

Use of the Core Content Classification in General Practice (3GCP) for qualitative analysis of context and practice. Study of ten years undergraduate students final works in Integrated Master's of Medicine at the University of Coimbra.

Type:

Original paper for PTMR congress

Keywords:

classification, educational measurement, education, medical, Undergraduate, Abstracting and Indexing as Topic

Abstract:**Background**

General Practice/Family Medicine includes approaches to the biological, technological, behavioural, sociological and anthropological domains

Objectives

To document the domains addressed in the final assignments of the Integrated Master's Degree in Medicine at the University of Coimbra in area of GP/FM.

Material and methods

Observational study of the titles of final assignments granted by the Faculty of Medicine of the University of Coimbra. The domain analysis using as codes the International Classification in Primary Care-2 and the Q-Codes, a context classification in Primary Care, year of elaboration and gender of author was carried out for each title of final assignment. A descriptive and inferential analysis was performed.

Results

169 papers were analysed, 23,1% written by male students, with a positive overall growth dynamics ($\Delta=+7,0$) between 2008-2017. Q-Codes were registered 276 times, while the ICPC-2 codes was used 133 times. Under the Q-Codes, the "doctor's issues" is the most frequently addressed (n=112, 67,2%) and under the International Classification in Primary Care-2 classifications, the chapter "Psychological" was predominant (n=35, 21,0%). Under the Q-Codes, subcategories "primary care setting" (n=26; 15,6%), "health issue management" (n=23; 13,8%) and "unable to code, unclear" (22; 13,2%) were dominant. Within the International Classification in Primary Care-2, the subcategories "diabetes noninsulin dependent" (n=22, 13,2%), "depressive disorder" (8, 4,8%) and "hypertension uncomplicated" (8, 4,8%) were predominantly focused on.

Conclusions

The 3GCP may become a professional tool, allowing for a more precise identification of final works, for a better communication method in the medical activity and avoiding the loss of previously developed works.

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Abstract

Background: General Practice/Family Medicine includes approaches to the biological, technological, behavioural, sociological and anthropological domains.

Objective: To document the domains addressed in the final assignments of the Integrated Master's Degree in Medicine at the Faculty of Medicine, University of Coimbra, in the area of GP/FM.

Methodology: Observational study of the titles of final assignments, between 2008 and 2017, granted by the Faculty of Medicine of the University of Coimbra. The domain analysis using as codes the International Classification in Primary Care-2 and the Q-Codes, a context classification in Primary Care, year of elaboration and gender of author was carried out for each title of final assignment. A descriptive and inferential analysis was performed through parametric and nonparametric tests.

Results: 169 papers were analysed, 23,1% written by male students, with a positive overall growth dynamics ($\Delta=+7,0$) between 2008 and 2017. Q-Codes were registered 276 times, while the ICPC-2 codes was used 133 times. Under the Q-Codes, the "doctor's issues" is the most frequently addressed (n=112, 67,2%) and under the International Classification in Primary Care-2 classifications, the chapter "Psychological" was predominant (n=35, 21,0%). Under the Q-Codes, subcategories "primary care setting" (n=26; 15,6%), "health issue management" (n=23; 13,8%) and "unable to code, unclear" (22; 13,2%) were dominant. Within the International Classification in Primary Care-2, the subcategories "diabetes

noninsulin dependent”(n=22, 13,2%), “depressive disorder” (8, 4,8%) and “hypertension uncomplicated” (8, 4,8%) were predominantly focused on.

Conclusion: The 3CGP may become a professional tool, allowing for a more precise identification of final works, for a better communication method in the medical activity and avoiding the loss of previously developed works.

Keywords:

"Classification"[Mesh]

"Educational Measurement"[Mesh]

"Education, Medical, Undergraduate"[Mesh]

"Abstracting and Indexing as Topic"[Mesh]

Background

General Practice/Family Medicine (GP/FM) is a vast medical area filled with knowledge, and the General Practitioner (GP) is, simultaneously, an incessant user and producer of knowledge. This knowledge is only partly published in medical publications [1]. Studies, abstracts from congresses or dissertations aren't available worldwide to professionals, students or researchers due to lack of specific indexation [2].

Many terminologies and classifications supporting the existing clinical information and their storage and retrieval have already been drafted [3]. Due to its peculiar dimension, GP/FM includes approaches to the biological, technological, behavioural, sociological and anthropological domains, all of which bearing a deep impact on the necessary terminologies [4].

The clinical content of GP/FM is well documented through the *International Classification of Primary Care - 2nd edition* (ICPC-2) as a standard method of clinical classification of reasons for consultation, health problems and due procedures [3,5]. Even though this classification is close to the taxonomical needs of the GP/FM practice, limitations still exist, namely within the context of practice [6]. Integrating these aspects in the representation of the person centred care [7] and the reflection of due practice by the GP/FM specialist (GPS), according to the European definition of Family Medicine seems therefore paramount [8].

In 2006, Marc Jamouille, created the terminology to represent the non-clinical or contextual activities of the GPs [6]. The author states this contextual addition to the 17 chapters of the ICPC-2 adds accuracy to its domain of applicability [4].

The terminology, named "Q Codes", in its 2.5 version,, consists of 182 definitions, divided by 8 domains: Person's category, person's issue, doctor's issue, medical ethics, ecological hazard, research and development, structure of practice and knowledge management. Each domain is further divided into categories and sub-categories [3,6]. This terminology reflects the result of a cooperative 2 year project between participants from 12 countries and 8 languages [3]. And thus the acronym 3CGP (*Core Content Classification in Primary Care*) is born, as a result of combining the Q-Codes [9] to the ICPC-2 [10].

Each code has a multilingual terminological record, available through the *Health Terminology/ Ontology Portal* (HeTOP) website (<https://www.hetop.eu>), which is a fundamental resource that includes mainly all terminologies in health. In this web portal, each concept is carefully selected and organised, mapped to *Medical Subject Headings* (MeSH) with the possibility of subsequent research in the Medline (PubMed) search engine and in the

Catalogue et Index des Sites Médicaux de langue Française (CISMef) 3CGP could be searched for in several languages through a dedicated website (<http://3cgp.docpatient.net/>)

Objectives

The aim of this paper was to apply the 3CGP to document which domains are addressed in the final assignments of the 6th year of the Integrated Masters in Medicine (IMM) of the FMUC (Faculty of Medicine of the University of Coimbra) carried out within GP/FM, since the beginning of the IMM, in order to evaluate the past and foresee the future. Another objective was to identify differences in the themes regarding the gender variable and to understand the usefulness of this resource in structuring and investigating the teaching of medical practice.

Materials and methods

Observational study analysing the IMM final assignments in GP/FM within the FMUC, carried out between 2008 and July 2017.

The information on the FMUC database, with the theme for each IMM final assignment within GP/FM, was provided by this institution, upon approval of both the institution and the Ethics for Health Commission of the Centre Region Regional Health Administration (ARS - Administração Regional de Saúde), on October 31st, 2017.

A database was set up (the authors were made anonymous) and organised by title of final assignment, ICPC-2 classification, Q-Codes, year of elaboration and gender of the author. The title was read and coded using the 3CGP: ICPC-2 for clinical aspects and Q-Codes for contextual aspects, by reading the abstract, if necessary and when available.

In addition to the 17 chapters of the ICPC-2 [10], the table list of Q-codes was applied, set up by Marc Jamouille, available in the “General Practice / Family Medicine Multilingual Terminology” [6] and as on-line resource [9] (see Figure 1).

The coding of all papers was carried out by a single author under consultancy with the 3CGP author, Marc Jamouille.

A descriptive and inferential analysis of the data was performed according to gender, through parametric (Student’s T-Test) and nonparametric (Mann-Whitney U Test) tests.

The designation “person” was used to refer to the subject interacting with the physician, as a synonym for patient/consulter/user/client.

Title of the final work	ICPC-2	Q-Codes		
The child victim of physical maltreatment - the intervention of the family doctor	Z25 assault/harmful event	QC12 child	QC52 child abuse	QS41 family doctor
Disease mongering in higher education: a study in university medical students	-	QT21 undergraduate	QR323 cross-sectional study	QD442 disease mongering
Breast cancer prevention - knowledge, attitude and praxis	X76 malignant neoplasm breast female	QC22 women's health	QD41 primary prevention	QP42 patient knowledge

Figure 1: Example of titles of 3 final works with the corresponding theme identified and classified using ICPC-2 and Q-Codes version 2.5.

Results

According to Table 1, 169 papers were analysed, of which 23,1% were carried out by male students. A positive overall growth dynamics was verified throughout the period under study ($\Delta=+7,0$) until the end of 2016.

The Q-codes were used 276 times and the ICPC-2 codes were used 133 times.

Table 1: Number of final assignments of the 6th medical year, distributed by year and gender, and number of Q-codes and ICPC-2 codes applied.

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017(*)	Total
Final Papers	4	12	8	12	13	20	26	23	32	19	169 (100%)
Sex											39 (23.1%)
Male	1	1	1	3	3	3	7	3	9	8	
Female	3	11	7	9	10	17	19	20	23	10	130 (76.9%)
Q Codes	10	21	13	17	21	34	41	37	51	31	276
ICPC-2 Codes	5	11	11	14	12	16	16	16	20	12	133

Note (*) Until July 2017

Table 2 includes the classifications by chapters of the ICPC-2, with reference to the 7 most used codes. The codes referring to chapters H (Ear), R (respiratory) and S (Skin) were not mentioned in any of the papers, and the P (Psychological) chapter was the most frequent.

There was a greater frequency of T90 (diabetes noninsulin dependent), P76 (depressive disorder) and K86 (hypertension uncomplicated).

Table 2: Analysis of clinical content in the 6th medical year final assignments through the ICPC-2.

Chapter	n (%)	Code	n (%)
A	8 (4,8)		
B	1 (0,6)		
D	3 (1,8)		
F	2 (1,2)		
H	0		
K	16 (9,6)	K86	8 (4,8)
L	3 (1,8)		
N	1 (0,6)		
P	35 (21,0)	P76 P17	8 (4,8) 7 (4,2)
R	0		
S	0		
T	22 (13,2)	T90 T82	14 (8,4) 4 (2,4)
U	2 (1,2)		
W	14 (8,4)	W78	5 (3,0)
X	10 (6,0)	X75	5 (3,0)
Y	4 (2,4)		
Z	5 (3,0)		
-	7 (4,2)		

A-General and unspecified; B-Blood, blood forming organs, lymphatics, spleen; D-Digestive; F-Eye; H-Ear; K-Circulatory; L-Musculoskeletal; N-Neurological; P-Psychological; R-Respiratory; S-Skin; T-Endocrine, metabolic and nutritional; U-Urology; W-Pregnancy, childbirth, family planning; X-Female genital system and breast; Y-Male genital system; Z-Social problems; - procedures; T90-diabetes noninsulin dependent; P76-depression; K86-uncomplicated hypertension; P17-tobacco abuse; X75-Malignant neoplasm cervix; W78-pregnancy; T82-obesity

Table 3 includes the distribution of Q-Codes in the 169 IMM final assignments, with reference to the 8 most frequently used subcategories.

Excepting the QH (planetary health), all other domains were approached, predominantly the QD domain (doctor's issue). Regarding the subcategories, the QS1 (primary care setting), QD32 (health issue management) and QO1 (unable to code, unclear) prevail.

Table 3: Contextual analysis of the 6th medical year final assignments, by coding with Q-Codes.

Domain	n (%)	Subcategory	n (%)
QC	33 (19,8)		
		QD32	23 (13,8)
		QD41	15 (9,0)
QD	112 (67,2)	QD11	13 (7,8)
		QD42	10 (6,0)
		QD12	11 (6,6)
QE	2 (1,2)		
QH	0		
QP	42 (25,2)	QP42	11 (6,6)
QR	16 (9,6)		
QS	39 (23,4)	QS1	26 (15,6)
QT	10 (6,0)		
QO	22 (13,2)	QO1	22 (13,2)

QC-person's category; QD-doctor's issue; QE-medical ethics; QH-planetary health; QP-patient issue; QR-research; QS-structure of practice; QT-knowledge management; QO-Other; QS1-primary care setting; QD32-health issue management; QD41-primary prevention; QD11-encounter; QD42-secondary prevention; QD12-doctor-person relationship; QP42-secondary prevention; QO1-unable to code, unclear.

No differences were revealed when analysing by gender the application of the ICPC-2 and Q-Codes, according to Table 4.

Table 4: Distribution of the application of the ICPC-2 Q-Codes, by gender.

Number of codes	Sex	n	Average	SD	p (*)
ICPC-2	Male	39	0.8	0.9	0.942
	Female	130	0.8	0.7	
Q Codes	Male	39	1.5	0.6	0.092
	Female	130	1.7	0.7	

(*) Student's T-Test

Chart 1 shows the evolutionary trend of the 8 domains of Q-Codes, excluding the QO (other) category. During the period under study, the predominance of the QD (doctor's issue) is verified. Between 2012 and 2015, a gradual increase in this domain is registered, with a later decline. In 2016, the maximal application of QC (person's category) and QS (structure of practice) domains was registered.

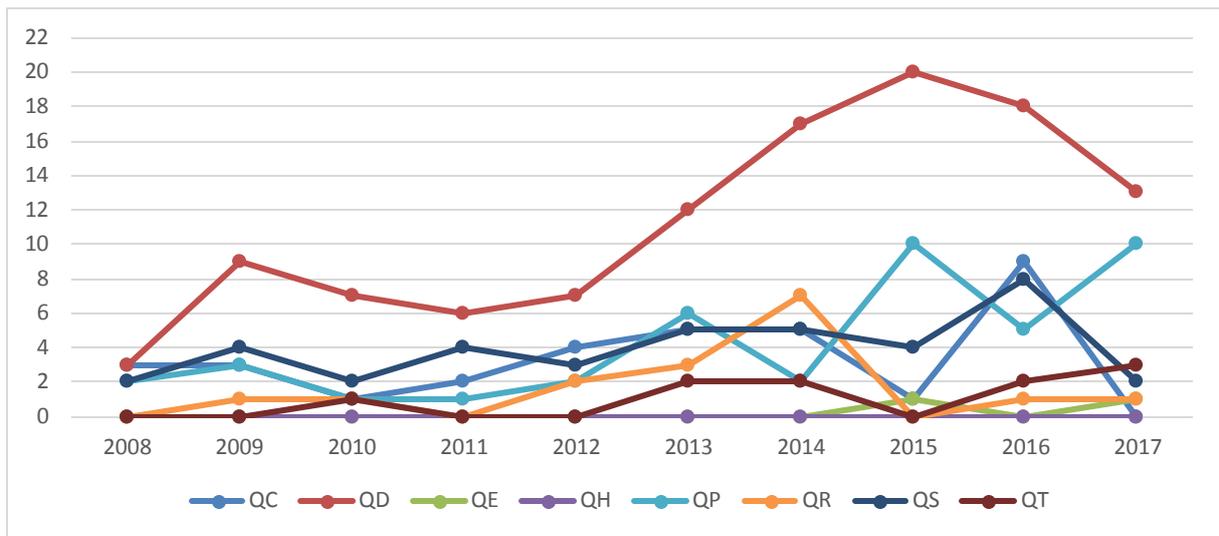


Chart 1: Evolution over time of the contextual contents of the 3CGP in the 6th medical year final assignments.
QC-person's category; **QD**-doctor's issue; **QE**-medical ethics; **QH**-planetary health; **QP**-patient issue; **QR**-research; **QS**-structure of practice; **QT**-knowledge management

Discussion

With this study, we are now able to understand what has been chosen by students as theme of final work and structure future research, giving visibility to the papers in this area of medicine in this pre-graduated context.

An article by Salles [11] concerning the role of the doctor within the context of a technical and impersonal medicine, oriented towards the market's needs, stimulates the reflection over the study interests of future health professionals. In modern times medicine, in which everything is monitored by technology, it is important to understand how future physicians have been adapting to this reality, what they think is important to study and how this evolution has been developing over the last 10 years.

GP/FM has been gradually conquering future physicians, and we have verified a global increase in the number of final assignments in IMM regarding this domain of medicine in the FMUC. However, female students are those who contribute the most for this growth (76.9%) (Table 1). This female tendency can be explained by the greater number of female enrolments (65%) in relation to the male enrolments (35%) in the FMUC, the overall enrollment being stable since 2007 [12].

When comparing the codification frequency with Q-Codes and the ICPC-2, we verify an overvaluation of Q-Codes. This suggests the importance of non-clinical or contextual aspects in medical assistance, resulting from the will of either the future physicians, their mentors, or both. Hence, the aim was to verify the distribution of ICPC-2 and Q-Codes in detail.

Regarding the ICPC-2 coding, we verified that the P (psychological), T (endocrine/metabolic and nutritional), K (cardiovascular) and W (pregnancy, childbearing, family planning) chapters are the most represented. Analysing the content of communication abstracts in a congress in Portugal, published in 2013 by Jamouille [1], the P (psychological), T (endocrine/metabolic and nutritional), W (pregnancy, childbearing, family planning) and Z (social problems) chapters were the most frequently used. This coincidence in thematic areas may indicate that these domains are the most attractive for both future physicians and the young intern physicians in the GP/MF specialty. This preeminence of P&Z domains (psychosocial) is confirmed by content analyse of several congresses in Europe and Brazil [13]. In what extent these results are function of tutors must be studied. From another perspective, this may be the reflection of a new medicine which, although sophisticated and effective in prolonging life, does not prevent or cure certain diseases. Hence, it is crucial to ponder on the most explored subcategories.

Lobo Antunes refers, regarding the modern scientific medicine, that it does not ensure eternity, since *“the burden of disease will continue to consist mostly of cardio-cerebral-vascular diseases, lung diseases, diabetes and certain types of cancer”* [14]. In contrast with the “poverty diseases”, these are the “risk diseases” which, incidentally, coincide with those that future physicians analyse the most (Table 3), like diabetes non-insulin dependent (T90), hypertension uncomplicated (K86), depressive disorder (P76) and malignant cervix neoplasm (X75).

Regarding the application of Q-Codes, the QD (doctor’s issue) is the most frequently addressed (Table 2), and this prevalence was registered throughout the entire period of study (Chart 1). However, a decrease in this domain was registered in 2016 and 2017. In 2016, this decrease coincided with the maximal application of QC (person’s category) and QS (structure of practice). Since the real reason for this dynamics is unknown, as possible hypothesis for justification we may indicate the curriculum reform in the FMUC, from 2015, and the guidance provided by new teachers/tutors, who suggest themes according to their experience, preference or vision for future studies. Since in 2017 only the papers until June were subject to study, we cannot fully understand the global number of papers written within that year, in

273 comparison with preceding years, as well as the decrease in papers regarding the QD domain
274 in that year.

275 Included in the predominant domain (QD), the QD32 (health issue management) subcategory
276 is the most used. This result may stem from the special training of students who want to work
277 in this area, which favours the person-physician bond, since *“it is more important to know the
278 patient affected by the disease than the disease that affects the patient”* [14]. It will be all the
279 more interesting to compare grades with other papers written in other areas within the FMUC.
280 The scientific and technological progress has determined a transformation in the role of the
281 person, who is nowadays more aware of his/her rights, more demanding and better informed.
282 Is the current medical teaching in FMUC preparing students for this paradigm shift, providing
283 future physicians with tools to face people with knowledge [15], adapting the best knowledge
284 available to the circumstances, preferences, needs and aims of the individual person⁷,
285 knowing how to lead medical practice to a new culture of protocols, technical procedures,
286 heavy equipments and scientific evidence in an environment of Evidence Based Medicine?
287 [16]

288 Will the future physician be aware of the concept of quaternary prevention, in a critical
289 observation over medical activities, focusing on the need to not harm? [17,18] This study's
290 results allows us to understand that, regarding quaternary prevention, the statement of lack of
291 knowledge is corroborated until 2017, although prevention is evident in final assignments The
292 possibility of great belief in EBM and the added pressure of people may justify these results
293 [18,19,20]. Nevertheless there is the need to inbed the Research Agenda for General Practice /
294 Family Medicine and Primary Health Care in Europe [21].

295 As a limitation of this study, we point out the fact that the final assignments were classified
296 almost exclusively by reading the title, which may have been, at times, insufficient, although
297 with consistent help.

298 We verified that, for some final assignements, the title was not in accordance with the paper
299 itself, and thus we suggest a rigorous definition of the titles in final assignments. So we
300 recommend rigorous definition of the titles, that mus be precise and rely to the objective and
301 method of the study, writing such assignments in the IMRAD format. In spite of the precious
302 help of the team who created this taxonomy, due attention is needed for the possibility of
303 coding errors.

Conclusion

We verified that the contextual aspects are the most frequently addressed in 6th medical year final assignments, in GP/MF within the FMUC. In this area, “doctor’s issues” are those that carry the most interest for students. In relation to clinical questions, the chapter referring to “psychological” is the one receiving the most attention.

Female students are those who rely the most on GP/FM for their final assignment.

The importance of reflection, by both the educator and the students, is stressed, in order to explore areas of high interest that are still underinvestigated, i.e. Quaternary prevention, Research Agenda for General Practice / Family Medicine and Primary Health Care in Europe and Person centred medicine. Future investigation must be structured, by creating relevant lines of research which impact on the quality of care.

It is important to develop, through this system, a on-line platform to give information about the domains which have already been researched and to indicate the domains for future research.

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