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Diabetes care: comparison of patients' and healthcare professionals' assessment using the PACIC instrument

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Running head: Evaluation of diabetes care

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Abstract

(i) Rationale and objective: Whereas the Patient Assessment of Chronic Illness Care (PACIC) **measures** the extent to which care received by patients is congruent with the Chronic Care Model (CCM), **the 5As model emphasizes self-management and community resources, two key components of the CCM.** We aimed at comparing **evaluation of** diabetes care, as reported by patients with diabetes and healthcare professionals (HCPs), using **these instruments.**

(ii) Methods: Two independent samples, patients with diabetes (n=395) and HCPs (including **primary and secondary care physicians and nurses**; n=287), responded to the 20-item PACIC and the six 5As model questions. The PACIC-5A (questions scored on a five-point scale, 1=never to 5=always) was adapted for HCPs (modified-PACIC-5A). In both samples, means and standard deviations for each question as well as proportions of responses to each response modality were computed, and an overall score was calculated **for** the 20-item PACIC.

(iii) Results: Patients' and HCPs' overall scores were 2.6 (SD 0.9) and 3.6 (SD 0.5) respectively, with HCP reporting higher scores for all questions except one. Patients' education and self-management, referral/follow-up and participation in community programs were rated as low by patients and HCPs.

(iv) Conclusion: HCPs, particularly diabetes specialists, tended to report better PACIC scores than patients, suggesting that care was not reported similarly when received or provided. **Evaluation differences might be reduced by** a closer collaboration between patients and HCPs, as well as the implementation of community-based interventions considering **more** patients' perspectives **such as** patients' education and self-management.

(1) Introduction

The burden of chronic diseases is increasing rapidly worldwide. Since persons with chronic diseases are the most frequent users of healthcare, a shift **from an acute to a chronic care model was necessary. Such a model requires patient-centeredness, proactive healthcare professionals as well as a healthcare system closer to the community and able to include prevention and integrate health and social services.**

The Chronic Care Model (CCM) was created within this context. It is an evidence-based framework developed by Wagner *et al.* [1] to improve outcomes of patients with chronic diseases. While aiming at creating beneficial interactions between informed, actively participating patients and prepared proactive practice teams, it identifies six key elements: organization of health care; community resources and policies; self-management support; delivery system design; decision support and clinical information systems [2]. To assess this evidence-based model, two questionnaires were developed: the Assessment of Chronic Illness Care (ACIC) [3], which enables teams of healthcare professionals (HCPs) to assess care provided to chronic patients at the organizational level, and the Patient Assessment of Chronic Illness Care (PACIC) [4], which measures patients' evaluation of their chronic illness care. While a version including the six questions of the 5A model (ask, advise, agree, assist, arrange; PACIC-5A) was developed by Glasgow in 2005 [5], Carryer *et al.* more recently created the modified-PACIC [6] in order to allow individual HCPs to report the care they were providing to their own patients. Despite the fact that the **five-dimensions** structure of the PACIC remains debated [7-8], **the PACIC questionnaire has been validated in several studies as a tool able to assess how provided care is congruent with the CCM, and judged to be appropriate both when considering a one dimension score or 20 single items means [7].** Currently, it is increasingly being used to evaluate **the** care of patients with chronic conditions [9-13]. Diabetes, a frequent chronic disease with an increasing prevalence, is often the target of integrated care initiatives [14-20]. The PACIC and PACIC-5A have often

been used as instruments for the evaluation of these initiatives [21-23]. Within such studies, the PACIC and PACIC-5A are more frequently used than the ACIC; indeed, the latter is directed at healthcare professionals at the organizational level and does not allow a direct comparison between patients and individual healthcare professionals. Despite the interest to get both patients' and HCPs' points of view on diabetes care, the use of the PACIC and the ACIC/modified-PACIC instruments in a same study, and, by extension, the evaluation of chronic care as reported by patients and by HCPs, from a same region, at the same period of time and using the same questionnaire, has rarely been carried out [6]. This study aimed at filling this knowledge gap. Its objective was therefore to compare evaluation of diabetes care, as reported by patients with diabetes and by HCPs caring for diabetic patients, using the PACIC-5A and the modified-PACIC-5A, respectively. As a secondary exploratory objective, we aimed at comparing the evaluation of diabetes care between primary care and specialized physicians and nurses.

(2) Methods

(2.1) Setting, participants and data collection

This study took place in the canton of Vaud, one of the 26 Swiss cantons, which has approximately 700.000 inhabitants (10% of the Swiss population) and is located in the French speaking part of Switzerland. Two independent samples of participants were considered. First, the patients' sample, which consisted of 395 non-institutionalized adult patients with diabetes participating in the 2013 follow-up of the CoDiab-VD cohort (449 were contacted; response rate of 88%) [24]. Second, the HCPs' sample, which consisted of HCPs practicing in the same canton and theoretically taking care of patients with diabetes; included primary care physicians, diabetologists, primary care nurses and diabetes specialized nurses. These different HCPs were contacted during the same period of time to participate in an online

survey assessing inter-professional collaboration and HCPs' practices in the field of diabetes care [25]. Out of a total of 1154 HCPs' eligible for the study, 410 opened the access link to the questionnaire; after exclusion of those who didn't answer any item of the modified-PACIC-5A, 287 HCPs were included in the study sample (overall response rate of 24.9%).

(2.2) Measures

(2.2.1) PACIC and PACIC-5A questionnaires

Whereas the PACIC instrument [4], developed by Wagner *et al.* in English, is a 20-item questionnaire measuring patients' evaluation of their own chronic disease care, the PACIC-5A instrument [5] includes six additional questions in line with the 5As model [26]. Each question is answered on a 5-point response scale (1=never, 2=generally not, 3=sometimes, 4=most of the time, 5=always), and scores for each question and for the overall score (20 PACIC items) as well as proportions of responses to each response modality can be computed. In this study, we used a French version of the PACIC-5A [24].

(2.2.2) Modified-PACIC-5A questionnaire

Bound to the PACIC-5A, a modified version allowing individual HCPs to report the care they are providing to their own patients was adapted by Carryer *et al.* in 2010 [6]. For example, the question "Over the past 6 months, when I received care for my chronic condition, I was asked to talk about my goals in caring for my illness" was adjusted to "When caring for a person with a chronic condition, how often do you ask them to talk about their own goals in caring for themselves". Similarly to the PACIC-5A, each question is answered on a 5-point response scale (1=never, 2=generally not, 3=sometimes, 4=most of the time, 5=always), and scores for each question and for the overall score (20 modified PACIC items) as well as proportions of responses to each response modality can be computed.

(2.2.3) Other variables

Other patients' and HCPs' variables were considered in this study. For the patients' sample, the following characteristics were collected: mean age; gender; education level (primary, secondary, tertiary); smoking status; Body Mass Index (normal and underweight (BMI <25 [kg/m²]), overweight (BMI 25-29.9 [kg/m²]), obesity (BMI ≥30 [kg/m²])) and number of co-morbidities (0, 1, 2, ≥3). Diabetes characteristics included: type of diabetes (type 1, type 2, other); duration of diabetes (≤10 years, >10 years) and treatment (oral antidiabetic drugs, insulin, oral antidiabetic drugs + insulin, other). For the HCPs' sample, both physicians' and nurses' subgroups included three categories: primary care physicians, diabetologists, unspecified, and primary care nurses, diabetes specialized nurses, unspecified, respectively, **the unspecified category corresponding to HCPs who did not answer the question asking whether they were primary care or specialized care providers.** For each subgroup, mean age was established.

(2.3) Data analysis

First, we performed descriptive **univariate** analyses to characterize the patients' and HCPs' samples. Then, in both samples, means and standard deviations as well as proportions of responses to each response modality were calculated for each question of the PACIC-5A/**modified-PACIC-5A**, and the overall score was computed over the 20-item PACIC/**modified-PACIC** [7]. Comparisons of results across the two samples were performed for each question and for the overall score. **After exclusion of the unspecified category of physicians and nurses, exploratory subgroup comparative analyses of means of the four main HCPs' categories (i.e. primary care physicians, diabetologists, primary care nurses and diabetes specialized nurses) were performed. Since the two questionnaires were not strictly identical, we decided not to present p-values of the patients and HCPs comparative t-tests; the latter were**

nevertheless all statistically significant at the 0.05 level except for question 5 (p-value 0.17). Similarly, and because of their exploratory nature, p-values of the HCPs' subgroup analyses were not shown. Finally, the proportion of questions with a mean score from 1 to <2; 2 to <3; 3 to <4 and 4 to ≤5 were calculated for the patients' and HCPs' samples, as well as for the four HCPs' categories.

Missing values of the PACIC-5A and modified-PACIC-5A questionnaires were <11.1%.

(3) Results

(3.1) Participants' characteristics

Participants' characteristics are presented in Table 1. Mean age of the 395 patients with diabetes was 65.5 years (SD 10.8), 61.3% were male, 84.8% reported type 2 diabetes, 45.1% had a duration of diabetes >10 years and 81.8% had one co-morbidity or more; also, whereas 16.3% of patients were current smokers, 46.7% had a BMI above 30 [kg/m²]. The HCPs' sample (n=287) comprised 34.5% physicians with a mean age of 51.7 years (SD 9.0) and 65.5% nurses with a mean age of 43.7 years (SD 10.1). Among HCPs, 8.7% reported to be diabetes specialists (diabetologist and diabetes specialized nurse).

Table 1

(3.2) PACIC-5A and modified-PACIC-5A scores

Table 2 presents the PACIC-5A and the modified-PACIC-5A results. Patients' (PT) and HCPs' overall scores were 2.6 (SD 0.9) and 3.6 (SD 0.5), respectively. In the patients' sample, a score lower than 2 was found for 23% of the questions (Figure 1); the other questions had scores between 2.1 and 3.9 and no question had a score ≥4. In the HCPs' sample, scores varied between 2.7 and 4.2, and 88% of the questions had scores >3. The comparison of patients' and HCPs' scores showed that HCPs reported higher scores, with score differences between 1 and 2 for most of the

Figure 1

questions (>1 SD) and one question – “given a copy of the treatment plan” – presenting a difference higher than 2 (>2 SD); only one question – “satisfied how care was organized” – showed identical scores across the two samples (PT sample: 3.9 (SD 1.2); HCP sample: 3.8 (SD 0.6)). More specifically, when HCPs reported high scores (>4), patients also reported higher scores (>3), except for two questions – “given a copy of the treatment plan” (PT sample: 2.1 (SD 1.4); HCP sample: 4.2 (SD 0.9)) and “asked questions, either directly or on a survey, about health habits” (PT sample: 2.7 (SD 1.4); HCP sample 4.2 (SD 0.7)). For a few questions, low scores by patients were mirrored by low scores by HCPs – “given a written list of things to do to improve health” (PT sample: 1.9 (SD 1.2); HCP sample: 2.7 (SD 1.0)); “encouraged to attend programs in the community that could help” (PT sample: 1.7 (SD 1.1); HCP sample: 2.9 (SD 1.0)); “given a book or monitoring log in which to record the progress made” (PT sample: 2.2 (SD 1.5); HCP sample: 2.8 (SD 1.3)).

Table 2

The distribution of results of the five response modalities (never, generally not, sometimes, most of the time, always), presented in Table 2, permits a quick side-to-side comparison between patients and HCPs. Whereas a high proportion of patients responded that they “never” had received the care mentioned in the questions, similar responses were rarely obtained from HCPs: HCPs often responded that the care was “most of the time” or “always” provided.

The modified-PACIC-5A results, presented by the four main HCPs’ categories (Appendix 1), showed that scores from diabetes specialized nurses and diabetologists were overall higher than those from primary care physicians and primary care nurses for most of the questions. In fact, primary care providers had scores between 2.5 and 4.4 and diabetologists as well as diabetes specialized nurses presented scores ranging from 3.3 to 4.4 and 3.5 to 4.8, respectively, except for two questions with scores <3 - “given a written list of things to do to improve health” and “given a book or monitoring log in which to record the progress made” (only diabetes specialized nurses). In addition, diabetes specialized nurses and

diabetologists reported scores >4 for 81% and 58% of the questions, respectively, compared to only 27% for primary care physicians and 23% for primary care nurses (Figure 1).

(4) Discussion

This study used the PACIC-5A and the modified-PACIC-5A to compare **evaluation of** diabetes care as reported by participants in two independent samples from the same region and during the same period: patients with diabetes and HCPs caring for diabetic patients. Results showed that HCPs tended to assess provided diabetes care as being more congruent with the recommendations of the CCM than what was reported by patients. In addition, **exploratory** results from subgroups of HCPs **showed a trend towards care to be more congruent with the CCM when reported by specialists (diabetologists and diabetes specialized nurses) than by** non-specialists (primary care physicians and primary care nurses).

A variety of studies consider PACIC scores as primary or secondary outcomes for patients with diabetes. Results show high heterogeneity of PACIC global scores, with apparently no specific characteristic explaining that heterogeneity. A few studies of interest are discussed thereafter. In fact, our patients' overall score (computed over the 20-item PACIC) is in agreement with those reported in several other studies. **For example,** Aung *et al.*, who conducted a population-based study in Australia **including type 2 patients,** found a score of 2.4 at baseline [27-30]. In Denmark, a similar overall score **was reported** but, contrary to our study, participants were recruited in primary care practices, yet mean age and sex of participants were similar to our sample [31]. Finally, Ku and Kegels obtained a somewhat higher PACIC global score (2.8) in a study that took place in the Philippines, in which patients were recruited in primary care practices and the sample mainly composed of female participants [21]. In contrast to these studies, a number of others reached higher PACIC scores. **In**

Switzerland for example, Frei *et al.* carried out two studies: whereas one comprised patients with type 2 diabetes from non-managed care (score 3.2) and managed care organizations (score 3.4) somewhat older than our study participants [32], the second study recruited patients in single or group practices (score 3.1) of overall similar age and gender [33]. These latter results are close to those from several studies conducted in the United States [5, 34-36], with scores ranging from 3.0 to 3.2 and samples composed mainly of patients with type 2 diabetes, with a mean age ranging from 63.7 to 65 years. Finally, the highest PACIC scores were obtained from a sample from Taiwan, mainly composed of female patients, with a score of 4.2 for the patients enrolled in a pay-for-performance program [37].

The HCPs' overall score we observed was lower than Carryer's first New Zealand exploratory study using the modified PACIC (score 4.0) [6]. In that latter study however, only primary care nurses participated. If we compare Carryer's results to those of our sub-sample of primary care nurses, it is interesting to note that, overall, our results nevertheless remained inferior. Yet, the overall score obtained in Carryer's study was consistent with the scores reported by the specialized providers of our sample. A recent study, conducted by Doolan-Noble *et al.*, used the modified PACIC to compare the perception of care between primary care providers, with primary care nurses reporting better scores than primary care physicians [38]. Such differences were not found in our study, primary care physicians and nurses assessing provided care similarly.

The overall score difference between our two samples (*i.e.* 1 standard deviation) showed that HCPs reported provided diabetes care to be more congruent with the CCM than patients did. Three main hypotheses could explain this rating difference. First, a difference of understanding – by patients and HCPs – of the care aspects to be assessed, second, “over”-evaluation by HCPs that could represent social desirability bias [39], and third an “under”-evaluation by patients that could be the cause of recall bias [39]. The first hypothesis could stem from a different reasoning

and interpretation of each question resulting from divergent perspectives of diabetes care [40], communication problems and health literacy levels [41-42]. Also, disease perceptions may diverge, with patients emphasizing their personal and social contexts whereas medical significance predominates for HCPs [43]; the latter may represent a barrier to patient-provider collaboration and communication [44]. The second hypothesis, “over”-evaluation of care provided by HCPs, relates to social desirability bias [45], with HCPs possibly reporting better level of care than what is effectively provided. The last hypothesis, “under”-evaluation by patients, relates to recall bias, with targeted elements of the questionnaire representing one conversational aspect among others, not all being remembered by patients [46]. These three hypotheses could explain, to some extent, score differences between patients and HCPs. Although it may be difficult not to have a rating discrepancy between patients and HCPs, both perspectives remain important to explore, each stakeholder being of value in the process of improvement of chronic illness care.

The single questions analyses of both patients’ and HCPs’ samples showed that the worst results were linked with patients’ education and self-management, patients’ participation in community programs and referral/follow-up, as well as family and community participation in patients’ care. These negatively rated aspects are those important to target in future field projects, especially since it is known that patients’ education and self-management are relevant for diabetic patients’ care and that targeting education and self-management has been shown to be effective [17-18, 47-50]. In Switzerland, within the development and implementation phases of the “Programme cantonal Diabète”, which aims at reducing the incidence of diabetes and improving care provided to diabetic patients [51-53], a qualitative study highlighted insufficient patients’ self-management and collaboration between patients and HCPs [54]. The quantitative results of our study confirm the gaps previously identified by patients and HCPs. They still remain underdeveloped in Switzerland and need to be considered in future initiatives targeting integrated and coordinated care for patients

with diabetes. This is particularly appropriate since integrated care programs, which emphasize patient's self-management and education, have been shown to have a positive impact on chronic illness care [19-20, 55]. Furthermore, question 9 – “given a copy of the treatment plan” – obtained the highest score difference between patients and HCPs. This evaluation discrepancy could mainly be explained by the difference of understanding mentioned earlier in the discussion. In our study, the HCPs reported frequently providing patients with a treatment plan (high score), which contrasts with the results of the Doolan-Noble study [38]. The results of our patients' sample are nevertheless consistent with the final report of the CAPITOL Project, a study conducted in the UK showing, among others, that patients reported low levels of care plans. Patients' reported barriers for the introduction of chronic care plans were lack of time, poor coordination of care and the absence of formal templates [56].

The secondary *exploratory* objective of this study was to compare the scores across the four main HCPs' categories. Although specialists and primary care providers work in collaboration towards the improvement of outcomes of diabetic patients, scores from specialized nurses and diabetologists were overall higher than those from primary care physicians and nurses for most questions. Divergences in care provided, between primary care and specialized providers, have already been shown in various situations. For example, treatment plans for chronic diseases such as asthma, heart failure or diabetes, have been shown to be more aggressive, when implemented by specialized vs. primary care providers [57-59]. Also, since types of patients cared for by specialized and primary care providers differ (specialized providers often having patients with more diabetic complications [60]), specialists perform additional interventions, which would be reflected in their responses. Interestingly, primary care providers' scores were closer to patients' scores. Since primary care providers see their patients within their global health context, they *theoretically* better understand and know their needs and preferences, and set management priorities, which may not necessarily focus directly on diabetes care

[61-63]. Being more aware of patients' healthcare needs and preferences, primary care providers' perspective may better match that of patients. This may contrast with care provided by specialists, possibly more focused on biomedical aspects of diabetes care.

The results of this study need to be interpreted taking into account the following three limitations. First, both study samples were independent and patients' and HCPs' data were stemming from two different surveys. Despite the fact that both samples' data came from the same canton and year, it remains difficult to appropriately interpret a direct comparison of results. However, participants of the two samples are expected to represent, to same extent, patients with diabetes residing in [52-53], and HCPs practising in, the canton of Vaud [25]. Second, the number of eligible specialists and the proportionate number of specialists having participated in the study (diabetologists n=8, diabetes specialized nurses n=17) was low compared to the number of primary care physicians (n=78) and primary care nurses (n=143). Statistical subgroups comparisons may be weakened by those small numbers; the latter were exploratory in nature, however. Finally, the overall response rate of HCPs was low but close to what is often found in such populations. We nevertheless think that our results lie on the conservative side, hypothesizing that non-participants might be more prone to social desirability bias: non-participating HCPs may respond more "positively" than participating HCPs, leading to higher differences between HCPs and patients than those presented. Despite these limitations, our results allow a first interesting insight on the topic.

This study showed that patients and HCPs did not report care received or provided in a similar way. Whether these results correspond to a difference of understanding between patients and HCPs, an "over"-evaluation by HCPs, an "under"-evaluation by patients or a combination of those phenomena remains unknown. Further research is needed, both to better understand differences between patients and HCPs and to perform analyses from pairs of patients and HCPs, to confirm our findings. In the

meantime, evaluation differences might be reduced by a closer collaboration between patients and HCPs and by the participation of all stakeholders in the design of diabetes services. In addition, because of their key role in the care of chronic patients, the implementation of community-based interventions considering patients' perspectives such as patients' education and self-management, should result in improved chronic care.

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(7) Figure legends

Figure 1: Proportion of questions with a mean score **from 1 to <2; 2 to <3; 3 to <4 and 4 to ≤5** for the patients' sample and the healthcare professionals' sample, including for the four subgroups of healthcare professionals.

(8) Tables

Patients (n=395)	
Mean age	65.5 years
Men	61.3%
Education level (n=385)	
Primary	17.4%
Secondary	56.1%
Tertiary	26.5%
Active smoking (n=380)	16.3%
Body Mass Index [kg/m ²] (n=366)	
Normal and underweight (BMI < 25)	19.4%
Overweight (BMI 25-29.9)	33.9%
Obesity (BMI ≥ 30)	46.7%
Number of co-morbidities (n=384)	
0	18.2%
1	30.0%
2	27.9%
≥ 3	24.0%
Type of diabetes (n=395)	
Type 1	11.9%
Type 2	84.8%
Other	3.3%
Duration of diabetes (n=390)	
≤ 10 years	54.9%
> 10 years	45.1%
Treatment (n=386)	
Oral antidiabetic drugs	45.6%
Insulin	20.2%
Oral antidiabetic drugs + insulin	22.0%
Other	12.2%

Healthcare professionals (n=287)	
Physicians (n)	99
Primary care physicians	78
Diabetologists	8
Unspecified	13
Mean age	51.7 years
Nurses (n)	188
Primary care nurses	143
Specialized nurses	17
Unspecified	28
Mean age	43.7 years

Table 1. Patients' and healthcare professionals' characteristics

	Mean (SD) of PT sample (n=395)	Mean (SD) of HCP sample (n=287)	Score difference	Distribution of results of the PT sample	Distribution of results of the HCP sample
Overall score	2.6 (0.9)	3.6 (0.5)	1		
Per question				■ Never ■ Generally not ■ Sometimes ■ Most of the time ■ Always	
1. Asked for ideas when treatment plan made	3.0 (1.5)	3.9 (1.0)	0.9		
2. Given choices about treatment to think about	2.4 (1.4)	3.4 (1.1)	1		
3. Asked to talk about any problems with medicines or their effect	3.1 (1.5)	4.1 (0.8)	1		
4. Given a written list of things to do to improve health	1.9 (1.2)	2.7 (1.0)	0.8		
5. Satisfied how care was organized	3.9 (1.2)	3.8 (0.6)	0.1		
6. Shown how taking care influenced the condition	3.5 (1.3)	4.2 (0.7)	0.7		
7. Asked to talk about goals in caring for the condition	2.7 (1.4)	3.6 (0.8)	0.9		
8. Helped to set specific goals to improve eating or exercise	2.6 (1.3)	3.7 (0.9)	1.1		
9. Given a copy of the treatment plan	2.1 (1.4)	4.2 (0.9)	2.1		
10. Encouraged to go to a specific group or class to help coping with the chronic condition	1.8 (1.2)	3.0 (1.0)	1.2		
11. Asked questions, either directly or on a survey, about health habits	2.7 (1.4)	4.2 (0.7)	1.5		
12. Thought about values, beliefs, and traditions when recommending treatments	3.7 (1.3)	4.0 (0.9)	0.3		
13. Helped to make a treatment plan for daily life	2.5 (1.5)	3.9 (1.0)	1.4		
14. Helped to plan ahead to take care of the condition even in hard times.	2.5 (1.5)	3.8 (0.8)	1.3		













15. Asked how the chronic condition affects life	2.6 (1.4)	3.6 (0.8)	1	
16. Contacted after a visit to see how things were going	1.9 (1.2)	3.0 (1.1)	1.1	
17. Encouraged to attend programs in the community that could help	1.7 (1.1)	2.9 (1.0)	1.2	
18. Referred to a dietitian, health educator, or counselor	1.9 (1.3)	3.6 (0.8)	1.7	
19. Told how visits with other types of doctors, like an eye doctor or other specialist, helped the treatment	3.1 (1.5)	3.6 (0.9)	0.5	
20. Asked how visits with other doctors were going	2.5 (1.5)	3.6 (1.0)	1.1	
21. Asked what to discuss about the illness at that visit	2.1 (1.4)	3.1 (1.0)	1	
22. Asked how work, family, or social situation related to taking care of the illness	2.2 (1.4)	3.4 (0.9)	1.2	
23. Helped to make plans for how to get support from friends, family or community	1.7 (1.2)	3.2 (0.9)	1.5	
24. Told how things done to take care of the illness (e.g., exercise) were important for health	3.3 (1.4)	4.2 (0.7)	0.9	
25. Set a goal with the team about what to do to manage the condition	2.6 (1.5)	3.7 (0.9)	1.1	
26. Given a book or monitoring log in which to record the progress made	2.2 (1.5)	2.8 (1.3)	0.6	

Table 2. Mean (SD) PACIC overall score and scores of the 20 PACIC + 6 5As items for patients and healthcare professionals, and the distribution of results of the five response modalities

PACIC-5A: Patient Assessment of Chronic Illness Care (items 1 to 20) and 5As model (ask, advise, agree, assist, and arrange; items 21 to 26), 5-point scale (1=never, 2=generally not, 3=sometimes, 4=most of the time, 5=always). PT = patient, HCP = healthcare professional, SD = standard deviation, $|x|$ =absolute value.

(9) Figures

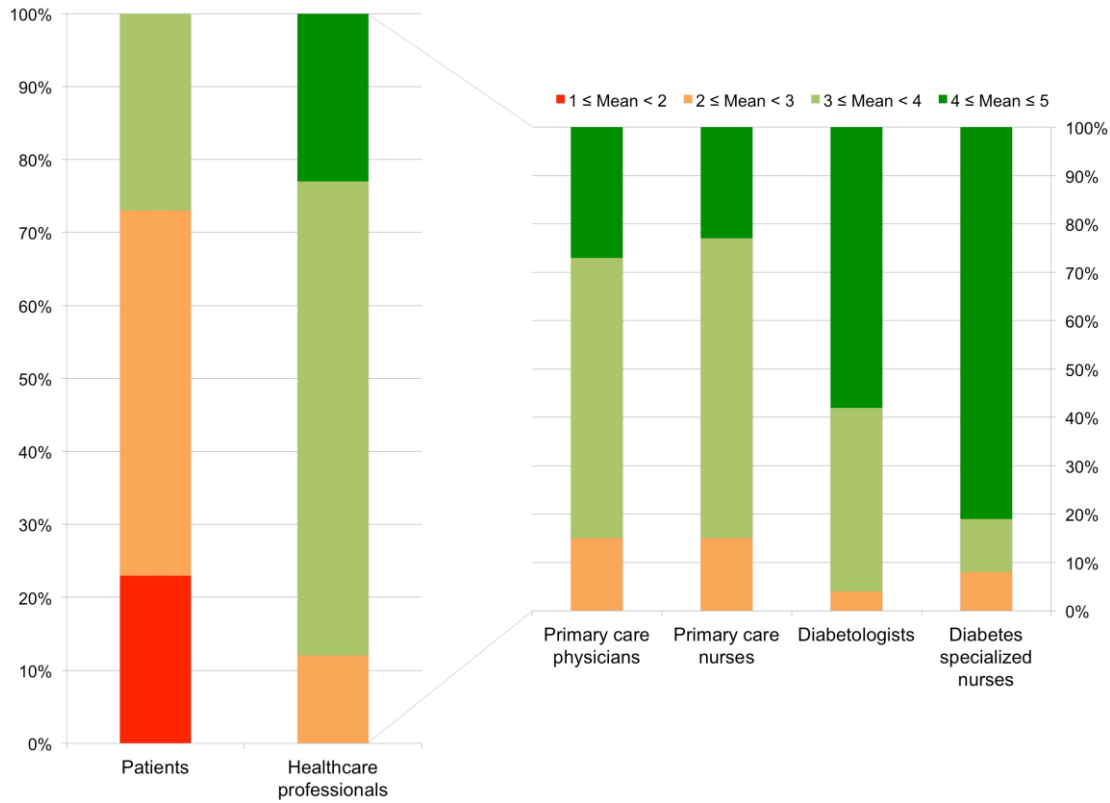


Figure 1. Proportion of questions with a mean score from 1 to <2; 2 to <3; 3 to <4 and 4 to ≤5 for the patients' sample and the healthcare professionals' sample, including for the four subgroups of healthcare professionals.

1=never, 2=generally not, 3=sometimes, 4=most of the time, 5=always

(10) Appendix

Healthcare professionals' means				
Questions	Primary care physicians (n=87)	Primary care nurses (n=143)	Diabetologists (n=8)	Diabetes specialized nurses (n=17)
Overall score	3.6	3.5	4.0	4.2
Per question				
1. Asked for ideas when treatment plan made	4.1	3.6	4.4	4.5
2. Given choices about treatment to think about	3.9	3.0	4.4	4.1
3. Asked to talk about any problems with medicines or their effect	4.2	4.0	4.3	4.6
4. Given a written list of things to do to improve health	2.6	2.7	2.8	2.9
5. Satisfied how care was organized	3.7	3.9	3.6	4.0
6. Shown how taking care influenced the condition	4.1	4.1	4.4	4.8
7. Asked to talk about goals in caring for the condition	3.5	3.5	4.0	4.5
8. Helped to set specific goals to improve eating or exercise	3.7	3.5	4.3	4.4
9. Given a copy of the treatment plan	3.9	4.4	3.6	4.2
10. Encouraged to go to a specific group or class to help coping with the chronic condition	3.2	2.7	3.8	3.9
11. Asked questions, either directly or on a survey, about health habits	4.2	4.1	4.4	4.7
12. Thought about values, beliefs, and traditions when recommending treatments	4.0	4.0	4.1	4.6
13. Helped to make a treatment plan for daily life	4.0	3.7	4.4	4.6
14. Helped to plan ahead to take care of the condition even in hard times.	3.5	3.9	3.8	4.5
15. Asked how the chronic condition affects life	3.3	3.6	4.4	4.2
16. Contacted after a visit to see how things were going	2.5	3.2	3.3	3.5
17. Encouraged to attend programs in the community that could help	3.0	2.6	3.5	4.0
18. Referred to a dietitian, health educator, or counselor	3.6	3.5	4.0	4.1
19. Told how visits with other types of doctors, like an eye doctor or other specialist, helped the treatment	3.7	3.4	4.1	4.1
20. Asked how visits with other doctors were going	3.6	3.5	4.4	3.8
21. Asked what to discuss about the illness at that visit	3.0	3.0	3.8	4.3
22. Asked how work, family, or social situation related to taking care of the illness	3.3	3.3	3.8	4.4
23. Helped to make plans for how to get support from friends, family or community	2.9	3.3	3.4	4.1
24. Told how things done to take care of the illness (e.g., exercise) were important for health	4.2	4.1	4.4	4.6
25. Set a goal with the team about what to do to manage the condition	3.7	3.6	4.4	4.5
26. Given a book or monitoring log in which to record the progress made	2.9	2.6	3.6	2.6

Appendix 1. Mean modified-PACIC-5A scores by subgroup of healthcare professional

1=never, 2=generally not, 3=sometimes, 4=most of the time, 5=always