

ORIGINAL ARTICLE

Patients' satisfaction with the care provided by nurse practitioners in primary care settings of a remote region of Canada: A cross-sectional study

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ABSTRACT

Objective: A cross-sectional correlational design was used to describe patients' satisfaction with primary healthcare nurse practitioners and identify factors associated with their satisfaction regarding the services received in a remote region of Quebec, Canada.

Methods: Patients who received care from eight primary healthcare nurse practitioners were asked to complete a self-administered questionnaire. STROBE checklist was adhered.

Results: A total of 574 patients were recruited (participation rate: 76.6%). Patients were very satisfied with the healthcare services received, relationship with the practitioner, information received, duration of the consultation, and the overall consultation (89.6%-93.3%). The only variable associated with a higher likelihood of being very satisfied with the overall consultation was a longer duration of the consultation (adjusted OR: 1.029; CI: 1.005-1.054; $p = .018$).

Conclusions: The high level of patients' satisfaction and trust with healthcare nurse practitioners is a potential contributing factor to past and future success of their integration in primary healthcare services.

Key Words: Nurse practitioner, Patients' satisfaction, Primary healthcare, Advance nurse practice

1. INTRODUCTION

Primary healthcare nurse practitioners (PHCNPs) are “registered nurses with additional educational preparation and experience who possess and demonstrate the competencies to autonomously diagnose, order and interpret diagnostic tests, prescribe pharmaceuticals and perform specific procedures within their legislated scope of practice”.^[1] The development of PHCNPs' role has been established in Canada and in the

United States in the late 60s in order to provide primary care to residents of rural or remote regions for whom healthcare services have traditionally been less accessible.^[2-7] Other countries such as the United Kingdom or Australia have followed^[8,9] and PHCNPs' role is now well established worldwide.^[10-12] In the province of Quebec (Canada), PHCNPs' contribution has been more recent and their integration has significantly grown in the past ten years since the implemen-

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tation of the training programs in 2007 and their integration in primary care settings in 2009.^[13] Compared to other Canadian provinces or countries, the province of Quebec is several years behind. In fact, even PHCNPs holding a diploma issued by an educational institution located outside Quebec could not receive a Quebec PHCNPs licence from the provincial nurses order before 2008. Factors such as the late implementation of PHCNPs, their narrower scope of practice and medical power have greatly influenced the acceptance of this new professional role.^[14–17]

Patients' satisfaction with the care received is an important and commonly used indicator for measuring the quality of healthcare and for identifying areas for improvement.^[18, 19] It is also an important outcome to measure when introducing a new professional role in the delivery of care.^[20] Of importance to remember is that patients' satisfaction is influenced by many factors, including communication between the practitioner and the patient, duration of consultation, waiting time, and socioeconomic status.^[21] These variables may have an impact on the perceived quality of the care provided and hence influence the subsequent assessment of satisfaction.

Although several recent studies in Canada^[21–23] and elsewhere^[10, 12, 20, 24–26] have looked at patients' satisfaction with PHCNPs' care, no study has been conducted in the province of Quebec, and especially none in the context of its remote regions. Given the importance of PHCNPs' role in providing care to rural and remote populations^[24, 27–30] and since patients' satisfaction and trust can contribute to the successful integration of PHCNPs in healthcare settings,^[31–33] new data is desirable. The aims of this study were to describe patients' satisfaction with PHCNPs in a remote region of the province of Quebec, and identify factors influencing patients' satisfaction regarding the services they received.

2. METHODS

2.1 Study design and setting

A cross-sectional correlational design was used in a convenience sample of patients who received care from a PHCNP practicing in a remote region of the province of Quebec (Canada). Healthcare settings (family medicine groups, family medicine units, community health centres and private clinics) were located in five municipalities (two urban and three rural). The specific region under study is a vast and remote region with a population of approximately 147,982 inhabitants and a land area of 57,349 km².^[34] It is characterized by small urban areas and low density rural areas with over half of the population (58%) residing in urban poles and (42%) living in rural areas.^[35]

2.2 Procedure

At the time of the study, eight PHCNPs were practicing in 10 different primary care settings of the remote region of interest (two of the eight PHCNPs worked in two different settings of practice). They all agreed to participate in the study. In each setting of practice, PHCNPs were asked to distribute 75 self-administered questionnaires to their patients in order of arrival. Questionnaires were anonymous to reduce the possibility of social desirability bias. A total of 750 questionnaires were thus distributed (see Figure 1) and each patient could participate only once. Questionnaires were handed out to patients by PHCNPs at the end of the medical consultation. Patients were then asked to fill it out in the waiting room and to place it in a sealed box located at the reception of the clinic. The box containing questionnaires filled-out by patients was only accessible to the research team (not PHCNPs).

2.3 Data collection and variables

Data were collected in 2014. The questionnaire started with a cover letter and was no longer than 3 pages in length. To maximize face and content validity, the questionnaire was developed in collaboration with two registered nurses and one PHCNP who were not targeted as potential study participants. They also reviewed the final version of the questionnaire. It was then pre-tested among patients of various socioeconomic status (n = 4).

The questionnaire, developed for the present study, started with a brief introductory text about the role of the healthcare professional patients met that day, i.e., the PHCNP. Then, patients were asked the reason for the consultation (open-ended question), if it was the first time they met a PHCNP (yes/no), the length of the consultation (in minutes), and if they knew the role of a PHCNP before the consultation (yes/no). Satisfaction with the PHCNP consultation was assessed using five questions (4-point Likert scales: very satisfied, satisfied, dissatisfied, very dissatisfied) and focused on five dimensions of satisfaction : 1) Healthcare received, 2) Relationship with the PHCNP (listening, respect, understanding, dedication, etc.), 3) Information received about prevention, treatment or care for the patient's condition (or condition of his/her child), 4) Duration of the meeting with the PHCNP, and 5) Overall satisfaction with the day's medical consultation. These constructs were previously identified as important for the adequate measurement of satisfaction with nurse practitioners.^[36, 37] Our five satisfaction questions were intended to be analyzed separately and were not used to compute a total score. The questionnaire also surveyed patients agreement (yes/no) with the following statements: 1) "The care I received today from the PHCNP was up to my expectations", 2) "Today's meeting with the PHCNP has allowed me to

access healthcare more quickly”, 3) “My meeting today with the PHCNP allowed me to avoid going to the emergency room”, 4) “I trust the PHCNP I met today to take care of my health (or the health of my child)”, 5) “I would recommend my PHCNP to a family member or a friend”. Finally, other collected variables included distance between patients’ residence and the clinic (in km), age, sex, employment status, education level, annual family income, and self-perceived health (5-point Likert scale: excellent, very good, good, fair, poor).

2.4 Ethical considerations

Participation was voluntary and completion of the questionnaire indicated willingness to participate in the study. Approval for the research was obtained from the Université du Québec en Abitibi-Témiscamingue Ethics Committee and written approval was obtained from the directors of each healthcare setting.

2.5 Data analysis

The data collected was subjected to descriptive statistics according to the type and the distribution of variables, i.e.,

means, medians, standard deviations (*SD*), frequencies and proportions (%). Satisfaction levels were compared between specific subgroups of patients (e.g., those who had a consultation with a PHCNP before vs first timers) using chi-squared tests. Factors associated with patients’ overall satisfaction with the PHCNP consultation (being very satisfied with the consultation yes/no) were identified through univariate and multivariate logistic regression models. In the multivariate model, all potential predictors were entered simultaneously. Results are presented as crude and adjusted odds ratios (*OR*), their respective 95% confidence intervals (95%*CI*), and *p*-values. The significance level was set at .05. All analyses were conducted with IBM SPSS Statistics, version 22.0 (Armonk, NY: IBM Corp.).

3. RESULTS

Figure 1 shows that a total of 574 patients completed the self-administered questionnaire which yielded an overall participation rate of 76.6% (range across study sites: 61.4%-96.0%). Participation rates and characteristics of the different healthcare settings could not be analyzed because study sites were anonymized in the analysis (for ethical reasons).

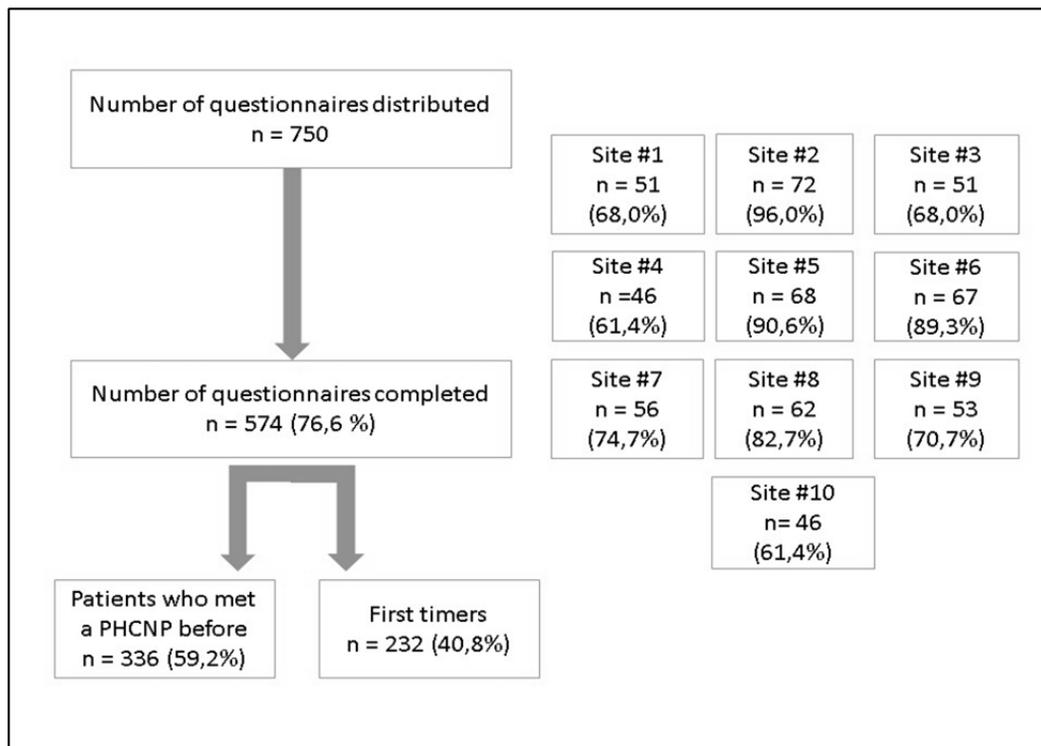


Figure 1. Study flow diagram

About forty percent of patients reported consulting a PHCNP for the first time. Demographics and characteristics of the study population are presented (see Table 1). Participants’

mean age was 50.7 years (*SD*: 17.5) and 77.9% were women. A majority of patients met the PHCNP for an annual/periodic medical examination or drug prescription (55.7%) and 77.9%

knew the role of a PHCNP before the day’s consultation.

Table 1. Characteristics of the study sample

Characteristics	n = 574
Sociodemographic	
• Age (years) – mean (SD)	50.66 (17.49)
• Median	53
• Min	3
• Max	89
Sex – n (%)	
• Males	197 (22.1)
• Females	371 (77.9)
Employment status – n (%)	
• Full-time job	267 (47.8)
• Part-time job	61 (10.9)
• Retired	156 (28.0)
• Unemployed	28 (5.0)
• Others	46 (8.2)
Education level – n (%)	
• Elementary	51 (9.2)
• High school	205 (36.9)
• Diploma in vocational studies	113 (20.4)
• College/CÉGEP	94 (16.9)
• University	92 (16.6)
Annual family income – n (%)	
• Less than \$20 000	102(19.3)
• \$20 000- \$39 999	145 (27.5)
• \$40 000 -\$59 999	88 (16.7)
• \$60 000 - \$79 999	67 (12.7)
• Over \$80 000	126 (23.9)
Health and consultation-related variables	
Reason for the consultation – n (%)	
• Annual/periodic medical examination or drug prescription	320 (55.7)
• Acute or chronic pain	51 (8.9)
• Infections (e.g., urinary, flu, sinusitis, otitis)	43 (7.5)
• Gynecology (e.g., Pap test, intrauterine contraceptive device)	25 (4.4)
• Diabetes	24 (4.2)
• Cardiovascular complaints	21 (3.7)
• Dermatological problems	21 (3.7)
• Mental Health	20 (3.5)
• Other**	43 (7.5)
Length of the consultation with the PHCNP (min) – mean (SD)	
• Median	30
• Min	2
• Max	90
Knew the role of a PHCNP before the consultation – n (%)	
• Yes	445 (77.9)
• No	126 (22.1)
Distance between patient’s residence and the clinic (km) – mean (SD)	
• Median	5
• Min	0
• Max	500
Self-perceived health – n (%)	
• Excellent	52 (9.3)
• Very good	217 (38.8)
• Good	232 (41.5)
• Fair	51 (9.1)
• Poor	(1.3)

Note. ** Including pregnancy follow-up, results of radiological examinations, cancer, asthma, chronic obstructive pulmonary disease or other chronic conditions, leave of absence from work, vaccination, etc.; PHCNP: Primary healthcare nurse practitioner; SD: Standard Deviation

Patients’ satisfaction regarding the healthcare services received, relationship with the PHCNP, information received, duration of the meeting, and overall satisfaction with the day’s medical consultation are presented (see Figure 2). For all these aspects, a large majority of patients were very satisfied with the PHCNP consultation (89.6%-93.3%). No statistically significant differences ($p < .05$) were found between patients who consulted with a PHCNP before and first timers regarding the different satisfaction outcomes, except for satisfaction with the information received which was higher among patients who consulted a PHCNP before (very satisfied: 91.0% vs. 83.8%, $p .024$). No statistically significant differences ($p < .05$) were found between patients who met the PHCNP for an annual/periodic medical examination/drug prescription and patients who met the PHCNP for other reasons.

Figure 3 shows the proportion of patients who agreed with various statements about the PHCNP they met that day. Almost all patients (92.8%-100%) reported that the care they received met their expectations, that meeting with the PHCNP has allowed them to access healthcare more quickly or to avoid going to the emergency room, that they trust the PHCNP to take care of their health, and that they would recommend the PHCNP to a family member or friend.

Table 2 shows the results of individual univariate analyses and the final multivariate model conducted in order to identify factors associated with patients’ overall satisfaction with the consultation with a PHCNP. Controlling for sociodemographic, health and consultation-related variables, the only factor identified as being associated with a higher likelihood of reporting being very satisfied with the consultation was a longer duration of the consultation with the PHCNP which varied from patient to patient (adjusted OR: 1.03; $p .02$). It should be noted that the duration of the consultation was substantially variable from one patient to another (mean: 33.1 minutes, SD : 15.95, min: 2, max: 90).

4. DISCUSSION

Patients’ satisfaction with PHCNPs has not been previously studied in the province of Quebec or in its remote and rural regions. The present cross-sectional investigation conducted with 574 patients who received care from a PHCNP practicing in a remote region of the province of Quebec suggests that patients with various sociodemographic profiles are satisfied with the care they receive from PHCNPs and show high levels of trust in their PHCNPs. The results also suggest that the duration of the consultation with the PHCNPs is the only significant predictor of patients’ satisfaction.

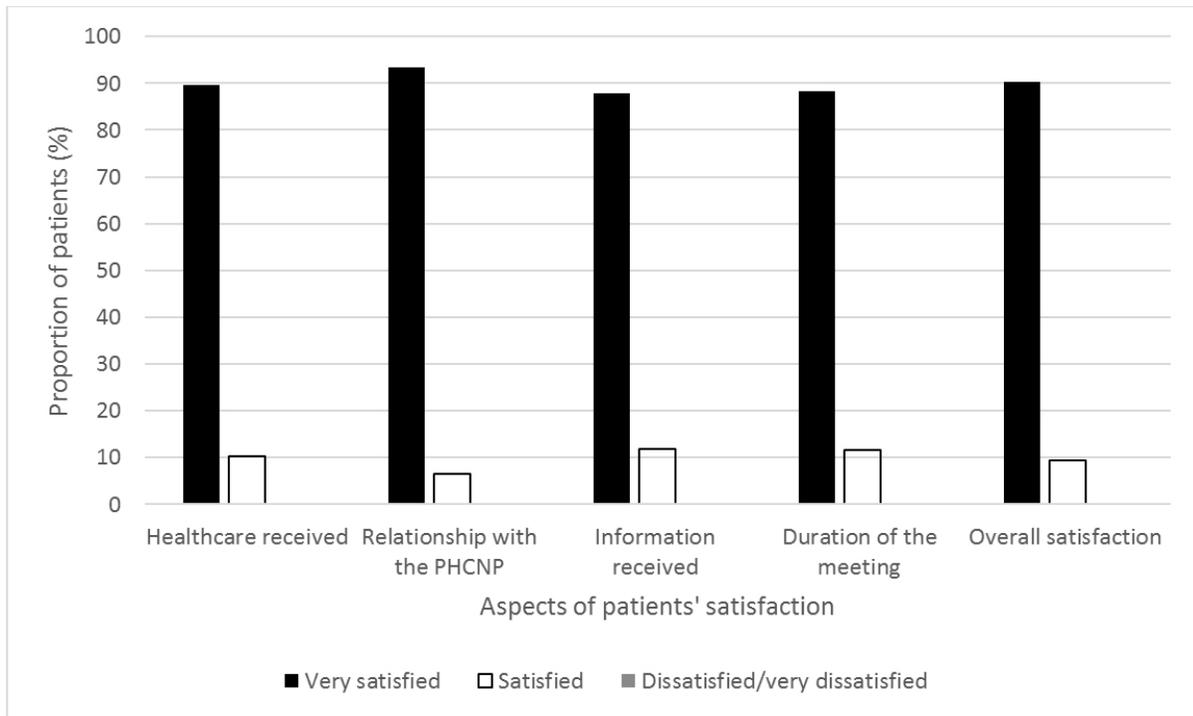


Figure 2. Satisfaction with the PHCNP consultation

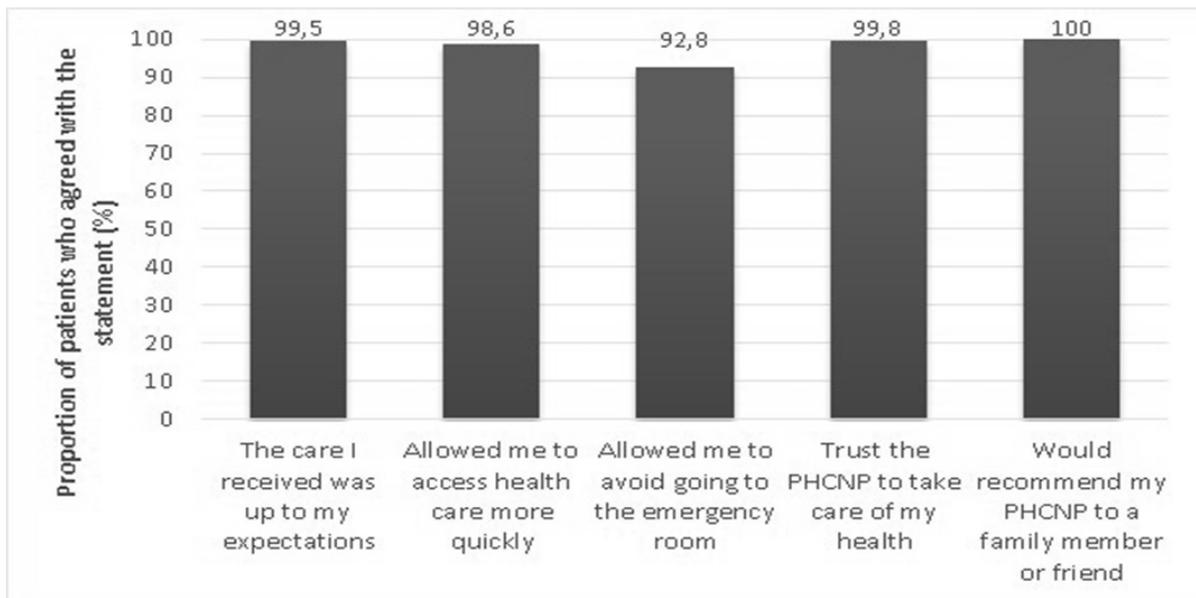


Figure 3. Agreement of patients towards statements about PHCNP (Primary healthcare nurse practitioner)

Patients' satisfaction with the care received is an important indicator commonly used to measure the quality of healthcare^[18] and has been identified as one of the factors facilitating the integration of PHCNPs into healthcare settings.^[29,38-40] Based on the present findings, the integration of PHCNPs resulted in high levels of patients' satisfaction

with PHCNPs' care, which is in line with the current scientific literature.^[38,41-43] A recent study reported that 96% of patients rated the care they received from PHCNPs as excellent in terms of courtesy, respect, patience and responsiveness.^[22] It was also reported that patients appreciated the way PHCNPs provided individualized care and actively

listened to them.^[44] In sum, there is evidence that the high level of patients' satisfaction with PHCNPs' care is a contributing factor to the past and future success of PHCNPs' integration in remote regions of the province of Quebec.

Table 2. Univariate and multivariate analysis of factors associated with higher satisfaction with the PHCNP consultation

Characteristics	Patients reporting being very satisfied with the consultation n = 511	Others n = 55	Crude OR (95%CI)	p-value	Adjusted OR* (95%CI)	p-value
Age (year) – mean (SD)	50.60 (17.49)	50.49 (17.27)	1.00 (0.985-1.016)	.963	0.987 (0.962-1.013)	.329
Sex – n (%)						
• Males	179 (91.3)	17 (8,7)	-	-	-	-
• Females	331 (89.7)	38 (10,3)	0.827 (0.454-1.508)	.536	0.570 (0.271-1.200)	.139
Employment status – n (%)						
• Full-time job	239 (90.2)	26 (9.8)	-	-	-	-
• Part-time job	53 (88.3)	7 (11.7)	0.824 (0.340-1.998)	.668	1.214 (0.430-3.428)	.715
• Retired	142 (92.2)	12 (7.8)	1.287 (0.630-2.631)	.489	2.689 (0.923-7.837)	.070
• Unemployed	25 (89.3)	3 (10.7)	0.907 (0.256-3.209)	.879	1.311 (0.261-6.573)	.742
• Others	40 (87.0)	6 (13.0)	0.725 (0.281-1.873)	.507	0.585 (0.204-1.675)	.318
Education level – n (%)						
• Elementary	42 (84.0)	8 (16.0)	0.371 (0.121-1.137)	.083	0.472 (0.113-1.977)	.304
• High school	181 (89.2)	22 (10.8)	0.581 (0.227-1.485)	.257	0.581 (0.191-1.773)	.340
• Diploma in vocational studies	104 (92.9)	8 (7.1)	0.918 (0.306-2.747)	.878	1.415 (0.394-5.072)	.595
• College/CEGEP	84 (89.4)	10 (10.6)	0.593 (0.206-1.705)	.332	0.636 (0.196-2.060)	.450
• University	85 (93.4)	6 (6.6)	-	-	-	-
Annual family income – n (%)						
• Less than \$20,000	90 (89.1)	11 (10.9)	0.789 (0.327-1.904)	.599	1.096 (0.375-3.204)	.867
• \$20,000- \$39,999	128 (88.9)	16 (11.1)	0.772 (0.344-1.732)	.530	0.867 (0.353-2.127)	.755
• \$40,000- \$59,999	81 (92.0)	7 (8.0)	1.117 (0.415-3.003)	.827	1.150 (0.402-3.284)	.795
• \$60,000- \$79,999	62 (95.4)	3 (4.6)	1.994 (0.536-7.417)	.303	3.211 (0.664-15.535)	.147
• \$80,000 and over	114 (91.2)	11 (8.8)	-	-	-	-
Length of the consultation with the PHCNP (min) – mean (SD)	33.56 (15.83)	28.71 (15.69)	1.02 (1.00-1.04)	.03	1.029 (1.005-1.054)	.018
Knew the role of a PHCNP before the consultation – n (%)						
• Yes	400 (90.7)	41 (9.3)	0.85 (0.48-1.50)	.58	1.517 (0.743-3.100)	.253
• No	110 (88.7)	14 (11.3)				
Distance between residence location and the clinic (km) – mean (SD)	14.73 (29.54)	13.51 (16.38)	1.00 (0.99-1.01)	.77	1.001 (0.988-1.015)	.860
Self-perceived health – mean (SD)	1.51 (0.83)	1.81 (0.83)	0.652 (0.466-0.911)	.012	0.686 (0.454-1.036)	.073

Note. * Accounting for the presence of missing data, the final multivariate model was achieved among 504 patients; PHCNP: Primary healthcare nurse practitioner; SD: Standard Deviation; 95%CI: 95% confidence interval

Patients' trust in healthcare professionals, which is partly based on perceived competence, can affect their satisfaction and adherence to treatment.^[45] It was also demonstrated that the lack of trust in healthcare professionals could lead patients suffering from chronic conditions to be more inclined to ask for a second opinion or to use complementary and alternative medicines, which may in turn, result in a greater societal cost-of-illness.^[45,46] The fact that the present study showed that patients trusted PHCNPs to take care of their health, especially when forty percent of the present sample of patients reported meeting a PHCNP for the first time, is very positive considering the potential negative biopsychosocial consequences of distrust.

In line with the current literature,^[10,12,20,47] almost all patients reported that they would recommend the PHCNP they

met to a family member or a friend, that the care they received was up to their expectations, and that meeting with the PHCNP has allowed them to access healthcare more quickly or to avoid going to the emergency room. Given that approximately 44,000 people in the remote region of interest did not have access to a family physician in 2013-2014,^[48] such perceptions on the part of patients reflect the extent to which PHCNPs' integration is important for the region, or even other worldwide areas with such primary care access challenges.

Controlling for potential confounders, the only factor identified as being associated with a higher likelihood of reporting being very satisfied with the consultation was a longer duration of the consultation with the PHCNP. Although the effect size is small (OR = 1.03, maybe because of a lack of

power), this finding is in line with other studies that have also shown that patients felt that PHCNPs spent enough time in each consultation, gave patients an opportunity to discuss their concerns, and took them seriously.^[21,23] In addition, it was found that the satisfaction of patients treated by PHCNPs was higher due to the fact that they spent a lot of time with them.^[12,49,50] Longer consultations allow PHCNPs to integrate health education information into the consultation and to understand, explore and address the underlying issues which are all key elements of patients' satisfaction.^[21,31,51,52] In summary, patients' satisfaction is not necessarily explained by the duration of the consultation as such, but by the fact that a longer consultation increases the quality of the dialogue. It is also believed that longer contact with healthcare professionals may lead to better clinical outcomes because it maximizes communication, trust, and management opportunities.^[53,54]

We also looked at other potential determinants of satisfaction (age, sex, education level, annual income, employment status, distance between clinics and residence, first time with a PHCNP, self-perceived health). Other studies also compared patients' satisfaction across similar individual characteristics (age, gender, and educational level) and, as in the present study, no statistically significant associations were found between these factors and patients' satisfaction with PHCNPs.^[21,26] Green and Davis however determined that age was the only significant predictor of patients' satisfaction among other individual factors (sex, ethnicity and education), as their study showed that the 18-25 year-old group had lower satisfaction with the nurse practitioner than other age groups.^[55] This discrepancy between Green and Davis (2005) results and the present study could be explained by the different study population (i.e., very few 18-25 year-old participants were included in the present investigation). Although other studies have examined the satisfaction of patients meeting with a PHCNP by evaluating other determinants such as waiting time, role clarity, reason for consultation and thoroughness, they did not use multivariate models^[10,20,24] which makes the comparison with our study more difficult.

Strengths and limitations

The present study has several strengths such as a substantially high participation rate which reduces the possibility of selection bias. The participation rate was similar to what

was found in a study by Weyer, Cook and Riley (2017) (75.9%).^[54] Moreover, the large sample size of our study helped increase the representativeness of the sample. However, a number of limitations deserve to be mentioned. Although the questionnaire was anonymous and completed after the consultation with a PHCNP, the possibility of social desirability bias in the responses cannot be completely excluded. In addition, a ceiling effect was observed in all measures of satisfaction and appreciation of care provided by PHCNPs. Such deficiency in response variability is problematic and can impact the validity of the satisfaction measures.^[56] Also, this situation reduces the statistical power of our analysis. Consequently, it is possible that the lack of statistically significant differences between patients who consulted with a PHCNP before and first timers regarding the different satisfaction outcomes is explained by a Type II error. This type of error could also affect our ability to identify factors associated with patients' satisfaction. In the context of the present study, we can nevertheless conclude that this first exploratory step in investigating patients' perceptions was a useful and successful one. Regarding external validity, we have every reason to believe that the diversity of the present study recruitment sites and similar primary care access challenges between remote regions of the province maximize the chances that our results can be generalized to all remote regions of the province of Quebec.

5. CONCLUSIONS

Despite the limitations of our study, our results suggest high levels of patients' satisfaction with the care provided by PHCNPs, which potentially reflect high-quality, safe and effective care.^[10,24,26] The specific context of PHCNPs integration in the province of Quebec may not necessarily reflect that of other countries. However, the findings of the present investigation demonstrate how their integration is important for patients of remote regions. In addition, the study results provide a compelling argument for collaboration between decision-makers and clinicians to work together to promote and facilitate the integration of PHCNPs. Future research should use longitudinal designs in order to explore how patients' satisfaction levels may change over time (continuity of care) and how different models of PHCNP-physician collaboration can impact this satisfaction.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflicts of interest.

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