Regular control at the general practitioner is positively correlated with patient satisfaction with chronic care management

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ABSTRACT

INTRODUCTION: The aim of the study is to identify how disease management programmes for patients with a chronic disease work. This issue is explored from the patients' perspective. Specifically, we study how transition and coordination are related to the patient's perception of quality of care, with a particular focus on the general practitioner's (GP) role.

METHODS: The study is based on a survey conducted among patients with Type 2 diabetes, chronic obstructive pulmonary disease (COPD) or acute coronary syndrome (ACS) in the Central Denmark Region in 2011 and 2012. Data are analysed using logistic regression models.

RESULTS: A total of 4,174 patients answered the questionnaire. The response rate was 43%. Whether the patient attends regular visits with the GP or not has a significant influence on both the patient's overall perception of the healthcare sector and on the patient's perception of the organisation of care. Variation among patient groups was identified and COPD patients had the least positive overall perception of the care received.

CONCLUSIOS: Patients who visit their GP for regular control both have a better overall perception of the healthcare sector and are more likely to think that their treatment is well organised. Patients with COPD have a less positive score than patients with ACS and diabetes.

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Healthcare systems are characterised by increasing specialisation and differentiation [1, 2], and many patients perceive their treatment as fragmented [3].

It has been shown that a higher continuity of care improves patient satisfaction [4, 5]. Patients with chronic diseases are often in contact with various parts of the healthcare system [6, 7]. Some patients are in contact both with the hospital, the general practitioner (GP) and occasionally also with municipal healthcare providers. Therefore, proper and effective organisation of the patient's treatment across providers is a critical issue.

The GP plays a key role in disease management programmes (DMP) in the Central Denmark Region (CDR) in his or her capacity as a gatekeeper and coordinator for the patients we are dealing with [8]. Therefore, we find it particularly relevant to focus on the GP's role. Specifically, we explore on the correlation between visiting the GP for regular control for chronic diseases on one hand and the patient's perception of the care received and of how treatment is organised on the other.

METHODS

The article is based on data from a cross-sector survey among patients with a chronic disease in the CDR. The study included patients registered with Type 2 diabetes (ICD-10 code DE11.0-11.9/ICPC-code T90), chronic obstructive pulmonary disease (COPD) (ICPC code R95 and ICD-10 code DJ440-DJ449) and/or acute coronary syndrome (ACS) (ICD-10 code I21.0-I21.9, ICPC code K75, ICD10-code I20.0/ICPC-code K74) from 2009 to April 2011. The survey was developed by the Public Health and Quality Improvement Organisation in the CDR. No reminders were sent out. To gain further insight into the patients' daily lives, we conducted three focus group interviews in 2012, one for each of the chronic diagnoses investigated.

There was no significant difference between the database gender distribution and the gender distribution among respondents. Slightly fewer elderly people answered the questionnaire; their average age was 67.3 versus 68.6 years in the database. The response rate among COPD patients was a little lower than that of ACS/diabetes patients, and the COPD patients was more inclined to perceive that their disease prevented them from being psychically well.

The questionnaire

The questionnaires were designed by a cross-sector reference group with relevant experience in this field. The group counted two GPs, a chief physician, a head nurse, a therapist, a health consultant and consultants from Regional Health Cooperation and Public Health and Quality Improvement of the CDR.

The choice of relevant themes was inspired, among others, by the DMPs [8] and by recommendations from the Danish Health and Medicines Authority concerning

chronic diseases [9]. The specific wording of the questions was drawn from PaRIS [10] and the National Danish Survey of Patients' Experiences developed for somatic patients [11].

Six of the 50 questions asked focused on the GP, including one question battery. Another 13 questions concerned the cohesion between the GP, the hospital and the municipality. The questions about the three chronic diseases differed slightly.

Overall perception of care was defined as: "What is your overall impression of the support you received in your course of disease as a Type 2 diabetes/COPD/ACS patient?" It was answered on a five-point scale: "Very good", "Good", "Both good and bad", "Bad", and "Very bad". The question regarding the organisation of treatment was answered on a four-point scale: "To a high degree, "To some degree", "To a lesser degree" and "Not at all". Survey results were linked with information about age, sex, diagnosis, hospital and residence. This information was drawn from a central registration system in the CDR.

Handling of data
The answers were dichotomised into very good/good versus both good and bad/bad and very bad.

Analysis
The analysis consisted on two steps: first, we elaborated on overall perception as the dependent variable and regular control as the independent variable. Regular control: "Do you receive regular follow-up on your treatment (e.g. regular control)?" (GP, hospital, municipality, no wish, no offer). The following potential control variables were selected as relevant; age, sex, co-morbidity, education and diagnosis. Second, we analysed the perception of the organisation of treatment: "Do you experience that your overall treatment is well organised?" as the dependant variable, and attending regular control as the independent variable. The same potential control variables were used.

The results were analysed using logistic regression models (using backward elimination of insignificant variables), chi-squared tests and simple frequency tables. A theoretical approach guided the choice of variables related to the DMP. Potential control variables were selected based on previous studies of patients' perception of the healthcare sector.

Trial registration: not relevant.

RESULTS
A total of 9,621 patients received a questionnaire, which was subsequently returned by 4,174 patients (43%), **Figure 1**.

Table 1 summarises relevant information about the patients in the study. Seven out of ten patients attended their GP for regular follow-up visits. Only one out of 20 attended the hospital and one out of ten had not received the offer. Less than 2% attended the municipality follow-up scheme (Table 1).

Patients' overall perception
A total of 69% of the patients (diabetes 77%, ACS 73%, COPD 56%) characterised their overall perception of the care as very good or good (not shown).

Table 2 shows that patients who attend regular controls at their GP have a more positive perception of care than patients who do not (p < 0.001). Men and older patients were also more likely to have a more positive perception. Patients attending their GP for regular controls were about three times more likely to have a positive overall perception than patients who did not attend their GP for regular controls (odds ratio = 3.1, p < 0.001). The variable education was insignificant (Table 2).

COPD patients had a less overall positive perception than ACS and diabetes patients. A comparison of diabetes patients with COPD patients showed that the former were about twice as likely to have at positive score on the overall perception scale (odds ratio, 95% confidence interval (CI):1.8-2.5).

COPD patients did not attend the GP for regular

Flow chart for the study.
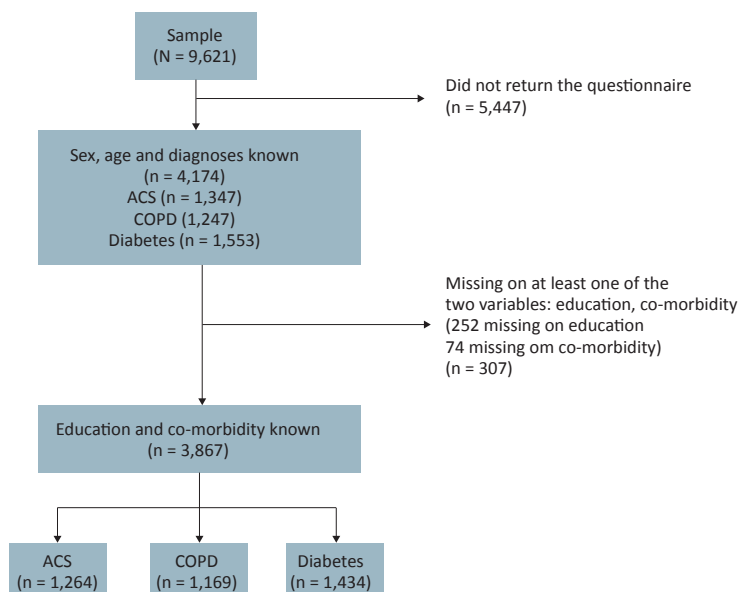
ACS = acute coronary syndrome; COPD = chronic obstructive pulmonary disease; diabetes = Type 2 diabetes.

TABLE 1

Respondent characteristics[a].

	n (%)
Total	3,867 (100)
Gender	
Female	1,576 (40.8)
Male	2,291 (59.2)
Age	
< 60 yrs	717 (18.5)
60-69 yrs	1,366 (35.3)
70-79 yrs	1,236 (32.0)
≥ 80 yrs	548 (14.2)
Disease	
ACS	1,264 (32.7)
Diabetes	1,434 (30.2)
COPD	1,169 (37.1)
Co-morbidity	
1 disease	3,239 (83.8)
> 1 chronic disease	628 (16.2)
Education	
Elementary school/business/commercial certificate etc.	1,692 (43.8)
Skilled	1,240 (32.1)
Tertiary education	367 (9.5)
Polytechnic/higher education	568 (14.7)
Attend regular control at different places[b]	
Control at general practitioner:	
ACS	919 (68.2)
Diabetes	1,299 (83.6)
COPD	695 (54.6)
Subtotal	2,913 (69.8)
Control at hospital:	
ACS	395 (29.3)
Diabetes	209 (13.5)
COPD	227 (17.8)
Subtotal	831 (19.9)
Control at the municipality:	
ACS	15 (1.1)
Diabetes	14 (0.9)
COPD	27 (2.1)
Subtotal	56 (1.3)
Control – no wish:	
ACS	20 (1.5)
Diabetes	8 (0.5)
COPD	39 (3.1)
Subtotal	67 (1.6)
Control – no offer:	
ACS	166 (12.3)
Diabetes	55 (3.5)
COPD	287 (22.5)
Subtotal	508 (12.2)

ACS = acute coronary syndrome; COPD = chronic obstructive pulmonary disease; diabetes = Type 2 diabetes.
a) % were calculated on the basis of valid responses.
b) Some patients (about 10%) attend regular control at 2 places.

TABLE 2

Overall perception: the bivariate relation between overall perception and regular visits at the general practitioner and the full model (including control variables)[a]. The variable education was not significant. The values are odds ratio (95% confidence interval).

	Bivariate	The full model
Gender, male	1.344*** (1.171-1.542)	1.331*** (1.147-1.545)
Age	1.026*** (1.019-1.033)	1.034*** (1.026-1.041)
Disease, ACS	2.1*** (1.774-2.486)	1.934*** (1.610-2.322)
Disease, diabetes	2.579*** (2.181-3.049)	2.106*** (1.753-2.530)
Only 1 disease	1.173[b] (0.98-1.404)	1.292* (1.060-1.573)
Attends regular control at GP	3.464*** (2.991-4.012)	3.148*** (2.693-3.680)

ACS = acute coronary syndrome; COPD = chronic obstructive pulmonary disease; GP = general practitioner.
*) p < 0.05.
***) p < 0.001.
a) Baseline "Gender" = female; baseline "Disease" = COPD; baseline "Only 1 disease" = > 1 disease; baseline "Attends regular control at GP" = does not attend.
b) p = 0.081.

TABLE 3

Perception of organisation of treatment: the bivariate relation between perception of organisation of treatment and the full model for perception of organisation of treatment and visiting the general practitioner for regular control (including control variables)[a]. The variables sex, co-morbidity and education were not significant. The values are odds ratio (95% confidence interval).

	Bivariate	The full model
Age	1.017*** (1.009-1.024)	1.021*** (1.013-1.029)
Disease, ACS	1.777*** (1.455-2.17)	1.564*** (1.267-1.931)
Disease, diabetes	2.584*** (2.106-3.169)	1.984*** (1.589-2.477)
Attends regular control at GP	4.278*** (3.581-5.11)	3.732*** (3.103-4.489)

ACS = acute coronary syndrome; COPD = chronic obstructive pulmonary disease; GP = general practitioner.
***) p < 0.001.
a) Baseline "Disease" = COPD; baseline "Attend regular control at GP" = does not attend.

controls as much as diabetes patients did. Our study shows that 84% of the patients with diabetes attended regular controls at the GP, while this was the case only for 55% of patients with COPD (p-value < 0.000, chi-squared statistic) (Table 1). Hence, patients who were both COPD patients and did not attend regular control had a far more limited chance than other patients of having a high score on the overall perception scale (Table 2).

The likelihood of a positive overall perception was reduced if the patient was being treated for more than one of the three chronic diseases. This was the case for 17% of the patients in our survey (not shown).

Patients' perception of an organised healthcare system
A total of 76% of the patients (diabetes 83%, ACS 77%, COPD 65%) found that their total treatment was well organised (not shown). **Table 3** shows the relationship between the organisation of treatment and the control variables. The logistic regression model showed that age, regular control and disease correlated with the perception of the organisation of the treatment. The older the patients were, the more likely they were to have ex-

Patients attending their general practitioner for regular controls are more satisfied than other patients.

periences of a well-organised treatment. The same applied for patients who attended their GP for regular follows-up and patients with diabetes or ACS versus COPD patients. Sex, co-morbidity and education level did not have any significance when the other variables were included (Table 3).

DISCUSSION

We have shown that regular controls at the GP correlates with the patient's overall perception (three times more likely to have a positive perception) along with age, being male and having only one of the three diseases. Furthermore, COPD patients had a less positive perception than ACS/diabetes patients.

We also showed that attending the GP for regular controls is correlated with perceiving the treatment as being well organised.

The DMPs give the GP a coordinating role in the treatment of patients with these chronic diseases. Attending regular follow-up visits is part of the treatment plan. Our results show the importance of regular and sustained follow-up, which implies that patients are contacted at specified time intervals for monitoring of their health status, identification of potential complications and check-up on treatment.

From the focus group interviews we know that an explanation for an overall positive perception of the care received could be that the patients believe that their safety increases owing to their visits to the GP, and that visits give them a positive feeling that someone is watching over them [12].

Overall, COPD patients have a less positive perception of the care received on a range of issues and they do *not* attend their GP for regular controls as much as

diabetes patients do. Furthermore, COPD patients are often vulnerable and physically challenged by their disease. This observation raises the question why COPD patients do not attend their GP for regular controls and if, like diabetes patients, they would benefit from more regular contact. The question is whether regular controls would make it easier for these patients to navigate the healthcare sector than is currently the case [2]. Other studies of this patient groups takes into account that some patients have a high self-efficacy, whereas other have a low self-efficacy, and patient-tailored interventions for primary care have been designed to increase patients' level of physical activity by giving extra support to those with the lowest exercise self-efficacy [13].

The present analysis shows that having more than one chronic diagnosis reduces the chance of having an overall positive perception of the care received. This implies that the more complex the disease scenario is the bigger is the risk of being unsatisfied; a phenomenon that is known from other studies [14, 15].

Our findings seem to support the point that continuity of care matters, especially when dealing with patients with heavy chronic diseases [14, 16, 17]. COPD is a complex disease, and some COPD patients are struggling with multiple diagnoses, which makes the organisation of their treatment particularly challenging. The study does not confirm the intentions behind the DMPs or their ability to ensure well coordinated and organised transitions for patients, especially not for COPD patients.

This study has several strengths. First, it includes nearly 4,000 useful, completed questionnaires. Therefore, it offers the opportunity to uncover statistical links. Second, we included patients who had been in contact with several sectors and not just the hospital. Third, the quantitative results are supported by qualitative interview findings.

A number of limitations also need to be addressed. The included patients had been in contact with both the hospital and the GP. Some of the patients had also been in contact with the municipality, but no prior discrimination of the patients along these criteria was possible. Viewed from a critical perspective, this is not optimal from the point of view of representativeness because we cannot determine whether those who were in contact with the hospital differ from the background population.

The questionnaire is fairly extensive (50 questions). The target audience is elderly people and some are weakened because of their disease. Fewer questions would make it more manageable and could improve the response rate. It is likely that the patients who suffer the most are under-represented in the study.

The response rate was 43%, which is lower than e.g.

The National Danish Survey (acute inpatients 45%, out-patients 56% and inpatients 61%) [18]. We believe that there are several reasons for this. First, the National Danish Survey uses extra questionnaires along with re-minders, which increases the response rate. Second, our population has a higher average age: 68.6 years in the database (67.3 years among the respondents). In the National Danish Survey -acute inpatients, the average age among respondents was 56.4 years, and for planned inpatients it was 57.7 years [18]. Third, we experienced that some patients did not fill out the questionnaire but instead contacted us to let us know that they did not have the disease. This may be due to invalid registration in the database or, as we verified in some cases, that some patients did not see themselves as having the dis-ease any longer. The three diseases are all chronic dis-eases and they are therefore not curable, even if the pa-tients might not see it this way.

Some might argue [19] that when working with pa-tients' perceptions, only the most positive patient cate-gory should be compared with the remaining categories, because people who answer somewhat positively will still have some wish for improvement. We tested this ar-gument and found the same results, except that gender was not statistically significant when we focussed only on the most positive category.

To our knowledge, the present survey is the first large-scale survey focusing on the continuity of care for patients with chronic diseases within a multi-sectorial framework. The findings call for further investigation of how the patients perceive their encounter with different sectors and the transitions between them. If the pa-tients' perceptions are influenced by whether or not they see their GP for regular control, it may be relevant to involve the patient more in the planning of their treatment across sectors and to give them the opportun-ity to express what kind of help they need. Maybe the treatment and its organisation could be more meaning-ful if COPD patients attended their GP more frequently for regular controls. It is important to seek more know-ledge about why regular control is so important for the patients. Is there a need for more coordination across GP and hospital care for these patients, as other studies have shown for diabetes patients [1]?

We find it necessary to adopt a cross-sector per-spective and to pose questions about transitions and co-ordination.

CONCLUSIONS

Regular control correlates with the patient's perception of the care received. Patients who attend the GP for reg-ular controls both have a better overall perception and are more likely to think that their treatment is well or-ganised. COPD patients do not attend regular controls at their GP as frequently as patients with ACS/diabetes. COPD patients have a less positive score than patients with ACS and diabetes, which raises the question whether the efforts made for these patients are too lim-ited. The demand for care is growing in light of the rise in multimorbidity.

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