



PATIENTS' PERCEPTIONS OF CONTINUITY OF CARE ACROSS PRIMARY CARE LEVEL AND EMERGENCY DEPARTMENTS

Khallufah Ahmed KhallufahAlmaqadi

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Hassan Yahya Ahmed Alzubaidi

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Salah Abduh Salah Alhasnani

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Maqboul Ahmed Hassan Alamri

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Ali Alhussain Ali Alamri

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Ali Ahmed Hussain Alzaylaee

Emergency and Disaster Management, Directorate of Health Affairs in Al-Qunfudhah

Abdullah Hassan Saeed Alzialai

Nurse - Alqonftha Forensic Medical Services Center

Ali Saeed Ali Alaklabi

Emergency Medical Services

Mohammed Salem Manea Al-Thanyh

Emergency Medical Technician (EMT)

Prince Sultan Military Medical City

malthanya@psmmc.med.sa

Fahad fawaz alanazi .

Emergency MEDICAL SPECIALIST

Prince Sultan Military Medical City Fahadalanazi@psmmc.med.sa



Yahya Hussain Ali majrashi.

Paramedic specialist

Prince sultan military medical city

ymajrashi@psmmc.med.sa

Abstract

Background: Healthcare coordination and continuity of care conceptualize all care providers and organizations involved in health care to ensure the right care at the right time. However, systematic evidence synthesis is lacking in the care coordination of health services. This study aims: To assess patients' perceptions of continuity of care (COC) across primary care level (PCL) and emergency departments (EDS) and to identify contextual and individual factors that influence this perception. **Methods:** A Crosssectional study design was conducted in five emergency departments in KSA. Participants 501 adult patients referred to the ED by their primary care physician (PCP). Patients with cognitive impairment or in critical condition were excluded. **Results** Patients perceived high levels of the three types of COC On an individual level, older patients showed a perception of higher levels of continuity. Lower levels of informational and management continuity were observed among patients suffering from chronic diseases and patients with a high level of education. Patients also perceived a redundancy of medical exams, in parallel to a high degree of accessibility between care levels. On an organizational level, three structural factors were identified as barriers to COC, namely, ED workload, suboptimal sharing information system and the current fee-for-service payment system that encourages competition and hinders coordination between actors. **Conclusion** Healthcare services seem satisfying for patients and easily accessible. However, efforts need to be directed towards improving their efficiency. A stronger PCL is also needed to benefit the healthcare system by reducing overuse of emergency services. On the individual level, a more enhanced patient-centered approach could be beneficial in improving patients' experience of care.

Keywords: Patients' perceptions, Continuity of care, Primary care level, and Emergency department.

Introduction

Understanding continuity and coordination of care is vital for delivering and utilizing primary health care (PHC). PHC covers the principle of equity, community participation, and affordable/appropriate care. PHC provide primary care (PC) where people make first contact with the health care delivery systems. The concept varies care continuity, coordination, and integration, and patient-centered care, continuous, cohesive and consistent care for illnesses Care coordination ensures that all providers and organizations involved in health care provide the right care at the right time, involving a people-centric approach and ensuring clients are duly informed of their preferences

This concept also refers to healthcare components from various sources, supports, patients, types of care, service levels, and time dimensions (4) or perspectives at the individual, organizational

or system levels (5' 6) Care coordination ensures people-centered care, covering discrete healthcare events experienced by people as coherent and interconnected over time, consistent with their health needs and preferences, bringing and meeting health needs and ensuring integrated care Furthermore, care coordination refers to inter-professional care, patient-centered care, self-management support, prevention, screening, primary care, and treatment of illnesses Other features of health care coordination include multidisciplinary services, establishing cooperative and ongoing relationships, and delivering multiple health services (e.g., case management of all stages of disease), especially for people with multiple morbidities (7' 10). Moreover, healthcare coordination or continuity care can be explained as informational continuity (communication among providers), relational (provider-patient relationship, team-driven continuity), and management continuity (activities for systems and service organizations) (11' 12) This informational and relational care coordination occurs at the individual and organizational level for relationship, communication and cooperation between providers and users (12, 13)

The level of stakeholders' engagement in care continuity of care depends on the hierarchical and interdependent relationship in the context of time and setting of health systems Care continuity within the organization and systems supports planning and managing integrated health services by involving interdisciplinary or inter-professional teams (14' 15) Shared decision-making is essential in policy, practice, and research that could influence people-centered integrated public health and PC Consistent, timely communication of health record information between emergency departments (EDS) and primary care level is a necessity for the provision of high-quality patient care (16) Indeed, communication issues between the two levels of care have been identified as an important contributor to the breakdown in continuity of care (COC) (17) and have resulted in delays and omissions in follow-up care for patients (18)

The scope of care provided in the emergency department varies depending on the patient's condition and severity that ranged from immediate to minimal or non-urgent. Moreover, the triage and reception area are the front line that faces the stream paths and the indicative roadmap for patient care, which plays an important role in achieving the main objective. For instance, they are directing the patient to the appropriate area or facility either in or next to the emergency department to meet their needs. Approximately, 15—40% of all cases treated in the emergency departments can be managed and treated in primary healthcare (19)

In Saudi Arabia, it is not far from international estimates; around 42.2% of the patients who attended emergency departments (EDS) classify as level-V (non-urgent) depending on the Canadian Triage and Acuity Scale (CTAS) guidelines; however, 16.8% of patients were redirect to Primary Health Centre (PHC) (20). There are different reasons for non-urgent patients for visiting EDS in Saudi hospitals including lack of services and healthcare providers in primary care, availability of services in EDS and fast access for all patients, and patients' thoughts regarding to receive the best care in EDS (21). These factors affect the rate of visiting EDS which leads to overcrowding. Moreover, they may cause delays in providing the best quality of care for patients. As a result, increasing waiting time and overcrowding in EDS and decreasing

the quality of care for patients who really need to be treated in EDS are major consequences of attending EDS for non-urgent patients (22). Consequently, applying the streaming pathways will simplify patient service and improve the overall outcomes.

From another point of view, referral letters written by PCPs are of variable quality and occasionally lack essential information (23); EDS' written reports are sometimes sent to PCPs only months later, with some reports even sent to inaccurate addresses (24). Furthermore, shared patient records are underused, mainly because many physicians are untrained in using these systems or because of the additional administrative tasks required for enrolling patients and keeping their data updated on the platform (24). These factors raise a significant challenge in terms of informational continuity for patients between the emergency physician and their PCP. Informational continuity refers to 'how well a patient's health information is able to "travel" with him/her throughout the health services system, including over time, with the same practitioner and between practitioners in different settings' (25).

In addition to informational continuity, two other types of continuity have been described in the literature. First, relational or interpersonal continuity appears in 'the ongoing relationship between the patient and her/his family and the care provider' (25). Second, management continuity ensures that care received from different providers is connected in a coherent way (26). These three types of continuity should be examined simultaneously since they are shown to be inter-related (27). Timely electronic communication of ED records to PCPs has the potential to reduce unnecessary duplication of tests and referrals, reduce gaps in COC, improve patient and family perceptions of COC, enhance 'circle of care' relationships between hospital-based and community physicians (16) and prevent patient feelings of loneliness when receiving different opinions (27).

Several reports support the idea that experiences of continuity in healthcare must be viewed from the patient's perspective, where the patient can provide a global picture of his care experiences along the continuum of care (27, 28). Moreover, the value of COC differs for various patients at different times and for different problems (29). It is relevant therefore to assess the achievement of continuity from the patient's perspective. To our knowledge, COC across primary care and EDS from the perspective of users has not been studied. The aim of this study was to assess patients' perceptions of COC across primary care and EDS in KSA. Also, this study aimed to identify individual and contextual factors that influence this perception.

Methods

A Cross-sectional study design was conducted in five emergency departments in KSA. Participants 501 adult patients referred to the ED by their primary care physician (PCP). Patients with cognitive impairment or in critical condition were excluded. The continuity of care across levels of care (CCAENA) is a useful instrument that measures patient-experienced COC as a multidimensional concept, regardless of morbidity and across multiple care settings (30). This questionnaire, initially designed to assess the PCP—specialist interaction, using a Delphi expert consensus method (31). Researchers started by following the translation and back-translation procedure. Second, replaced 'specialist' by 'emergency physician' in all items and invited ten

experts (5 PCPs and 5 emergency physicians) to review the modified items independently to assess content validity to confirm the relevance and representativeness of the items covering the domains of the concept that is being measured' (32)

The process of Delphi expert consensus method ended with the third round, where a consensus was reached; the final questionnaire consisted of 30 items covering the three types of continuity using a Likert scale (always, often, rarely and never). In this final version, only items related to accessibility between levels were fundamentally changed. Newly added items investigated the waiting time in the ED, the financial barriers to care and whether the PCP informs the ED of the patient's arrival when necessary. Twelve additional questions covered general morbidity and socio-demographic data. The new questionnaire was pilot tested with a random sample of 25 patients referred to the ED by their PCP. No changes to the questionnaire were made after the pilot test.

The sample size calculated to achieve enough statistical power at a 95% confidence level was approximately 400 patients. Patients were recruited consecutively until a sample of 100 adult patients per ED, 501 patients in total, was reached. Inclusion criteria were patients above 18 years old; referral to the ED by their PCP through a referral letter, phone call or both (this criterion excludes patients who are not registered with a regular PCP). Excluded patients were those with cognitive impairment and those in the ED critical care zone.

Data were collected from January to June 2023. The researchers explained the objectives and nature of the study and gave patients an informational letter. Those who accepted to participate completed the paper questionnaire. SPSS Version .28 was used to analyze the data. Descriptive statistics of individual socio-demographic variables were calculated for each hospital and for the total sample. Each item was dichotomized (always and often vs. rarely and never). For each item, the proportion of patients who perceived a low level of COC was presented across the different categories of socio-demographic variables and hospitals.

A 12 test was used for the comparison of the proportion of patients who perceived a low level of COC. When the 12 was significant, a pairwise comparison between pairs Of proportions using the Holm method was computed to determine which categories were significantly different. For the total score of each type of continuity, since the continuous variables did not follow a normal distribution, the median and its interquartile space were presented. Continuous variables were compared between two groups using the MannWitney test and between more than two groups using the Kruskal-Wallis test. When the Kruskal- Wallis test was significant, a pairwise comparison using the Mann-Witney test with the Holm method was computed to determine which categories were significantly different. As for the comparison between hospitals, a multilevel analysis was performed to test confounding factors (socio-demographic variables). None explained the variability between hospitals.

Results

A total of 501 patients completed the questionnaire. Only 14 patients declined, which represents a response rate Of 97.2%.

Table (1) shows socio-demographic and morbidity characteristics Of all participants, as well as their distribution between EDS. The total sample is homogenous in terms of gender and morbidity. Almost 20% of patients are aged above 80 years old. The mean age was 59.5 years and the SD was 20.8. Patients with a low education level (primary and secondary levels) represent 64% of the total sample, while only 34% have a university or a non- university higher education level (high level).

Table (2) shows patients perceived high levels of all types of COC, almost 80% of patients had an overall high to very high perception of COC. However, significant differences were observed in relation to some individual characteristics, namely, morbidity, education level and age. Given the overall perceptions of high COC, we chose to present the characteristics of patients who perceived lower levels of COC. We present these results in table 3.

Table (3) shows patients suffering from chronic diseases perceived a lower level

of informational and management continuity on several items. For instance, 25% declared their PCP does not discuss their visits to the ED with them, and 50% thought that their PCP does not inform the emergency physician of their arrival to the ED, when necessary. Patients with a high level of education also perceived a lower level of informational and management continuity on several items. For instance, 40.5% thought that their healthcare providers do not know their medical history, and almost 15% were less likely to believe that the emergency physician agrees with the instructions of their PCP. Younger people were also more likely to perceive a lower level of informational and management continuity. For instance, 28.6% believed their PCP is not aware of the instructions given to them by the emergency physician; also, 49.4% declared that their PCP does not inform the emergency physician of their arrival to the ED.

For these three groups, the overall perception of informational and management continuity (care coherence) scores was significantly lower. In addition, more than 50% of patients, regardless of individual characteristics, perceived low levels of care coherence related to redundant medical investigations. Finally, a high degree of accessibility between levels of care was noted, with no significant differences between groups. Patients agreed that they do not have to wait a long time to be seen and cared for, at both healthcare levels. No significant differences were observed in regard to sex, profession or self-related health status. There was an overall perception of high levels of relational continuity with PCPs and emergency physicians, although relational continuity with emergency physicians had slightly lower scores.

Table (4) shows patients' perceptions of COC in relation to organizational characteristics significant differences were also observed in relation to organizational characteristics. In general, patients from five emergency departments had a lower perception of informational and management continuity compared with other. For instance, patients from ED 4 and ED 5 were less likely to believe that their PCP is aware of the emergency physician's instructions, compared with 14% in the rural area. Moreover, around 50% Of patients from both EDS thought that their PCP and the emergency physician do not communicate with each other, compared with significantly lower percentages in other. Also, overall perception of informational and

management continuity (accessibility between levels) was significantly lower compared with rural areas.

In parallel, almost 77% of patients from rural areas had a significantly lower perception of care coherence related to redundant medical investigations, compared with those from the two EDS in urban (55.2% and 51.5%). In addition, we observed significantly lower scores for ED 3 in terms of relational continuity with the emergency physician, where a high percentage of patients (1) did not feel comfortable discussing their doubts and health problems with the emergency physician, (2) were less likely to believe that the emergency physician cares about them and (3) were less likely to believe that the given information was sufficient. Almost all patients perceived very high levels of relational continuity with

PCPs, with no differences observed between EDS.

Table (1): Characteristics of participants and their distribution between EDS

Characteristic	Category	(n=100	ED 2 (n=100)	(n=101)	(n=100)	(n=100)	Total (N=501)
				n		n	
Gender	Male	45	55	34	43	38	215 (42.9)
	Female	55	45	67	57	62	286(57.1)
Characteristic	Category	(n=100	(n=100)	(n=101)	(n=100)	(n=100)	Total (N=501)
		n	n	n	n	n	
Morbidity	Chronic disease	33	34	65	47	56	235 (46.9)
	Acute illness	67	60	36	53	44	259 (51.7)
	Missin	0	6		0		7 (1.4)
Age	18—64	76	53	35	62	50	276 (55.1)
	65-79	18	24	25	20	33	120 (24)
		6	23	40	17	16	102 (20.4)
	Missin	0	0	1		1	3 (0.6)
Profession	Student	3	3	9	3	2	20 (4)
	Active	54	45	48	24	26	197 (39.3)
	Retired	26	45	36	58	54	219(43.7)
	Unem 10	17	5	8	3	18	51 (10.2)
	Missin	0	2		12		14 (2.8)
Education level	Low	69	51	56	76	68	320 (63.9)
	Hi h	31	43	45	20	32	171 (34.1)

	Missin	0	6		4		10 (2)
Self-related health	Very poor	1	1	6	3	8	19 (3.8)
status	Poor	8	12	27	19	16	82 (16.4)
	Fair	43	33	38	31	32	177 (35.3)
	Good	41	45	26	29	35	176 (35.1)
	Veood	7	8	4	18	9	46 (9.2)
	Missing	0	1		0		1 (0.2)

Table (2): Participants' perceptions of COC

Perception							
		Very low		High	Very high		
	%	Low		CI	'I don't know'		
		CI	CI		%	CI	CI
		%	CI	CI	%	CI	CI
Informational continuity		8.8	6.3 to 11.2	12.4 to 18.8	26.2 to 34.3	38.9 to 43.2	
Management continuity		15.6		30.2	6.5	4.3 to 8.7	
Care coherence		7.9	5.5 to 10.2	8.6 to 14.1	31 to 39.4	33.5 to 37.6	
Accessibility		12.2	9.4 to 15.1	9.9 levels	27.5 to 10.1	42.7 to 5.4	
Relational continuity		35.2	12.1 to 15				
Patient-PCP relationship		4.5	2.7 to 6.3	19 to 26.4	70.5	66.5 to 74.5	
Patient emergency physician relationship		2.2	0.9 to 3.5	8.2 to 13.7	43.9	39.5 to 48.2	
Overall COC		9.8	31.2		5.8	3.7 to 7.8	

Table (3): Proportion of patients with low perceptions of COC in relation to individual factors (N=501)

Age (years)		Educational level		Morbidity	
18—64	65-79	P value	Chronic Acute disease illness	P value	
Informational I believe that the professionals attending to me know my medical history.					
Low		0.001	25.3	40.5	36.7
High					26.7
P value					17.7
Continuity					0.010

After being to the ED, my PCP discusses the visit with	23.1	16.9	16.8	NS	17.7
	26.7	0.030	24.8	16	0.022
My PCP is aware of the instructions given to me by the	28.6		24.5	12.8	0.013
	22.8	27.5	NS	26.3	22.3
The EP is aware of the instructions given to me by my	33.9	23.3	21.1	PCP	
	0.021	25.6	35.1	0.045	32.2
Overall informational continuity, median (P25—P75)	12	(10-14)	13	(11-15)	14
	13	(11-15)	12	(9-14)	0.002
Care My PCP agrees with the instructions of the EP.	9.4	8.5	o	0.016	5.5
	10.4	NS	10.4	3.90	0.013
coherence The EP agrees with the instruction given to	11.2	9.1	7.9	me by my	PCP.
	7.9	14.4	0.046	10.9	9.2
The EP repeats the tests which my PCP has	66.9	58	50	already	done:
	0.011	58.6	66.0	NS	64.3
Overall management continuity: care coherence, median (P25—P75)	21	(19-23)	22		
	23	(21-25)	<0.001	22	(20-24)
	21	(19-23)	0.007	21	(19-23)
cessibility My PCP informs the EP of my arrival to the ED if	49.4	38	35.2	0.026	
	42.1	45.8	NS	49.8	36.7
Overall management continuity: accessibility between	12	(11-14)	13	(11-14)	13
	13	(11-14)	12	(11-13)	NS
	12	(11-13)	13	(11-14)	NS
• indicates proportions that are indicates proportions that are significantly higher; significantly lower					
(. . .) means question continued. COC, continuity of care; ED, emergency department; EP, emergency physician; NS, not significant; PCP, primary care physician.					

Migration Letters

' of Ofcare across primary care level and emergency departments
 Table Proportion of patients with low perceptions of COC in relation to organizational factors

Patients with low perception of COC per hospital/ED ED 3 ED 4 Total n=100 n=501 P value
 n=100 n=100n=101 n=100

Informational After being to the ED, my PCP discusses the21.4 19.8 6.9
 322220.4<0001

My PCP is aware of the instructions given to me by the

The EP is aware of the instructions given to me by my
 PCP

Overall informational continuity, median (P25—P75) 14

12 (11-15)

Care coherence My PCP and the EP communicate With each other concerning my case. 17.7
36.3 <0.001

The EP agrees with the instructions given to me by my
PCP. 11.2 10.2 0.001

The EP repeats the tests which my PCP has already done (...) 76.8
61.4 0.004

20 14.5 35.8 35 24.5 <0.001

24.7 29.4 43.3 30.6 28.7 <0.001

13 (12-15) 14 (12-15) 12 (9-14) 12 (10-14) 13

25.5 37.3 47.5 51.2

5 9.5 20.7 4.1

61 63 55.2 51.5

visit with me.

11.6 16.1 11.3 20.6

22 (21-24) 22 (19-24) 22 (19-24) 21 (20-23)

40.5 36.3 55.3 55.2

13 (11 12 (11-14) 12 (10-13) 12 (11-13)

The EP gives me the first treatment that he has 5.4 13.1 0.029 prescribed to me.

Overall management continuity: care coherence, median (P25—P75) 21 22 (20-24) NS

Accessibility My PCP informs the EP of my arrival to the ED if 28.2 43.6 <0.001 necessary.

Overall management continuity: accessibility between levels median (P25— 12 (11-14)
<0.001

13 (12-14) P75)

relational believe that the EP cares about me. 23 13 17.5 713.6 0.008 tinuity I feel comfortable
consulting the EP about my 11.3 44.3 21.4 15 21.8 <0.001

ubts or ealth problems.

e information the EP gives me is sufficient. 13.3 8.5 27.3 17 16 16.5
0.009

verall relational continuity: patient—EP relationship, median (P25—P75) 24 (21-28) 23 (21-
27) 21 (18-24) 23 (20-27) 25 (21-28)

23 ()-27 <0.001

Yousef Masfer S Alotaibi al. 2487

indicates proportions that indicates proportions that are significantly higher; are significantly
lower

(...) means question continued. COC, continuity Of care; ED, emergency department; EP, emergency physician; NS, not significant; PCP, primary care physician.

Of Qfcare across primary care level and emergency departments

Discussion

The present results showed an overall perception of high COC for the three types of continuity. However, when examining specific attributes of informational and management continuity, we were able to identify significant differences related to individual factors. Patients suffering from chronic diseases perceived lower levels of informational and management continuity for certain attributes. Yet, COC becomes increasingly important for patients with comorbidities and complex problems who are under the care of several healthcare providers at various points in time (33-35). For these patients, gaps in informational continuity are common and result in poor management continuity. For example, informational discontinuity following hospital discharge leads to disrupted or delayed care, delays in medication prescriptions, and confusion and dissatisfaction among patients (36)

Patients who are more educated are shown to have higher expectations, to judge quality more critically and to elicit more information (37' 38). Our results also suggest that these patients are more likely to think that the emergency physician is not aware of the instructions given by their PCP. This is at odds with the fact that all participants were referred to the ED by their PCP. Again, this high- lights the controverted quality and incompleteness of some referral letters. Patients' perception of older than 80 years showed higher levels of informational and management continuity on almost every item. Particularly, they were more likely to believe that, if necessary, their PCP informs the emergency physician of their arrival to the ED. Indeed, PCPs prefer to use this direct approach because it allows a direct interaction and case discussion between healthcare providers and helps to reduce waiting time for the elderly in the ED.

At the same time, older people are shown to express greater satisfaction with the care received and have more realistic expectations (39). They also have a better knowledge of the system due to more frequent use of healthcare services (37). Most patients perceived a high degree of accessibility between levels Of care related to minimal waiting times to be seen and cared for in both levels. Regarding relational continuity, all patients perceived high levels with their PCPs, which could be because our sample includes patients who are registered with a regular PCP. Indeed, seeing the same PCP each time was described as a factor for fostering trust between the patient and their PCP, accumulating mutual knowledge of each other and developing a relational COC (40)

On the other hand, hospital-based systems of care traditionally give lower priority to relational continuity. In these contexts, COC becomes the result of a patient's trust in 'their' hospital or ED, the quality of teamwork observed and the degree Of coordination with their PCP (36). This was probably the case for our participants who all perceived a high level of relational continuity with their emergency physician. On an organizational level, our results shed light on three structural factors that hinder COC. First, ED activities are three times more elevated than those in rural areas. In a previous study, actors from both levels of care have identified this workload as a

major factor hindering communication and coordination between them (24). It has long been recognized that increasing access to general practitioners would decrease use of emergency services (41-43) and that stronger primary care (in terms of accessibility, comprehensiveness and continuity) would lead to improved population health and lower health-care service use (44). Reinforcing primary care is becoming ever more relevant, given the current shifts towards community-based care and early hospital discharge. Furthermore, the ageing population and the increase in comorbid chronic diseases (45-48) are expected to put further strain on primary care. Given these trends, relevant recommendations include enhancing the recruitment and retention of PCPs (49-50), developing general practice cooperatives outside normal working hours (51), improving availability of diagnostic facilities, and enhancing coordination within primary care and across levels by providing financial incentives (50). Second, the limitations of information sharing systems and communication

Yousef Masfer S Alotaibi et al. 2489

issues between the two levels of care could explain the high perception of redundant medical investigations reported in our study. Again, this hints at the influence of informational continuity on management continuity, especially with increasing geographical distances.

Finally, the study exploring collaborations between ED teams and PCPs as our project showed that in (ED 3), competition between hospitals is intense because of proximity. Thus, PCPs hold the economic power as they are the 'patient providers'. Consequently, collaboration suffers; emergency physicians consider PCPs to exert their monopoly through the advantaged relationship with patients. This suggests that patients having more trust and satisfaction with their PCPs than in the ED may be symptomatic of this poor coordination between the two levels of care. Thus, there is a need for rethinking the current payment system (of both levels) that encourages competition and hinders coordination. Overall, our study identifies the many factors, both individual and organizational, that shape patients' perception of COC. We already know that three types of COC are interrelated and constitute a whole. However, it is unknown whether one or many factors have more influence than others on a patient's care experience, and there is no easy way of assessing this potential classification. Improving service delivery might not be enough to improve patients' perception of COC if not combined with a patient-centered care approach on a clinical, individual level.

Conclusion

This study confirms the interrelation of the three types of COC. Informational discontinuity is related to redundant medical investigations and inefficiencies in providing care. In turn, high levels of relational continuity with the PCP may influence management continuity and patient perceptions of high accessibility to PCPs. In addition, communication and collaboration issues between healthcare providers from both levels of care can influence the relational continuity with PCPs and emergency physicians. On an individual level, a more enhanced patient-centered approach could be beneficial in improving patient experiences of care, in particular, those who are younger, highly educated and with chronic illness. As for healthcare services, while patients report high satisfaction and ease of accessibility, efforts need to be directed towards improving

system efficiency. Finally, this study reinforces the need for a stronger primary care level to improve the patient care experience, but also to benefit the healthcare system by reducing overuse of emergency services.

References

1. Uijen AA, Schers HJ, Schellevis FG, van den Bosch WJHM. How unique is continuity Of care? A review of continuity and related concepts. *Fam Pract.* 2012; 29(3):264—71.
2. Prokop J. Care coordination strategies in reforming health care: a concept analysis. In: *Nursing forum: 2016*. Michigan: Wiley Online Library; 2016. p. 268—274.
3. Starfield B. Is patient-centered care the same as person-focused care? *Perm J.* 2011; 15(2):63— 9.
4. Schultz EM, McDonald KM. What is care coordination? *Int J Care Coord*
5. Schultz EM, Pineda N, Lonhart J, Davies SM, McDonald KM. A systematic review of the care coordination measurement landscape. *BMC Health Serv Res.* 119.
6. Bahr SJ, Weiss ME. Clarifying model for continuity of care: A concept analysis. *Int J NursPract.*
7. World Health Organization. Continuity and coordination of care: a practice brief to support implementation of the WHO Framework on integrated people-centred health services. Geneva: WHO; 2018,
- Of Ofcare across primary care level and emergency departments
8. Gaglioti AH, Barlow P, Thoma KD, Bergus GR. Integrated care coordination by an interprofessional team reduces emergency department visits and hospitalisations at an academic health centre. *J Interprof Care.* 2017; 31
9. Veiliard J, Cowling K, Bitton A, Ratcliffe H, Kimball M, Barkley S, Mercereau L, Wong E, Taylor C, Hirschhorn LR, et al. Better Measurement for Performance Improvement in Low- and Middle-Income Countries: The Primary Health Care Performance Initiative (PHCPI) Experience of Conceptual Framework Development and Indicator Selection. *Milbank Q.* 2017;
10. Doessing A, Bureau V. Care Coordination of Multimorbidity: A Scoping Study. *Journal of Comorbidity.* 2015;
11. Barimani M, Vikström A. Successful early postpartum support linked to management, informational, and relational continuity. *Midwifery.* 2015; 31(8):811—7.
12. D'haenens F, Van Rompaey B, Swinnen E, Dilles T, Beeckman K. The effects of continuity of care on the health of mother and child in the postnatal period: a systematic review. *Eur J Public Health.* 2020;
13. Heaton J, Corden A, Parker G. 'Continuity of care': a critical interpretive synthesis of how the concept was elaborated by a national research programme. *Int J Integr Care.* 2012; 12:e12.
14. Walsh J, Harrison JD, Young JM, Butow PN, Solomon MJ, Masya L. What are the current barriers to effective cancer care coordination? A qualitative study. *BMC Health Serv Res.* 2010;

15. Wang X, Birch S, Zhu W, Ma H, Embrett M, Meng Q. Coordination of care in the Chinese health care systems: a gap analysis Of service delivery from a provider perspective. *BMC Health Serv Res*. 2016;
16. Hunchak C, Tannenbaum D, Roberts M, et al. Closing the circle of care: implementation Of a web-based communication tool to improve emergency department discharge communication with family physicians. *CJEM* 2015; 17:123-30.
17. Afilalo M, Lang E, Léger R, et al. Impact of a standardized communication system on continuity of care between family physicians and the emergency department. *CJEM* 2007;9:79—86.
18. Watkins LM, Patrician PA. Handoff communication from the emergency department to primary care. *Adv Emerg Nurs J*
19. Murphy K., Mann C. Time to Act—Urgent Care and A&E: The Patient Perspective . London, UK: Royal College of Emergency Medicine and The Patients Association; 2015. [Google Scholar]
20. Bakarman M. A. ,Njaifan N. K. Assessment of non-emergency cases attending emergency department at King Fahad General Hospital, Jeddah; pattern and outcomes. *Life Science Journal* . [Google Scholar]
21. Alyasin A., Douglas C. Reasons for non-urgent presentations to the emergency department in Saudi Arabia. *International emergency nursing* doi: 10.1016/j.ienj.2014.03.001. [PubMed] [CrossRef] [Google Scholar]
22. Alhabdan N., Alhusain F., Alharbi A., Alsadhan M., Hakami M., Masuadi E. Exploring emergency department visits: factors influencing individuals' decisions, knowledge of triage systems and waiting times, and experiences during visits to a tertiary hospital in Saudi Arabia. *International Journal of Emergency Medicine* .doi: 10.1186/s12245-0190254-7.
23. Dardenne E. Identification of communication issues between emergency physicians and general practitioners in Namur region and possible improvements [Identification des communication entre les urgentistes et les généralistes en région namuroise et élaboration de pistes pour l'améliorer] [master's thesis]. Belgium: Catholic University of Louvain, 2015: 62.
24. Karam M, Tricas-Sauras S, Darras E, et al. Interprofessional collaboration between general physicians and emergency department teams in Belgium: a qualitative study. *Int J Integr Care*
25. Haggerty JL, Reid RJ, Freeman GK, et al. Continuity of care: a multidisciplinary review. *BMJ* 2003; 327:1219-21.
26. Reid JH, Haggerty J, McKendry R. Defusing the confusion: concepts and measures of continuity of healthcare. 50. Canadian Health Services Research Foundation, 2002.
27. Waibel S, Vargas I, Aller M-B, et al. Continuity of clinical management and information across care levels: perceptions of users of different healthcare areas in the Catalan National health system. *BMC Health Serv Res*

28. Medina-Mirapeix F, Oliveira-Sousa SL, Sobral-Ferreira M, et al. What elements of the informational, management, and relational continuity are associated with patient satisfaction with rehabilitation care and global rating change? *Arch Phys Med Rehabil* 2013; 94:2248—54.
29. Salisbury C, Sampson F, Ridd M, et al. How should continuity of care in primary health care be assessed? *Br J Gen Pract*
30. Aller M-B, Vargas I, Garcia-Subirats I, et al. A tool for assessing continuity of care across care levels: an extended psychometric validation of the CCAENA questionnaire. *Int J Integr Care*
31. de Villiers MR, de Villiers PJT, Kent AP. The Delphi technique in health sciences education research. *Med Teach*
32. Hojat M, Ward J, Spandorfer J, et al. The Jefferson scale of attitudes toward interprofessional collaboration (JeffSATIC): development and multi-institution psychometric data. *J Interprof Care*
33. Nutting PA, Goodwin MA, Flocke SA, et al. Continuity of primary care: to whom does it matter and when? *Ann Fam*
34. Health Quality Ontario. Continuity of care to optimize chronic disease management in the community setting. An evidence-based analysis. *Ont Health Technol Assess Ser* 2013;
35. Hill KM, Twiddy M, Hewison J, et al. Measuring patient-perceived continuity of care for patients with long-term conditions in primary care. *BMC Fam Pract*
36. Cowie L, Morgan M, White P, et al. Experience of continuity of care of patients with multiple long-term conditions in England. *J Health Serv Res Policy*
37. Aller M-B, Vargas I, Waibel S, et al. A comprehensive analysis of patients' perceptions Of continuity Of care and their associated factors. *Int J Qual Health Care*
38. Aller M-B, Vargas I, Waibel S, et al. Factors associated to experienced continuity of care between primary and outpatient secondary care in the Catalan public healthcare system. *Gaceta Sanitaria*
39. Bowling A, Rowe G, McKee M. Patients' experiences of their healthcare in relation to their expectations and satisfaction: a population survey. *J R Soc Med*
40. Waibel S, Vargas I, Coderch J, et al. Relational continuity with primary and secondary care doctors: a qualitative study of perceptions of users Of the Catalan National health system. *BMC Health Serv Res*
41. Cowling TE, Cecil EV, Soljak MA, et al. Access to primary care and visits to emergency departments in England: a cross-sectional, population-based study. *PLoS One* 2013;8:e66699.
42. Moineddin R, Meaney C, Agha M, et al. Modeling factors influencing the demand for emergency department services in Ontario: a comparison of methods. *BMC Emerg Med*
43. Basu S, Phillips RS. Reduced emergency department utilization after increased access to primary care. *PLoS Med* 2016; 13:e1002114.
44. Dolton P, Pathania V. Can increased primary care access reduce demand for emergency care? Evidence from England's 7-day GP opening. *J Health Econ* 2016; 49:193-208.

45. Belgian Healthcare Knowledge Center. Performance of the Belgian health system — report 2015. Belgium: KCE, 2016. Available: https://kce.fgov.be/sites/default/files/atoms/files/KCE_259C_performancer eport2015_O.pdf
46. Belgian Healthcare Knowledge Center. Conceptual framework for the reform of the Belgian Hospital payment system. Belgium: KCE, 2014. Available: <https://kce.fgov.be/sites/default/files/atoms/files/> [Accessed 01 Jul 2018].
47. Organization for Economic Co-operation and Development. Belgium long-term care. Paris: OECD, 2011. Available: <http://www.oecd.org/beigium/47877421.pdf>.
48. Institut Scientifique de Santé Publique ISP. Enquête de santé belge par interview 2013. [Scientific Institute of Public Health. Health Interview Survey 2013]. Rapport I: Etat de santé et bien-être. [in French]. Available: <https://his.wiv-isp.be/fr/Documents%20partages/> [Accessed 20 Apr 2018].
49. Lorant V, Geerts C, Duchesnes C, et al. Attracting and retaining GPs: a stakeholder survey of priorities. *Br J Gen Pract* 2011 ; 61:e411—8.
50. Maier M. Strengthening primary health care-but how? *Eur J Gen Pract* 2014;20:245—6.
51. OECD Publishing. Strengthening primary care Systems in Health at a Glance: Europe 2016: State of Health in the EU Cycle [Internet], 2016. Available: <http://www.oecd.org/health/health-at-a-glance-europe-23056088.htm>