Original Article

Comparison of patients' perceptions of family physicians' patient-centeredness between virtual and in-person clinical encounters: A cross-sectional study

Helena Piccinini-Vallis[1], Joanna Zed[1], Julie Easley[2]

[1]Department of Family Medicine, Dalhousie University, Halifax, Canada, [2]Department of Family Medicine, Dalhousie University, Fredericton, Canada

Abstract

Introduction: A clinician's patient-centeredness is a core construct of quality healthcare and is associated with several positive patient outcomes. This study aimed to compare patient-perceived patient centeredness between in-person and virtual clinical encounters during the coronavirus pandemic. **Materials and Methods:** Participants completed an online anonymous questionnaire pertaining to a recent clinical encounter. Patients of an academic family medicine teaching clinic scheduled for either an in-person or a virtual clinical encounter were recruited by phone over a two-month period. Using the patient-centered clinical method as a conceptual framework, patient-perceived patient centeredness was measured by the Patient-Perceived Patient-Centeredness Questionnaire-Revised (PPPC-R), consisting of 18 items that reflect three factors (healthcare process, context and relationship, and roles). **Results:** The sample consisted of 72 participants. There was no difference in the PPPC-R scores between participants who received in-person and those who received virtual care. However, the mean ranks for the PPPC-R total score and for all three factors were higher for participants who saw a family physician compared to participants who saw a family medicine learner. **Conclusion:** Family physicians provided similar quality healthcare, measured through a patient-perceived patient-centeredness lens, via both virtual and in-person appointments. These results support sustaining virtual care when deemed appropriate by both patient and clinician.

Keywords: Clinical, patient-centeredness, primary care

Introduction

The world of healthcare changed abruptly in 2020 with the arrival of the coronavirus pandemic. One of the core principles of slowing down the spread of this virus was to minimize contact with others. In family medicine, this principle translated into a shift in the proportion of patients who were seen in-person and those whose concerns could be addressed virtually. The latter approach was quickly embraced and, anecdotally, the perception by both family physicians and patients was that this new reality of patient encounters was a positive option. Discussions about whether financial support for virtual care would be sustained beyond the duration of the pandemic emerged, with one of the questions being whether family physicians were able to provide quality care to their patients via virtual encounters.

One of the core constructs of quality healthcare is a clinician's patient-centeredness. The World Health Organization highlighted the centrality of patient-centeredness in the provision of high quality care in its development of policy frameworks focusing on this core competency of healthcare workers.[1] Patient-centeredness

Address for correspondence: Dr. Helena Piccinini-Vallis, Department of Family Medicine, Dalhousie University, 6960 Mumford Road, Suite 0265, Halifax, Nova Scotia, Canada B3L4P1.
E-mail: Helena.piccinini@dal.ca

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is also integrated into two of the CanMEDS roles defined by the CanMEDS Consortium, a body of organizations including the College of Family Physicians of Canada.[2] Patient-centeredness overlaps with several constructs including empathy, compassion, genuineness, therapeutic alliance, patient activation, and patient empowerment.[3-6] It is thus important that clinicians have competence in patient-centeredness.

McWhinney defined patient-centeredness as an approach in which the physician "tries to enter the patient's world, to see the illness through the patient's eyes" (p 35).[7] Patient-centeredness has been described as consisting of a set of four components that interact and unite in a unique way in each patient-clinician encounter.[8] These components constitute the patient-centered clinical method[9] and are described as (a) exploring the experience of health, disease, and illness; (b) understanding the whole person; (c) finding common ground; and (d) enhancing the patient–physician relationship.

A clinician's patient-centeredness is associated with positive patient outcomes such as improved quality of life, increased patient satisfaction, better recovery and emotional health, reduced symptom burden, and fewer diagnostic tests and referrals.[3,10-12] Studies have further shown that a clinician's patient-centeredness reduces diagnostic costs,[13-15] improves patient outcomes such as glycemic and blood pressure control,[16,17] and promotes increased patient adherence to recommendation for medication and health behaviours.[3,18,19]

Patient-centeredness is measurable from a clinician, observer, or patient perspective. The latter perspective, using the patient-centered clinical method as a conceptual framework, can be measured through the validated Patient-Perceived Patient-Centeredness Questionnaire (PPPC-R).[20] This measure consists of 18 items that load onto three factors: (a) healthcare process (eight items that address the patient's reason for the encounter, including their experience of the problem, and finding common ground with the clinician regarding the management of the problem); (b) context and relationship (eight items pertaining to the clinician trying to understand the patient's context and the relationship that develops over time); and (c) roles (two items pertaining to the respective roles that the clinician and the patient will play in addressing the patient's problem). Responses to all 18 items are on a scale of 1 to 4; therefore, the total PPPC-R score ranges from 18 to 72.

The objective of this study was thus to compare patient-perceived patient centeredness, as measured by the PPPC-R, between in-person and virtual family medicine clinical encounters.

Materials and Methods

A research ethics approval was obtained from the local health authority. This study took place at an urban academic family medicine teaching clinic in Canada during the coronavirus pandemic. Family physicians and family medicine learners in the clinic were unaware of the study.

Patients routinely scheduled for either an in-person or a virtual (telephone) clinical encounter during January and February 2021 were contacted by phone the day before their appointment and asked if they would be willing to complete an online anonymous questionnaire pertaining to that encounter. Each patient was only contacted once. The questionnaire, consisting of demographic variables and the PPPC-R, was administered to participants via Research Electronic Data Capture (REDCap), a secure web-based research application.

Variables

The main outcome variable was the PPPC-R total score. Other outcome variables included the factors of the PPPC-R score ("healthcare process" score, "context and relationship" score, and "roles" score). The main independent variable was the type of clinical encounter (in-person, virtual). The other independent variables included age, gender (male, female, other), provider type (family physician, family medicine learner), socioeconomic status (SES) (lower, higher), and mental health problem discussed (yes, no). The variable "SES" was operationalized by matching the forward sortation area to the 2016 Canadian Census median total income of economic families and then divided into "lower" (income < $80,000 per year) and "higher" (income ≥$80,000 per year).

Sample size calculation

Previous work showed that the mean patient-perceived patient-centeredness score for each of 14 items in the original patient-centeredness measure in a group of pregnant women was 2.51 (SD = 0.51) and the mean total score was 35.20 (SD = 7.20).[21] Using the PPPC-R, a mean score of 2.51 for individual items would be equivalent to a total score of 45.18 for all 18 items in the PPPC-R. A clinically meaningful difference would be a 1-point increase in score for each of the eight items in the PPPC-R pertaining to the "context and relationship" factor, yielding a total score of 53.18 for all 18 items, or a mean score of 2.95 for the individual items. Using the difference between the two means as 0.44, with an expected standard deviation of 0.51, 36 participants per group, or a total of 72 participants, would be required.

Analysis

Participants' data were exported from REDCap into SPSS software for analysis. Alpha was set at 0.05. Missing data analysis was undertaken.[22] Baseline means and frequencies were calculated and then compared between the two groups (in-person or virtual encounters). The outcome variable (mean PPPC-R total score) and its three factors ("healthcare process" score, "context and relationship" score, and "roles" score) were compared between the two groups.

Results

A total of 115 patients were contacted to obtain the sample of 72 participants (62.6% response rate). None of the variables

had more than 5% missing data. Table 1 shows the baseline characteristics of the entire sample.

The distribution of the PPPC-R total score and of the scores for the three factors of the PPPC-R were calculated. The PPPC-R total score and the scores for "health care process" and "context and relationship" were skewed to the left. In addition, the scores for "context and relationship" and "roles" were leptokurtic. Therefore, nonparametric tests were used for any further analyses involving these variables.

As shown in Table 2, there were no differences in the baseline characteristics between participants who received in-person care and those who received virtual care. Next, bivariate comparisons were undertaken between the independent variables and the PPPC-R total score and the scores for the three factors of the PPPC-R. There was no difference in the mean ranks for PPPC-R total scores between patients who received in-person and those who received virtual care [Table 3]. However, examination of the provider type showed that participants provided significantly higher scores for providers who were family physicians, compared to providers who were family medicine learners, for the PPPC-R total score (P <.001) and for the scores of the three PPPC-R factors (healthcare process, P = 0.001; context and relationship, P =0.006; roles, P =0.040). The PPPC-R items that were significantly different between the two groups are shown in [Table 4]. In addition, the mean rank for the PPPC-R total score was significantly higher for participants with higher SES compared to participants with lower SES (P = 0.043). A 2 × 2 analysis of variance showed that the interaction term between "provider type" and "SES" was not significant for PPPC-R total score.

Table 1: Baseline characteristics of sample (*n*=72)

Independent variable	Frequencies and means
Encounter type, *n* (%)	
In-person	38 (52.8)
Virtual	33 (45.8)
Missing	1 (1.4)
Age, years	
Mean (SD)	59.3 (13.0)
Range	23-79
Missing, *n* (%)	2 (2.7)
Gender, *n* (%)	
Male	40 (72.7)
Female	13 (23.6)
Missing	2 (3.6)
Provider type, *n* (%)	
Family physician	38 (52.8)
Learner	33 (45.8)
Missing	1 (1.4)
SES, *n* (%)	
Lower	33 (45.8)
Higher	36 (50.0)
Missing	3 (4.2)
Mental health discussed, *n* (%)	
Yes	16 (22.2)
No	55 (76.4)
Missing	1 (1.4)

Table 2: Comparison of participants who received in-person or virtual care

	In-person care (*n*=38)	Virtual care (*n*=33)	*P*
Age, years (mean, SD)	59.4 (11.3)	58.6 (14.8)	0.804
Male	28 (73.7)	23 (69.7)	0.962
Female	10 (26.3)	8 (24.2)	
Provider type, *n* (%)			
Family physician	19 (50.0)	19 (57.6)	0.523
Learner	19 (50.0)	14 (42.4)	
SES, *n* (%)			
Lower	18 (50.0)	14 (42.4)	0.635
Higher	18 (50.0)	18 (54.6)	
Mental health discussed, *n* (%)			
Yes	6 (15.8)	10 (30.3)	0.144
No	32 (84.2)	23 (69.7)	

We decided to undertake an ad-hoc examination to explore whether participants would rate their usual family physician higher than another family physician (i.e., a nonlearner). Although the mean rank scores for participants' usual family physicians were consistently higher than for other family physicians, there was no significant difference in mean rank for PPPC-R total scores between those two groups.

Finally, both the unstandardized and standardized residuals for the PPPC-R total scores were normally distributed and linear regression analysis was undertaken. In the full model, containing all six independent variables, the most parsimonious model to predict the PPPC-R total score was that which contained "provider type" and "SES". These two independent variables explain almost as much of the variance in the PPPC-R total score as did all six independent variables (i.e., 26% of the variance).

Discussion

The present study showed no difference in patient-perceived patient-centeredness, as measured by the PPPC-R, between participants who received in-person care and those who had virtual (telephone) encounters at an urban academic family medicine teaching clinic during the coronavirus pandemic. This result was surprising, as we had anticipated lower PPPC-R scores by participants who received virtual care due to the loss of visual communication cues. However, the results are in fact reassuring and support the continuation of virtual care when deemed appropriate by the patient and family physician. A recent analysis by Canada Health Infoway showed that the values of virtual care include the avoidance of disease transmission, time and money savings for patients, lower carbon emissions, and an increase in system capacity.[23] Our results contribute to the field by adding a patient perspective using a patient-centeredness lens.

The results of our study were consistent with previous research, in that patients typically rate their providers' patient-centeredness

Table 3: Bivariate comparisons between PPPC-R scores and categorical independent variables

	Mean rank of scores			
	PPPC-R	**Healthcare process**	**Context and relationship**	**Roles**
Encounter type				
In-person	33.11	35.30	31.25	34.37
Virtual	39.33	36.80	41.47	37.88
P	0.204	0.756	0.036	0.465
Gender				
Male	35.77	35.53	36.30	35.76
Female	34.72	35.42	33.19	34.75
P	0.851	0.984	0.575	0.853
Provider type				
Family physician	43.66	43.30	42.30	40.58
Learner	27.18	27.59	28.74	30.73
P	<.001	0.001	0.006	0.040
SES tercile				
Lower	29.91	30.45	31.79	29.35
Higher	39.67	39.17	37.94	40.18
P	0.043	0.067	0.200	0.022
Mental health discussed				
Yes	36.67	37.21	35.65	37.20
No	33.69	31.84	37.19	31.88
P	0.610	0.353	0.793	0.353

Table 4: Comparison of mean rank scores of PPPC-R items between participants seen by family physicians and participants seen by learners

PPPC-R factor	**PPPC-R item**	**Family physician score, *n*=38**	**Learner score, *n*=33**	***P***
Healthcare process	"How satisfied were you with the discussion of your problem?"	38.46	33.17	0.005
	"To what extent did you agree with the provider's opinion about the problem?"	40.97	30.27	0.012
	"To what extent did the provider ask about your goals for treatment?"	42.07	29.02	0.004
	"To what extent did the provider explain treatment?"	42.68	28.30	0.001
	"To what extent did the provider explore how manageable this treatment would be for you"?	42.32	28.73	0.003
Context and relationship	"To what extent does the provider know about your personal life?"	40.86	29.26	0.007
	"How comfortable were you discussing personal problems related to your health with the provider you talked to?"	40.46	30.86	0.016
	"To what extent did the provider show you compassion?"	40.70	30.59	0.012
	"To what extent did the provider really listen to you?"	41.13	30.09	0.005
	"To what extent did you trust the provider?"	41.47	29.70	0.004
Roles	"To what extent did you and the provider you saw discuss your respective roles?"	40.39	30.94	0.046
	"To what extent did the provider encourage you to take the role you wanted in your own care"?	39.57	31.89	0.041

quite highly.[24] Closer examination of the individual items of the PPPC-R revealed several areas which family medicine teachers could address with their learners to increase patient-perceived patient-centeredness. For example, we found that participants who saw a learner were not as satisfied with the discussion of their problem and did not agree as much with the learner's opinion about the problem. A potential solution to this issue would be for the learner to explicitly identify the patient's area of concern or emotion and then reflect the content back to the patient. This approach could signal to the patient that the learner is making an effort to understand the patient and the situation, enhancing the patient's perception of learner patient-centeredness.[25]

Results from previous work showed that patients often have different priorities from their providers and report suboptimal communication with their providers, leading to adverse outcomes such as nonadherence and low satisfaction.[26] Participants in our study who had an encounter with a learner experienced less satisfaction with discussions regarding their goals for treatment and the nature of the proposed treatment. A reasonable approach to this issue would be for the learner to purposely have a discussion about the nature and management of the patient's problem to reach a shared understanding of the problem and its treatment in a manner that is concordant with the patient's values.[27] Such communication reduces uncertainty and is associated with higher patient satisfaction, compliance, and quality of life.[18,28]

Our results also showed that participants did not rate the patient-centeredness of their own family physicians higher

than that of other family physicians. This result was somewhat surprising, as the patient–clinician relationship is the strongest predictor of patient satisfaction[12] and, as per McWhinney, "family medicine is primarily about the relationship with the patient and only secondarily about the delivery of medical care, consultation, or services."[29] Our result perhaps reflects the nature of our academic family medicine clinic, in which family physicians have nonclinical responsibilities and often see patients of other providers who might not be available on a given day. Therefore, our patients are accustomed to seeing family physicians other than their own. However, our patients are also accustomed to seeing learners, which reinforces the argument that efforts to improve learners' patient-centeredness could benefit both patients and learners.

Finally, our results revealed that participants with lower SES rated their providers' patient-centeredness lower than patients with higher SES, specifically pertaining to the sharing of power and responsibility and to being involved in making choices. This result is consistent with previous work that showed patient-perceived clinician empathy was lower in lower socioeconomic areas.[30]

Limitations

This study has a number of limitations. First, our study took place in the setting of an urban academic family medicine teaching clinic and the results might not be generalizable in community or rural practices. In addition, we only used an electronic method to capture data, potentially introducing selection bias favouring participants with the financial and educational means to access the questionnaire. We did not compare baseline demographics between patients who agreed to participate in the study and those who did not, and we did not determine household numbers for individual respondents. Therefore, our categorization of SES level could be misleading. Finally, the data were collected a year into the coronavirus pandemic, when many restrictions were still in place and people still attempted to limit most social interactions, potentially resulting in virtual appointments being more attractive due to that factor alone.

Conclusion

Our study showed that during the coronavirus pandemic, family physicians in an academic teaching clinic were able to provide similar quality healthcare, measured through a patient-perceived patient-centeredness lens, via both virtual and in-person appointments. These results support sustaining virtual care as an option for healthcare when deemed appropriate by both the patient and the clinician. Future research could examine patient-perceived patient-centeredness after these restrictions have been lifted and extend the generalizability beyond that of an academic clinical setting.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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