

Continuity of Care Evaluation: The View of Patients and Professionals about Urban Family Physician Program

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ABSTRACT

Background: A responsibility of the family physician (FP) and one of the four aspects of the delivery of primary care services is continuity of care (COC). This study aimed to determine the COC of health care in urban health centers.

Methods: Between September 2015 and March 2016, we conducted a cross-sectional study using Primary Care Evaluation Tool questionnaires with multistage stratified cluster sample of FPs ($n = 141$) and patients ($n = 710$) in two provinces in Iran, Fars and Mazandaran. The questionnaires contained essential dimensions of COC: Informational, interpersonal, and longitudinal COC.

Results: Almost all FPs had a computer. The FPs hadn't kept their patients' medical records routinely. The software had some problems, so the FPs couldn't produce lists of patients based on their health risk and they couldn't monitor their population. Almost 88% of FPs have written referral letters for all referred patients but 57% of them got medical feedback from specialists. About 80% of patients' consultation times were up to 10 min. 29% of FPs knew the past problems and illnesses of the patients. From 40% to 50% of the patients stated that their FPs asked them for their desire about prescribed medicine and gave clear explanation about their illnesses. On average, patients visited their doctor 5.5 times during the previous year. Generally, patients and FPs in Mazandaran could summarize their experiences better than Fars in most topics of COC.

Conclusions: It seems that after 3 years of using urban FP program in two pilot provinces, there were still some problems in COC. Strengthen software program, introducing incentives for FPs, and promoting patients' responsibility can be used by policy-makers when they seek to enhance COC.

Keywords: Continuity of care, family physician, Iran, Primary Care Evaluation Tool

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INTRODUCTION

A responsibility of the family physician (FP) and one of the four aspects of the delivery of primary care services is continuity of care (COC).^[1-3] A good COC has been reported to be associated with increased use of preventive health services,^[4,5] fewer hospitalization rate, fewer emergency department visit, and improved health care outcome.^[6] In addition, numerous studies examined its effect to prevent several chronic diseases,^[7] positive consequences in weight control, diabetes,^[8] and their mortality.^[9] Several additional studies have proved that better COC is associated with improved patient-physician relationship, patient satisfaction,^[10] physician satisfaction and reduced health care cost.^[11,12]

The concept of COC is the “follow up from one visit to the next”^[3] and it consists of various elements including informational, interpersonal, longitudinal, management, family, and geographic COC.^[13,14] Each of these topics, is valued depends on the studied fields of healthcare. For FPs, “continuity implies a longitudinal relationship between patients and those who care for them that transcends multiple illness episodes and includes responsibility for preventive care and care coordination.”^[13] Therefore, having a FP that involve in caring patients with their values and history can lead to prevent clinical problems; moreover, a permanent FP, that accumulates information of the patients and their family needs; can improve the quality of care and their health outcome.

From this mentioned definition and the World Health Organization (WHO) definition,^[3] the first three dimensions in FP can be distinguished [Table 1]. Therefore, any experiences in evaluation of FP program (FPP) with COC need to measure these three dimensions. Although, the measurement of COC is difficult,^[15] but these dimensions are captured by the WHO using various tools in many countries.^[16,17]

In a previous study in Iran, COC was one of the weak points of primary health center (PHC) in urban areas. In that study, low patient satisfaction, low caregivers trust and change of physicians in any visits had led to weak

COC.^[18] Changing in Iran health care during the past decade from PHC to FP enabled patients to choose and remain with a FP which can improve COC. So, concerns have been raised regarding the evaluation of COC in the urban FPP (UFPP) reform. This case is becoming more important in Iran where UFPP is restricted into the pilot stage,^[19] the future of FP looks unclear, no longitudinal evaluation has been conducted,^[20] and the policymakers demand evidences of the reform progress. So, the evaluation of COC can provide valuable information about current reform services. The study aimed to determine the COC of patient care in UFPP in two pilot provinces in Iran. To achieve this aim, we used a presentable WHO framework with getting views of both patients and providers to insure that COC indicators are relevant and can cover all key topics properly.

METHODS

Study setting and selection criteria

This cross-sectional study was conducted between September 2015 and March 2016 in two provinces in Iran, including Fars and Mazandaran. The two selected provinces began the UFPP as a pilot project in cities with more than 20,000 inhabits. Fars province is situated in South with three medical universities and Mazandaran province is situated in North with two medical universities. They have a population of 7,600,000 which is about 10% of Iran population. A multistage stratified cluster sampling strategy was employed based on the cities that implemented the UFPP and lists of active FPs in Fars and Mazandaran provinces provided by the related University of Medical Sciences. The lists had the names of doctors in both public and private health centers. In the case of absence, the next FP on the list was included. The estimated required sample size for FPs was 141 considering an effect size of 15%, a confidence level of 95%, and the critical value of 1.96 and a power of 75%. Response rate was 94% (distributed: 150, completed: 141). To increase the response rate, one of the researchers (VKJ) traveled to these two provinces and visited the urban health centers for FPs questionnaires. For the patients, the sample size was

Table 1: Types of continuity of care and tools used for measurement

Types of COC	Description	Measurement tools
Informational	Availability of accurate patients' information to providers throughout a healthcare system	Medical record keeping of patients Computerization of the practice Communication between FP and other physicians
Interpersonal (relational)	Ongoing personal relationship between the patient and the care provider	Seeing the same FP at each visit Time of consultation Patients' satisfaction
Longitudinal	Care provided to a patient over time	Length of time that patients have been with their FP Visiting rate in a year

COC=Continuity of care, FP=Family physician

calculated as 710 considering an effect size of 7%. It was decided to complete for five patients of each selected FPs in two provinces. From the 900 distributed questionnaires, 710 completed questionnaires were returned (response rate was 78%). The personnel working in the practices/centers asked patients to cooperate with the survey and complete the questionnaire. For both questionnaires, the actual response rate covered our required sample size.

Data collection and measurement tool

The Primary Care Evaluation Tool (PCET) that consists of two questionnaires, was used to examine both FP's views and patients' experiences. These two questionnaires were introduced from the Regional Office for Europe of the WHO and the Netherlands Institute for Health Services Research (NIVEL).^[3] PCET encompasses the four key characteristics of a good PHC system that are parts of service delivery: continuity, accessibility, comprehensiveness, and coordination. To assess the COC, we applied the continuity section. The questionnaires were prestructured with precoded answers. The survey approach implies that results related to both studied groups show their self-reported experiences. The FP questionnaire contained 18 items and patient questionnaire contained 27 items on essential dimensions of COC. Both questionnaires made the close-ended questions started by demographic part.

Validity and reliability of measurement tools

After the questionnaires were taken from NIVEL via the WHO Representative Office in Iran, validity and reliability were explored with cooperation of the Institute for Future Studies in Health. The questionnaires were translated from the English version to Persian. The validity of the content was explored by experts including the faculty members of healthcare management, policy-makers, officials, FPs and national experts. The tools were discussed by the experts and successfully tested in pilot survey in both provinces. The main content of the tools didn't change. Based on the pilot survey and the extensive feedback given from the experts, changes have been made to the tools and the reliability and the validity were approved. The reliability of the both instruments were high (Cronbach's alpha = 0.82 for FP questionnaire, Cronbach's alpha = 0.88 for patient questionnaire).

Data analysis

The data were entered in the computer using the IBM-SPSS 20 (SPSS, Chicago, IL, USA). Descriptive statistics were computed using PCET guideline. The Chi-square test was used to determine the significant differences of categorical variables, and the Student's *t*-test was used for continuous variables. $P < 0.05$ was considered statistically significant. We calculated the reliability coefficient (Cronbach's alpha) of the scales with the software.

Ethical consideration

FPs and patients were asked to complete the questionnaires anonymously. This study was accepted by university authorities in studied provinces.

RESULTS

Respondents' characteristics

The survey included 141 FPs (87 in Fars and 54 in Mazandaran). Sixty-six percent of the FPs were male. The average age was 46.7 (standard deviation [SD] = 8.6). Since FPP was started 3 years ago, FPs' experiences as family doctor was 2.8 years and their experiences as general practitioner were 14.9 years. Almost 58% of FPs worked in private practice (67% in Mazandaran and 43% in Fars). In both provinces, few FPs were state employed (17%). Only 24% of them had followed any FP formal training [Table 2]. The total number of patients was 710 (431 in Fars and 279 in Mazandaran). The average age of the attending patients was 38 (SD = 15.5). In total, about 70% of patients were women. 47.5% and 43% of patients in Fars and Mazandaran provinces had academic education, respectively. In two regions, 44% of patients who filled in the questionnaires were employee. Only a few respondents were unemployed (7%), retirees (6%) or unable to work (1.3%). Almost half of the patients were living with their spouse and their children. All of the patients were Muslim [Table 2].

Informational continuity

Clinical record keeping, using the software program and computer, and capacity to obtain health information and analyze them, referral, etc., are requirements for COC. Patients' records were well kept in the Mazandaran by FPs and regional differences were obvious [Table 3]. Computer was usually used in both provinces but there was no software program (43.3%) or it had poor capability (31.9%). Fewer FPs in Fars find that lists of patients by diagnosis or health risk could easily be made by their current record system. Almost 88% of FPs declared that they have written referral letters for all referred patients but 57% of them got medical feedback from specialists.

Interpersonal continuity

This part is about patients' evaluations of their FPs competence: Medical, communication, information skills; the patients' trust and confidence. Therefore, Table 4 includes topics of patients' perception for a patient-physician relationship. Time of consultation was no more than 5 min for one-third of respondents. This time was different within provinces. About 80% of patients' consultation times were up to 10 min. A few FPs were familiar with patients' personal situations. Findings also indicated that 29% of FPs knew the past problems and illnesses of the patients. Most patients were satisfied

Table 2: Characteristics of respondents in Fars and Mazandaran provinces

Respondent	Item	Amount or n (%)		P
		Fars (n=87)	Mazandaran (n=54)	
FPs (n=141)	Age (year)	47.2±8.6	45.9±8.5	0.4
	Experience (year)			
	Mean of working as GP	15.9±7.3	13.2±0.6	0.04
	Mean of working as FP	3±6.4	2.5±1.1	<0.001
	Gender			
	Male	59 (68)	34 (63)	0.5
	Female	28 (32)	20 (37)	
	Employment status			
	Employed by the state	13 (15)	11 (20)	0.3
	Independent/self-employed	36 (41)	21 (39)	
	Contract with insurance organization	21 (24)	15 (28)	
	Contract with medical university	17 (20)	7 (13)	
	Postgraduate training or retraining course			
	Completed the postgraduate training	1 (1)	3 (6)	0.5
	Still following postgraduate training	9 (10)	1 (2)	
	Completed a retraining program	16 (18)	8 (14)	
	No training	61 (71)	42 (78)	
	Area of employment			
	Private practice	37 (43)	36 (67)	0.7
	Private clinics	21 (24)	7 (13)	
Public health center	29 (33)	11 (20)		
Respondent	Item	Fars (n=431)	Mazandaran (n=279)	P
Patients (n=710)	Age (year)	37.1±17	39.4±12.7	0.05
	Gender			
	Male	111 (26)	113 (40.5)	<0.001
	Female	320 (74)	166 (59.5)	
	Education			
	Literate/primary school	35 (10)	24 (11)	0.3
	Secondary school	27 (7.5)	45 (21)	
	High school	126 (35)	53 (25)	
	Higher education/university	171 (47.5)	91 (43)	
	Occupation			
	In school	52 (12)	9 (3)	0.5
	Unable to work	7 (1.5)	2 (0.5)	
	Employee	174 (40.5)	142 (51)	
	Retired	29 (6.5)	14 (5)	
	Looking for job	36 (8.5)	15 (5.5)	
	Other	133 (31)	97 (35)	
	Living situation			
	Alone	21 (5)	7 (2.5)	0.001
	With parents	102 (23.5)	33 (12)	
	With husband/wife	94 (22)	74 (26.5)	
With family (include children)	194 (45)	162 (58)		
Other	20 (4.5)	3 (1)		

Variables were expressed as mean±SD and frequency (%). FP=Family physician, GP=General practitioner, SD=Standard deviation

with a way that their FPs treated them. But also from 40% to 50% of the patients stated that the FPs asked them for their desire about prescribed medicine and gave clear explanation about their illnesses. Only a few FPs

would visit the patients at home if they were asked for it. Generally, patients in Mazandaran could summarize their experiences better than Fars in all topics of interpersonal continuity.

Table 3: Availability and use of clinical information and computers by family physicians

Topics	Fars (n=87), n (%)	Mazandaran (n=54), n (%)	Total (n=141), n (%)	P*
Keeping patients' medical records				
Routinely of all patient contacts	33 (61.1)	11 (12.6)	44 (31.2)	<0.001
Unless it is too busy	4 (7.4)	29 (33.3)	33 (23.4)	
For frequent patients only	0	10 (11.5)	10 (7.1)	
Except for minor or trivial complaints and illnesses	13 (24.1)	20 (23)	33 (23.4)	
Not keeping	4 (7.4)	17 (19.5)	21 (14.9)	
Having software program for medical records				
With appropriate capability	17 (31.5)	18 (20.7)	35 (24.8)	0.2
With poor capability	14 (25.9)	31 (35.6)	45 (31.9)	
Not having (not need)	23 (42.6)	38 (43.6)	61 (43.3)	
Using the computer for				
Booking appointments	3 (3.4)	0	3 (1.5)	0.003
Writing bills/financial administration	4 (4.5)	7 (6.1)	11 (5.4)	
Prescription of medicines	8 (9)	3 (2.6)	11 (5.4)	
Keeping medical records	32 (36)	45 (39.1)	77 (37.7)	
Writing referral letters	3 (3.4)	3 (2.6)	6 (2.9)	
Searching information	39 (43.8)	50 (43.5)	89 (43.6)	
Not using	0	7 (6.1)	7 (3.4)	
Easy to generate a list of patients by diagnosis or health risk	31 (57.4)	9 (10.3)	40 (28.4)	<0.001
Referral letters for all or most referred patients to specialists	48 (90.6)	72 (86.7)	120 (88.2)	0.4
Medical feedback (almost) always from specialists	42 (79.2)	38 (43.7)	80 (57)	0.001

Values were expressed as frequency (%). *The categorical variables were compared by Chi-square test

Table 4: Patients' experiences with their family physicians

Patients' experiences	Fars (n=431), n (%)	Mazandaran (n=279), n (%)	Total (n=710), n (%)	P**
I see the same FP at each visit	292 (70)	211 (80)	503 (74)	<0.001
Estimated duration of a consultation (min)				
Up to 5	193 (45)	55 (20)	248 (35)	<0.001
6-10	165 (38)	148 (53)	313 (44)	
11-15	48 (11)	51 (18)	99 (14)	
> 15	25 (6)	25 (9)	50 (7)	
My FP knows my personal situation (e.g., work or home situation)*	64 (15)	71 (25.5)	135 (19)	<0.001
My FP knows the problems and illnesses that I had in the past*	107 (25)	98 (35)	205 (29)	0.009
My FP takes sufficient time to talk to me*	169 (39)	159 (57)	328 (46)	<0.001
My FP listens well to me*	210 (49)	183 (66)	393 (55)	<0.001
My FP respects me*	302 (70)	200 (72)	502 (71)	0.1
My FP not just deals with medical problems but can also help with personal problems and worries*	82 (19)	85 (30)	167 (24)	<0.001
My FP gives clear explanation about my illnesses and prescribed medicines*	181 (42)	176 (63)	357 (50)	<0.001
My FP asks for my desires and habits about my prescribed medicines*	142 (33)	149 (53)	291 (41)	<0.001
My FP would visit me at home if I would ask for it*	29 (7)	31 (11)	60 (8.5)	<0.001
After a visit to my FP, I feel able to cope better with my health problem*	131 (30)	133 (48)	264 (37)	<0.001
When I have a new health problem, I go to my FP before going to a specialist*	218 (51)	171 (61)	389 (55)	0.002

Values were expressed as frequency (%). *Numbers and percentages refer to those answering "yes, I agree" (yes, I agree, I agree somewhat, I don't agree, I don't now), **The categorical variables were compared by Chi-square test. FP=Family physician

Longitudinal continuity

Because the FPP has been introduced recently (2013) in the two provinces, length of registration time with an FP was a relatively short time. On average, patients visited their doctors 5.5 times (SD = 6.7) and visited the health care team three times (SD = 3.7) in a year. The averages in Mazandaran were slightly higher than in Fars [Table 5]. In both provinces, the frequency of visits with FP was higher than the frequency of visits with health care team. About 23% reported no annual visits with health care team and there was a significant difference in this range between two studied provinces (34% in Fars, 7% in Mazandaran).

DISCUSSION

This is one of the first studies that evaluate FPs and patients' experience of COC in UFPP. While previous study has reported poor COC received by patients with different socioeconomic background in urban areas, it seems that after 3 years of using UFPP, there were still some problems in informational, interpersonal, and longitudinal nature of COC.

For more than a decade there has been agreement about potential benefits in continuous connectivity between physician and patients with Information Technology (IT). IT can help health organizations for achieving informational continuity. Continuous patient-physician connectivity is recognized to be of

great value for physicians, patients and their families, and health organizations.^[21] Also, it was beneficial to chronic patients and their prevention plans.^[11] A systematic review identified, the information transfer during patients' visits is an important feature of COC.^[22] Another aspect of informational COC is information flow through levels of care. The FPs are centrally involved in establishing the information flow across COC. In our study, routinely keeping patients' medical records and using software program is not in good condition in the health centers but there is a good condition in information flow between the primary and secondary levels of health care through referral systems. It was positive that almost all FPs were working with computer. However, the problem was lack of appropriate software for using computers properly. With an application software, the FPs can produce lists of patients based on their health risk and monitor their population for preparing preventive activities.^[3] Lastly, the results indicated that the majority of medical record keeping and communications can be done by FPs with papers not IT. Despite the rising desire to shift to computerized medical record keeping in health systems, it looks the UFPP implementers didn't figure on it as mentioned in a previous study.^[23] Coordinating role of the FP can be enhanced if clear reporting rules are introduced and link it to the new software. In referral system process, it seems that with the implementation of the UFPP, medical feedback from specialist hasn't changed compared to previous studied in Iran.^[24,25]

Table 5: Duration and intensity of patient-provider affiliation

Topics	Amount or n (%)			P*
	Fars (n=431)	Mazandaran (n=279)	Total (n=710)	
Length of time as a patient with this FP (year)				
<1	75 (17.4)	70 (25)	145 (20.4)	<0.001
1-3	199 (46.2)	165 (59)	364 (51.3)	
>3	157 (36.4)	44 (16)	201 (28.3)	
Patients' frequency of visits with FP in a year				
No visit	13 (3)	3 (1)	16 (2)	0.5
1-3	191 (44.3)	108 (39)	299 (42)	
4-6	143 (33.2)	102 (36.5)	245 (34)	
7-9	23 (5.3)	18 (6.5)	41 (6)	
10-13	35 (8)	34 (12)	69 (10)	
>13	26 (6)	14 (5)	40 (6)	
Average visit in a year with FP	5.3±7.5 (0-100)	5.7±6.2 (0-56)	5.5±7 (0-100)	0.2
Patients' frequency of visits with health care team in a year				
No visit	146 (34)	19 (7)	165 (23)	<0.001
1-3	212 (49)	197 (70.5)	409 (58)	
4-6	40 (9.2)	34 (12)	74 (10.5)	
7-9	11 (2.6)	14 (5)	25 (3.5)	
10-13	11 (2.6)	4 (1.5)	15 (2)	
>13	11 (2.6)	11 (4)	22 (3)	
Average visit in a year with health care team	2.5±3.2 (0-30)	3.6±3.8 (0-30)	3±3.4 (0-30)	<0.001

Values were expressed as frequency (%) and mean±SD (minimum-maximum). *The continuous variables were compared by Student's t-test. FP=Family physician, SD=Standard deviation

Many surveyors have been making great efforts to show the importance of interpersonal COC. COC per se influenced patient perception of physician knowledge and competence.^[26] Also, some surveys clarified an association between patient satisfaction, improved preventive care and interpersonal COC.^[15] In this study, patients have completed their treatment with their own doctors and FPs respected them. Patients that completed their treatment with one FP is more likely to be satisfied with their care than who received care from more than one FP as stated by Beattie *et al.*^[27] Patients weren't, however, satisfied with their physicians' social and communication skills and treatment provided. Moreover, most patients described the relationship with their FPs without any trust and confidence. This issue reported by Honarvar *et al.* as the main causes of dissatisfaction toward UFPP.^[28] Furthermore, the interpersonal aspects in Russia and Turkey; as neighboring countries; have had a better situation.^[3,29] The study also showed FPs didn't take sufficient time for their patients. The short consultation time maybe because of high patient visits in UFPP.^[23] In addition, FPs usually didn't know about the problems and illnesses that their patients had in the past that maybe due to the fragile medical record keeping and the software mentioned above. Patients also weren't reserved about home visits by their FPs. Home visits by FPs can help patients satisfaction especially elderly and disabilities.^[30] Training intervention for FPs in the case of patient-physician relationship can be effective in producing patient's satisfaction and interpersonal COC in UFPP.

In the past debate, we have divided the COC as three dimensions. However, when the issue was discussed in general texts, longitudinal continuity has been taken into account. So, this part is intrinsic part of COC. In several studies, there was a significant association between increased longitudinal COC and the decreased blood pressure in hypertensive patients and decreased level of fasting blood sugar in diabetic patients.^[9,31] Longitudinal COC was recognized with two tools titled: The length of time that patients have been with their FP and visiting rate in a year. In our study, length of time that patients had been enrolled by FPs was a rather short time since UFPP had been introduced 3 years ago. Compared with many countries that implemented FFP, the average annual frequency of visits for FP and health care team was low.^[3,29] However, the indicator should be adjusted to some other variables e.g., population size and age pyramid, but patients with chronic diseases may need more visit frequency. For example, based on a systematic review by Bayliss *et al.*, a population of multiple chronic conditions in primary care with three or more visits would admitted to hospital a 3% less than others.^[32]

Unfortunately, the design of our study does not help us to understand the differentiations in COC between the

studied cities and others where the UFPP has not yet been implemented. Thus, the first policy implication of the study is the need to expand the work to the other provinces. The other implication is to highlight underlying reasons related to the results that all three COC indicators have been better situation in Mazandaran. In this case the policymakers can make better decisions about their reform. However, the literature has identified three strategies to be used by policy maker when they seek to enhance COC. The first was to strengthen IT software program. By an appropriate IT software and link it to reporting program, the coordinating role of FPs should be enhanced. The second strategy was to introduce incentives for FPs good performance by payment schemes e.g., routine electronic patient record, continuous medical education, home visit, communicate training, patients' satisfaction.^[33] The third strategy was to promoting patients' responsibility in UFPP, for instance by improving complaint system, patients' prevention and self-care process, patients' adherence to referral rules.

CONCLUSIONS

Evaluation of health care COC in Iran showed that after 3 years of using UFPP in two pilot provinces, there are still some problems in informational, interpersonal, and longitudinal COC. Therefore, the three announced strategies could lead to better COC. Lessons from this evaluation could help policymakers when they seek to enhance COC before any decision to extend UFPP to other provinces.

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Conflicts of interest

There are no conflicts of interest.

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