾. In addition, although the National Curricular Guidelines (NCG) for undergraduate courses in Dentistry date from 2002 and a considerable number of courses are undergoing restructuring to meet the NCG, there are still difficult to achieve the desired generalist profile, available for effective work in multiprofessional team, also aiming at the collective needs, and prepared for the management of care and clinic in the context of the complexity of public administration⁽²⁸⁾.

The grouping of the activities proposed in the various instruments described in the literature, applied in the work sampling techniques, recommends different classifications for activities, often being found: direct care; indirect care; related to the service/unit; and personnel^(10,16-17,21-22) – a grouping that is very close to that used in this study.

However, some counterpoints are highlighted. In some investigations, activities such as attending meetings; conducting teaching in service; research and audit; and administration⁽²²⁾, not specific to the patient, but that include clinical responsibilities of leadership, role of the

nurse and of the competency standards⁽²¹⁾, including staff coordination⁽²⁹⁾ are considered activities related to the service and not indirect care.

Importantly, the category standby time and absence are characteristic activities of working dynamics of family health teams observed during the pilot test, being incorporated into the instrument due to the importance of reflecting the actual practice carried out in the FHUs.

The mean agreement, considering the total of observations, was 93.7%, which is within that presented by the aforementioned literature of 95%⁽²²⁾, 91%^(10,16), 90%⁽²¹⁾, and 85%⁽¹⁸⁾. Another study considered satisfactory the 85% rate, because a third of the discrepancies was related to the timing and not to the interpretation of interventions⁽¹⁸⁾. Therefore, for reliability testing during the data collection, dynamics should be considered as intervening factor, as well as organization and physical structure of the studied realities, which may facilitate or hinder the timing of observation during the test.

The instrument was complete, since 100% of interventions/activities observed were described in the instrument developed, although in no reality observed all professionals conducted all interventions/activities described, since the instrument includes interventions/activities with the possibility of daily, weekly, monthly, and yearly frequency.

This instrument is of fundamental importance in supporting the implementation of workforce planning methods whose key component is workload, as the time variable is considered the most difficult to obtain and the most important for the application of some methods such as the Workload Indicators of Staffing Need (WISN)⁽³⁰⁾.

The dynamics developed for the pilot test showed that the work sampling technique for application of the instrument is suitable for surveying time patterns of interventions/activities carried out by the family health team professionals. However, for the community health agent, continuous monitoring of an observer per professional is recommended due to the predominant character of the interventions, which are external to the unit.

In addition, for the dentistry team, we advise that the observation should be performed by a sole observer and that this should be a dental surgeon, given the need to stay in office for better effectiveness of the records of interventions/activities and the high specificity of the procedures.

It is recommended that field observers use devices that can identify them as researchers, so that the population and/or clients do not recognize them as unit staff.

CONCLUSION

The workload measurement instrument constructed in this study was composed of 39 interventions, which included 100% of the activities carried out by the observed health workers. Instrument validation resulted in a high degree of agreement in relation to the interventions of the professionals in the professional categories involved.

The importance of this instrument is not only in the application to survey time patterns for workforce planning, but to survey the daily practice of family health strategy teams, to describe the work process in relation to the proposed health model, and to enable reflections concerning professional and interprofessional skills.

Additionally, its application allows discussing the forms used to register activities that were performed and the information system used in primary health care.

Further research and testing of the workload measurement instrument are needed, in different family health units, in the national context, making it possible to make comparisons between workloads and to identify the different work process configurations of the different categories composing the FHU team.

RESUMO

Objetivo: Propor e validar um instrumento que contemple as intervenções/atividades realizadas pela equipe de saúde da família, como referência para o planejamento da força de trabalho. **Método:** Pesquisa metodológica desenvolvida nas etapas: construção do instrumento; validação de conteúdo e teste piloto, em três unidades, localizadas na região sudeste do Brasil. **Resultados:** Foram validadas 39 intervenções em um único instrumento de medida de carga de trabalho para médico, cirurgião-dentista, técnico/auxiliar de saúde bucal, enfermeiro, técnico/auxiliar de enfermagem e agente comunitário de saúde. No teste piloto, o instrumento contemplou 100% das intervenções observadas, atingindo 93,7% de concordância entre os observadores. **Conclusão:** O instrumento proposto, inédito na sua configuração, subsidia o planejamento da força de trabalho em atenção primária.

DESCRIPTORIOS

Atenção Primária à Saúde; Recursos Humanos em Saúde; Carga de Trabalho; Estudos de Validação, Planejamento.

RESUMEN

Objetivo: Proponer y validar un instrumento que contemple las intervenciones/actividades realizadas por el equipo de salud de la familia, como referencia para la planificación de la fuerza de trabajo. **Método:** investigación metodológica desarrollada en etapas: construcción del instrumento; validación de contenido y prueba piloto en tres unidades, ubicadas en la región sudeste de Brasil. **Resultados:** Fueron 39 intervenciones validadas con un único instrumento para medir la carga de trabajo para médico, cirujano dentista, técnico/asistente de salud bucal, enfermero, técnico/asistente de enfermería y agente comunitario de salud. En la prueba piloto, el instrumento contempló 100% de las intervenciones observadas, alcanzando 93,7% de concordancia entre los observadores. **Conclusión:** El instrumento propuesto, inédito en su configuración, subsidia la planificación de la fuerza de trabajo en la atención primaria.

DESCRIPTORES

Atención Primaria de Salud; Recursos Humanos en Salud; Carga de Trabajo; Estudios de Validación, Planificación.

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