

**CHRONIC DISEASE PATIENTS' SATISFACTION WITH TELEPHONE CONSULTATIONS DURING THE
COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY**

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ABSTRACT

Background:

Prior to the COVID-19 pandemic, only face-to-face consultations were being done at the health centres in Trinidad. With the emergence of COVID-19, telephone consultations were initiated at the health centres in Trinidad in an attempt to manage Chronic Disease patients remotely.

Aim:

The purpose of this study is to quantify Chronic Disease patients' satisfaction with telephone consultations during the COVID-19 pandemic and to determine what socioeconomic and demographic factors affect patient satisfaction with telephone consultations.

Methodology:

A cross sectional study was performed on chronic disease patients from 4 health centres in the St. Joseph Cluster, who had experienced telephone consultations during the period September 2020 to February 2021. Patient Satisfaction was assessed using a validated questionnaire, the Telemedicine Satisfaction Questionnaire (TSQ).

Results:

A total of 165 patients completed the survey (response rate of 66.3%); 33.9% males, 66.1% females with a mean age of 70 years(SD=11.9). Patient's satisfaction with telephone consultations was reported as 82.4%. The median Total TSQ score, out of a range of 14-70, was reported as 66 (IQR:57-69). Statistically significant findings: age was found to be negatively correlated with both the subdomain "Perception of the Interaction ($r = -0.22$, $p < 0.05$) and "Usefulness/perceived usefulness" ($r = -0.371$, $p < 0.05$), Usefulness/perceived usefulness was significantly worse in those who were unemployed, retired and had heart disease.($p < 0.05$)

Conclusion:

This study demonstrated that there was a high patient satisfaction with the use of telephone consultations among chronic disease patients which was initiated at health centres in Trinidad during the COVID-19

pandemic. The results of this study are favourable for restructuring primary care to incorporate telephone consultations/telemedicine in the management of chronic disease patients.

Keywords:

Telephone consultation, COVID-19, health centres, Chronic disease patients, patient satisfaction, Telemedicine Satisfaction Survey(TSQ), Trinidad.

LIST OF ACRONYMS

AQ	Additional Questions
CI	Confidence Interval
CDC	Chronic Disease Clinic
CVA	Cerebrovascular Accident
DM	Diabetes Mellitus
HTN	Hypertension
IQR	Interquartile Range
NCRHA	North Central Regional Health Authority
OEQ	Open-ended questions
OR	Odds Ratio
PCP	Primary Care Physician
SD	Standard Deviation
SF-12	12-Item Short Form Survey
SUTAQ	Service User Technology Acceptability Questionnaire
TeSS	Telehealth Satisfaction Scale
TIA	Transient Ischemic Attack
TSQ	Telemedicine Satisfaction Questionnaire
TUQ	Telehealth Usability Questionnaire

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INTRODUCTION

Background

The first case of COVID-19 in Trinidad and Tobago was reported on the 12th March, 2020. Subsequently, patient's access to medical care was affected due to the government creating laws and enforcing lockdowns, in an attempt to limit the number of persons congregating in public places, as well as patients being afraid to go to their routine clinic appointments in fear of contracting the disease.(1,2). Patient's access to medical care was also being affected globally due to the COVID-19 pandemic. This forced health care systems worldwide to re-evaluate the way in which the doctor-patient consultation occurred and led to the implementation of new telemedicine programs and improvement of existing ones.(3)

Before the COVID-19 Pandemic, only face-to-face consultations were done at the health centres in Trinidad. With the advent of COVID-19, primary care doctors started doing telephone consultations for Chronic Disease patients prior to their clinic appointment in an attempt to reduce the patient's exposure of contracting COVID-19 and still manage their chronic diseases. The Regional Health Authorities provided non-smart phones to facilitate these telephone consultations as a result video consultation was not utilized.

Telephone consultations are considered to be a subset of Telemedicine and it is a means of using technology to provide care to patients remotely.(4) It is important to assess how happy patients are with this type of doctor patient consultation to see how it impacts on quality of care. One indicator researchers have been using to gauge this experience is patient satisfaction.(5) In this study patient satisfaction will be used to assess the patient's experience with this consultation method.

Primary research Question

How satisfied are Chronic Disease patients with telephone consultations during the COVID-19 Pandemic?

Secondary Research Question

What socioeconomic and demographic factors positively and negatively affect patient satisfaction with telephone consultations?

Aim

The aim of this study is to quantify Chronic Disease patient's satisfaction with telephone conferences during the COVID-19 pandemic and to see what socioeconomic and demographic factors affect patient satisfaction.

Primary Objective

What proportion of Chronic Disease patients are satisfied with telephone consultations during the COVID-19 pandemic?

Secondary Objective

What are the predictors of patient satisfaction with telephone conferences?

METHODOLOGY

Study Design

A cross sectional study was done using a patient satisfaction survey. The primary outcome was patient satisfaction with telephone consultations and the secondary outcomes were factors which positively and negatively affect patient satisfaction with telephone consultations.

Study Population

Patients included in this study came from the Chronic Disease Clinics in the St Joseph cluster of Health Centres (Tacarigua Health Centre, St. Joseph Health Centre, Macoya Health Centre and Arouca Health Centre). The study participants were selected from the approximate 3,770 chronic disease patients who had telephone consultations in the four health centres. The location and patient population was targeted as the principal researcher works in this cluster. She had knowledge of how the health centres function, how telephone conferences are done, where to access records and if there were any changes concerning protocols or instructions for telephone conferencing.

Inclusion Criteria

Chronic disease patients that had telephone consultations from September 2020 to February 2021 were selected for this study. (September 2020 was used because this was when telephone consultations commenced in the St. Joseph Cluster of Health Centres. February 2021 was selected as the cut-off date because clinic patients usually have appointments every 6 months and so patients who had telephone consultations in March 2021 would have been a repeat of the patients who were contacted in September 2020.)

Exclusion Criteria

Patients who did not have a telephone consultation.

Sample Size Computation

The calculated average patients that had telephone consultations from September 2020 to February 2021 in all four health centres was 3,770.

The Margin of error used was 5%.

The confidence level needed was 95%

The proportion used was 87.5% (An average of the percentage of patients satisfied) -this value was derived from studies on patients' satisfaction with telemedicine.(6–8)

Using a sample size calculator the minimum sample needed was calculated to be 161. The formula used was:

$$n = N \cdot X / (X + N - 1),$$

where,

$$X = Z_{\alpha/2}^2 \cdot p \cdot (1-p) / MOE^2,$$

Where n = sample size, $Z_{\alpha/2}$ is the critical value, MOE = margin of error, p = sample proportion, N = population size.

In this study 165 patients were sampled.

$$\text{Non - Response rate} = (165 / \text{Expected \% Response Rate}) \times 100$$

Sampling Procedure

The sample size of 165 was divided proportionately among the clinics. The proportion was derived by tallying and averaging the number of patients seen per chronic disease clinic visit at each health centre using the CDC appointment book. It was noted that Arouca LHC saw on average 100 patients, Macoya LHC an average of 70 and both Tacarigua and St. Joseph LHC an average of 60 patients per Chronic disease clinic day. Therefore a sample of 57 patients from Arouca LHC, 40 patients from Macoya LHC, 34 patients from Tacarigua and 34 patients from St. Joseph LHC were randomly selected.

Using an online Research Randomizer tool, patients were selected from each health centre using the CDC Book with patient 1 being the first name in the September 2020 booking. The patient's files were checked by the research assistant to see if they had telephone conferencing or not. (This would have been documented in the patient's file by the doctor who initially conducted telephone conferences). If a patient didn't have telephone

conferencing then they were excluded and the research randomizer tool was used again to select another patient. The CDC books remained at the health centres and no copies were made.

Data Collection Tool

Telephone consultations in the CDC were performed by clinic doctors using a non-smart phone and hence no video conferencing was done. Reviewing studies which focused on patient satisfaction solely with telephone consultations during the COVID-19 pandemic, 3 studies were found. One study which used telephone consultations specifically, used an adaptation of the Telehealth Satisfaction Scale (TeSS) with responses graded on a Likert scale. However there was no mention of piloting the revised survey instrument to examine its validity and reliability.(9) Another study which only used telephone consultations used a 26 closed questionnaire and 5 open questions. The researchers mentioned that it was validated by the Delphi technique and groups of experts however the process was not well documented demonstrating the examination of the survey's validity and reliability. (10) The TSQ was used in one study was used to evaluate patient and physician satisfaction with telemedicine during the COVID_19 pandemic. Telemedicine included both audio and visual conferencing. The TSQ used a 5-point Likert scale for scoring. A TSQ score of 56 or more was considered a good experience. The TSQ has been validated for reliability and internal consistency.(11) The TSQ is a 14-item questionnaire developed by Yip MP et al. 2003 to evaluate patient satisfaction with telemedicine.(12) The TSQ was selected for this study as it was the most appropriate for a telephone consultation. In the other questionnaires there are more questions with video-based telemedicine and a telemedicine system making them less suitable for this study. The questionnaire was tested on 41 new referrals to a Chinese district hospital where they had the intervention of videoconferencing.(12) Its content and construct have been validated for internal consistency reliability. The TSQ uses a Likert Scale which has 5-points ranging from "Strongly disagree" (1) to "Strongly Agree" (5). The Score for the TSQ varies from 14-70. A total score of ≥ 56 is considered to be a good experience for the patient.(11)(See Appendix 1 for the TSQ questions, Likert Scale and Scoring). The TSQ is composed of

three main components: Quality of care provided, similarity to face-to-face encounter and perception of the interaction. Questions 5,7,8,10,11,12,13 and 14 falls under the domain of Quality of Care Provided. Questions 1,2,3,4 and 9 falls under Similarity to face-to-face encounter. Question 6 falls under the domain of Perception of the Interaction.

In this study an adaptation of the TSQ was used. Question 4 was modified. Non-smart phones were used for teleconferencing without video capabilities and so the question “I can see my health care provider as if we met in person” was changed to “I can relate to my health care provider as if we met in person. Although this question was altered it still assesses the “Similarity to face-to-face encounter”. Question 7 which assesses “Quality of care provided” was altered from “I think the health care provided via telemedicine is consistent” was changed to “I think the health care provided via telemedicine is as good as face-to-face visits”(13). As this was the first time telephone conferencing was being used in the Chronic Disease Clinics, the patients could not assess if telephone conferencing provided health care in a consistent manner. In Question 9 the words “hospital or a specialist clinic” was replaced with “the health centre” as this study was carried out solely at the health centres. With these amendments the modified questions would still assess the subdomains to which the original questions belonged to.

This adaptation to the TSQ would have validity and reliability assessed by a panel of experts by using internal consistency and interobserver agreement on a small sample of patients. In the original TSQ which had 14 questions a score of 56 or more was considered to be a good experience for the patient i.e. at least a score of 4 or more for each question. This adaptation to the TSQ used the same scoring method as the original TSQ.

Questions on patient’s characteristics such as age, gender, employment and education were asked in keeping with the study that tested the questionnaire.

Additional questions (AQ) on privacy, usefulness and open ended questions(OEQ) were also asked. The TSQ did not address how the variables of usefulness and privacy affected patient satisfaction and so AQ were included in the survey. AQ1 “I felt my privacy was respected during the telephone consultation” was used to assess the

subdomain of “Technical Quality- Privacy and Security”.(28) AQ2 “ Telephone consultations reduces my exposure to COVID-19”, AQ3 “Telephone consultations saved me taking time off work”, AQ4 “Telephone consultations saved me taking time off from caring about someone at home” and AQ5 “I would like to use telephone consultations after the COVID-19 pandemic” were used to assess the subdomain of “Usefulness/perceived usefulness”.(28) The subdomain or construct of Usefulness/perceived usefulness was assessed by the indicator variables of convenience, time consequence and a willingness to use in the future.(28) The question on perceived reduction of exposure to COVID-19 was added based on previous studies demonstrating that there is a fear of patients attending clinic appointments due to the COVID-19 pandemic.(1,2) Two open ended questions were added to pick up on factors affecting patient satisfaction that may be extreme, usual or perhaps weren’t thought about during this COVID-19 pandemic. These additional questions were reviewed by a two independent researchers who met and compared the themes of the questions.

Assigned patient’s numbers were used instead of names or file numbers for anonymity.

Type of data collected- Quantitative.

Data Collection

Patients randomly selected were called using a telephone by an assistant hired by the primary researcher. The Research Assistant was trained by the Primary Researcher. The Research Assistant was a graduated doctor and had access to the patient’s file to get the patient’s contact number and number of Chronic conditions. The Research assistant looked at the patient’s file for the data. Telephone surveys were performed instead of face-to-face questionnaires. Calling patients into clinic to administer an in-person questionnaire could have possibly exposed patients to the COVID-19 virus and this would have been unethical. Also because of the heavy patient loads in clinic, it was not be feasible to give patients appointments to come in for a face-to-face survey. The person conducting the interview was not the same person doing the telemedicine consultations with the patient.

Verbal consent to participate in the study was first obtained as per a standard written script (See Appendix 2).

Information on demographics, questions

on predictors of satisfaction and the Telemedicine Satisfaction Questionnaire(TSQ) was collected over the phone using the forms in Appendix 1.

If the randomly selected patient was unable to be contacted. Two further attempts to contact the patient was made. If the patient was unable to be contacted then the patient's next of kin was called in an attempt to reach the patient. If the next of kin was unable to be contacted then that patient was excluded and another patient was randomly be selected from the Chronic Disease appointment book using the online Research Randomizer tool. If the tool selected a patient already in the sample then the Randomizer tool was used again to select another patient. The number of patients booked for a particular day was entered into the Randomizer Tool with number 1 being the first patient booked in September 2020 and the last number being the last patient booked for February 2021. The Principle Researcher was the person entering the data into the Research Randomizer Tool.

Statistical Analysis

Categorical variables were reported as number and percentage. Continuous variables were reported as means and standard deviation if normally distributed. The Shapiro-Wilk test was used to determine normality of data. The results of the Total TSQ, the TSQ and AQ subdomains were reported as medians and IQR. Sociodemographic and clinical predictors of satisfaction were calculated using logistics regression. Associations between Sociodemographic and clinical variables with the subdomains of the TSQ and AQ were calculated using the Mann-Whitney U test and Kruksal Wallis test. The Open-ended questions were used to generate patient satisfaction themes. Statistical significance was considered as $p < 0.05$.

RESULTS

Patient socio-demographic and clinical characteristics

In total, 249 patients were contacted, of which 165(66.3%) patients responded and completed the survey. The survey participants consisted of 56 (33.9%) males and 109(66.1%) females. The mean age of the participants was 70 years (SD=11.9). 84 (33.7%) patients of the total, did not respond or participate in the survey due to the following reasons: poor audio, did not answer their phone, phone not in service or declined to participate.

In comparing the socio-demographic and clinical characteristics of the responders to the non-responders, Table 1 demonstrates that the responders were more likely to be female. There were no other significant differences between these groups based on age, number of chronic diseases, diabetes, hypertension and heart disease.

Table 1: Comparison of responders and non-responders

Socio-Demographic Variable	Responder n(%)	Non-responder n(%)	P value
Gender Male Female	56 (33.9%) 109 (66.1%)	36 (49.3%) 37 (50.7%)	0.03
Age (Mean±SD) years	70.0 ± 11.9	66.0 ± 15.3	0.142
Health Centre 1 (Tacarigua) 2 (SJEHC) 3 (Macoya) 4 (Arouca)	34 (20.6%) 34 (20.6%) 40 (24.2%) 57 (34.5%)	17 (20.2%) 17 (20.2%) 22 (26.2%) 28 (33.3%)	0.990
Number of chronic diseases (Median)	2	2	0.158
Diabetes	98 (59.4%)	45 (63.4%)	0.663
Hypertension	146 (88.5%)	56 (78.9%)	0.068
Heart disease	25 (15.2%)	16 (22.5%)	0.191

Satisfaction with telephone consultations

In this study 136 (82.4%) of respondents were satisfied and deemed telephone consultations a “good experience” for care of their chronic illness. The median Total TSQ score, out of a range of 14-70, was 66 (IQR: 57–69) and the mean TSQ score was 62.4 (SD=9.1). Subdomain 1 (Quality of care provided) scored 37 (IQR: 32-40), subdomain 2 (Similarity to face-to-face encounter) scored 25 (IQR: 21-25) and subdomain 3 (Perception of the interaction) scored 5 (IQR:5-5). (Table 2)

The AQ subdomain (Technical Quality- Privacy and Security) scored 5 (IQR:4-5) and the subdomain (Usefulness/perceived usefulness) scored 10 (IQR:8-12). (Table 2)

Table 2 – Results of Total TSQ, TSQ Subdomains and AQ Subdomains

	Participants (N=165)	Median	IQR
TSQ Total [14-70]*	Participants, n (%)	66	57-69
“Good Experience” (56 – 70)	136 (82.4%)		
“Not a Good Experience” (14-55)	29 (17.6%)		
TSQ subdomain 1 (Quality of care provided) [8-40]*		37	32-40
TSQ subdomain 2 (Similarity with face to face encounters) [5-25]*		25	21-25
TSQ subdomain 3 (Perception of the interaction) [1-5]*		5	5-5
AQ subdomain (Technical Quality- Privacy and Security) [1-5]*		5	4-5
AQ subdomain (Usefulness/perceived usefulness) [4-20]*		10	8-12

* Range

Sociodemographic predictors of satisfaction with telephone consultations

Table 3 – Sociodemographic predictors of satisfaction with telephone consultations

Variable	Satisfaction with Telephone consultations	
	Odds Ratio (95%CI)	P Value
Age	0.99 (0.96-1.03)	0.816
Gender		
Male	1	0.076
Female	2.1 (0.93-4.72)	
Education		
Nil	1	
Primary	0.98 (0.18-5.38)	0.979
Secondary	2.27 (0.40-12.82)	0.355
Tertiary	3.00 (0.34-26.19)	0.320
Work		
Unemployed	1	
Employed	1.13 (0.26-4.84)	0.868
Retired	1.14 (0.39-3.39)	0.810
Form of transport		
Walk	1	
Travel	1.46 (0.45-4.80)	0.530
Drive	1.54 (0.53-4.48)	0.428
Chronic conditions		
1-2	1	
3-4	0.97 (0.43-2.00)	0.939
>4	2.44 (0.29-20.52)	0.410

As seen in Table 3 there were no significant associations between any sociodemographic variable and telemedicine satisfaction based on good experience according to the TSQ. (Total score>56)

Comorbidity predictors of satisfaction with telephone consultations

Table 4- Comorbidity predictors of satisfaction with telephone consultations

VARIABLE	SATISFACTION WITH TELEMEDICINE	
	OR (95%CI)	<i>P Value</i>
DM	1.46 (0.65-3.27)	<i>0.356</i>
HTN	0.87 (0.24-3.19)	<i>0.828</i>
DYSLIPIDEMIA	1.83 (0.70-4.83)	<i>0.220</i>
HEART DISEASE	0.48 (0.18-1.28)	<i>0.143</i>
CVA/TIA	3.21 (0.41-25.5)	<i>0.269</i>

Table 4 shows that there were no significant associations between the comorbidities seen in the table above and telemedicine satisfaction.

Table 5 - Association between TSQ subdomains and key sociodemographic variables

Variable	TSQ Subdomains					
	Quality of Care Provided		Similarity of face-to-face encounter		Perception of the interaction	
		<i>P Value</i>		<i>P Value</i>		<i>P Value</i>
Age	-0.34 [#]	0.664	-0.121 [#]	0.121	-0.220 [#]	0.004
Gender						
Male	35.5 [*]	0.229	24.0 [*]	0.269	5.0 [*]	0.429
Female	37.0 [*]		25.0 [*]		5.0 [*]	
Education						
Nil	38.5 [*]	0.805	25.0 [*]	0.387	5.0 [*]	0.393
Primary	36.0 [*]		24.0 [*]		5.0 [*]	
Secondary	37.0 [*]		25.0 [*]		5.0 [*]	
Tertiary	37.0 [*]		25.0 [*]		5.0 [*]	
Work						
Unemployed	37.0 [*]	0.763	25.0 [*]	0.712	5.0 [*]	0.315
Employed	37.0 [*]		25.0 [*]		5.0 [*]	
Retired	36.0 [*]		24.0 [*]		5.0 [*]	
Form of transport						
Walk	36.0 [*]	0.862	24.0 [*]	0.759	5.0 [*]	0.346
Travel	36.0 [*]		25.0 [*]		5.0 [*]	
Drive	37.0 [*]		25.0 [*]		5.0 [*]	
Chronic conditions						
1-2	37.0 [*]	0.666	25.0 [*]	0.256	37.0 [*]	0.540
3-4	36.0 [*]		24.0 [*]		36.0 [*]	
>4	35.0 [*]		25.0 [*]		35.0 [*]	

[#]Spearman correlation coefficient, ^{*}Median

In Table 5 age was shown to be negatively correlated with “Perception of the Interaction” ($r = -0.22$, $P < 0.05$).

There are no other significant associations among the other variables above and the TSQ subdomains.

Table 6 – Association with AQ subdomains and key sociodemographic variables

Variable	ASQ Subdomains			
	Privacy and security (ASQ1)		Usefulness/perceived usefulness (ASQ2-5)	
		<i>P Value</i>		<i>P Value</i>
Age	0.054 [#]	0.491	-0.371 [#]	<0.001
Gender				
Male	5.0*	0.554	10.0*	0.458
Female	5.0*		11.0*	
Education				
Nil	5.0*	0.428	11.5*	0.407
Primary	5.0*		10.0*	
Secondary	5.0*		10.0*	
Tertiary	5.0*		11.0*	
Work				
Unemployed	5.0*	0.204	11.0*	<0.001
Employed	4.0*		14.0*	
Retired	5.0*		10.0*	
Form of transport				
Walk	5.0*	0.525	12.0*	0.121
Travel	5.0*		10.0*	
Drive	5.0*		10.0*	
Chronic conditions				
1-2	5.0*	0.107	11.0*	0.973
3-4	5.0*		10.0*	
>4	5.0*		10.5*	

[#]Spearman correlation coefficient, *Median

Table 6 demonstrates that age was negatively correlated with the ASQ sub-domain, Usefulness/Perceived usefulness ($r = -0.371$, $P < 0.05$).

There was also an association between the variable work and the Subdomain: Usefulness/Perceive usefulness ($P < 0.05$). There was a significant positive correlation between Employed and Usefulness/Perceived usefulness compared to the other two forms of work (Median=14 vs 11 and 10).

A post hoc pairwise comparison was performed to show where the associations were between the different types of work. Significant findings were found between Retired – Employed and Unemployed – Employed ($p < 0.05$). Associations between the other variables and the AQ subdomains were not seen.

Table 7– Association between TSQ subdomains and selected comorbidities.

Variable	TSQ Subdomains					
	Quality of Care Provided		Similarity of face-to-face encounter		Perception of the interaction	
		# <i>P Value</i>		# <i>P Value</i>		# <i>P Value</i>
DM						
No	37.0*	0.388	24.0*	0.983	5.0*	0.369
Yes	37.0*		25.0		5.0*	
HTN						
No	38.0*	0.703	24.0*	0.619	5.0*	0.735
Yes	37.0*		25.0*		5.0*	
Dyslipidemia						
No	37.0*	0.094	25.0*	0.979	5.0*	0.776
Yes	35.0*		24.0*		5.0*	
Heart Disease						
No	37.0*	0.112	25.0*	0.112	5.0*	0.426
Yes	35.0*		23.0*		5.0*	
CVA/TIA						
No	37.0*	0.057	24.0*	0.302	5.0*	0.634
Yes	39.0*		25.0*		5.0*	

#Mann Whitney U test, *Median

Table 7 displays that there are no significant associations between the TSQ subdomains and the selected comorbidities.

Table 8 – Association with AQ subdomains and selected comorbidities.

Variable	ASQ Subdomains			
	Privacy and security (ASQ1)		Usefulness/perceived usefulness (ASQ2-5)	
		#P Value		#P Value
DM				
No	5.0*	0.272	11.0*	0.435
Yes	5.0*		10.0*	
HTN				
No	4.0*	0.173	11.0*	0.473
Yes	5.0*		10.0*	
Dyslipidemia				
No	5.0*	0.518	11.0*	0.566
Yes	5.0*		10.0*	
Heart Disease				
No	5.0*	0.938	11.0*	0.023
Yes	5.0*		9.0*	
CVA/TIA				
No	5.0*	0.714	10.0*	0.359
Yes	5.0*		11.0*	

#Mann Whitney U test, *Median

There is an association between Heart Disease and the AQ Subdomain: Usefulness/Perceived usefulness ($p < 0.05$) as demonstrated in Table 9. Those with Heart Disease had a lower Usefulness/Perceived Usefulness score compared to those without Heart Disease (Median 9 vs 11). There were no other associations demonstrated between the comorbidities above and the AQ subdomains.

Themes Generated from the Open-Ended Questions

Table 9 – Pros and Cons Themes generated from the Open-Ended Questions.

PROS OF TELEPHONE CONSULTATIONS	CONS OF TELEPHONE CONSULTATIONS
Convenient(Accessible and saves time)	Doctor uncontactable
Good Experience	Can't measure health/wellbeing
Safer/ Reduced risk of contracting COVID-19	Reduced quality of care
	Inconvenient
	Inadequate information
	Lack of confidentiality
	More Time consuming
	Reduced communication
	Impersonal
	Difficulty using phone

Table 9 illustrates the themes generated from the OEQ.

DISCUSSION

The results of this study demonstrated a high level of patient satisfaction (82.4%) with telephone consultations during the COVID-19 pandemic. This is consistent with the results from previously published studies in the pre-pandemic era (80% - 95%)(8,14) as well as during the COVID-19 pandemic (97.6% - 86%).(15,16) This demonstrates that the majority of chronic disease patients were generally satisfied with receiving health care via telemedicine.

Previous research which used the TSQ to assess patient satisfaction with teleconsultations were few in number and none was found in the field of primary care. One study used the TSQ on patients of a Urology clinic. The Median Total TSQ 67(IQR60-69) was found to be similar to the results of this study 66(IQR 57-69).(11) However, the mean Total TSQ of another study 73.3(SD15.5) where the patients had teleconsultations for breast cancer was higher than that of this study 62.4(SD9.1).(17) This could be due to the difference in the patient population between the two studies. Cancer patients may have more anxiety of contracting COVID-19 with in-patient visits, due to their compromised immune system.(17) They might also have more health care needs compared to chronic disease patients and could have a greater appreciation for and be more satisfied with telemedicine.

When looking at patient satisfaction using the TSQ subdomains, only one other study similarly reported its findings “Quality of care provided and Similarity to face-to-face contact” using medians and IQR and the results were similar.(11)

Examining the variables which affected patient satisfaction for telephone consultations, associations were found with age, type of work and heart disease. Age was found to have a negative correlation with the subdomains “Perception of the Interaction” and “Usefulness/perceived usefulness”. Indicating that younger persons were more likely to have a better “Perception of the Interaction” and find telemedicine “Useful” compared to an older person. This negative correlation of age with satisfaction was also found in several other studies.(7,17–19) A

likely explanation for this observation is that younger persons tend to be more technologically inclined and embrace change easier than those who are older. Younger individuals may also find telemedicine more “Useful” due to convenience and in order to reduce lost time from work compared to older individuals who are no longer actively employed and do not have time constraints.(7)

“Usefulness/Perceived usefulness” was also associated with work. Those who were “Employed” found telephone consultations more useful than “Unemployed” and “Retired” persons. This result may be rationalized due to employed persons saving time off work and traveling costs by utilizing telephone consultations.(20)

Patients with Heart Disease were noted to have a lower “Usefulness/Perceived Usefulness” score compared to those without heart disease. Heart disease patients tend to have multiple comorbidities and complaints and may prefer to have an in person visit for an examination, new symptom or worsening condition.(21) Another explanation for this finding is that heart disease patients also tend to be older patients and so age may be a confounder here.

The OEQ generated several themes which were in keeping with those found in other studies.(16,22,23) The free responses from OEQ 2 highlighted the factors which negatively affected patient satisfaction with telephone consultation in this study.

Telemedicine was introduced into the primary health care system in Trinidad to assist with patient’s access to health care and maintain continuity of care during the COVID-19 pandemic. This was a preliminary study and was done to get feedback from patients with this new method of doctor patient consultation in this population. The results demonstrate that telephone consultations show considerable potential for becoming a permanent fixture in the existing primary care model.

ETHICAL CONSIDERATIONS

With respect to this study:

Informed consent about participating in the study was obtained verbally from patients, and ethical approval was acquired from the NCRHA (Appendix 6) and The University of The West Indies (Ref: CREC-SA.1144/08/2021). Confidentiality of patient information was assured to patients during the verbal consent and was achieved by asking the patient if they were in an isolated space before asking any questions pertaining to the survey. Anonymity was achieved by assigning patient numbers instead of using names or record numbers. The survey forms were collected at the end of the day and secured in a locked cabinet to which only the principal researcher had keys. The principal researcher worked at Tacarigua Health Centre as a PCP1 and there were no other affiliations or conflict of interest.

With respect to telephone consultations:

Measures should be taken to ensure that privacy and confidentiality of patient information is not compromised if calls are made in a public place. (24) The patient's autonomy needs to be respected by informing them about the types of consultation modalities available, the risks and benefits involved. They should be able to make a decision as to which consultation format they would like before their appointment. (25) In addition, patients must also be fully informed of treatment options during a telephone consultation as with an in-patient visit. To uphold the principal of beneficence, the standard of care should be the same for telephone consultations and face to face consultations. This can be achieved through education and training of clinicians and can be monitored by using patient satisfaction and quality control questioners. (25) Challenges to the principle of non-maleficence may arise when a patient needs a physical exam for a medical symptom or they have complex medical problems. Using the modality of telephone consultations in such cases could result in incorrect diagnoses or inappropriate treatments being prescribed. (25,26) Telephone consultations can also lead to inequity in health care for patients who do not

have a phone, internet or monitoring devices at home, problems using technology or a condition that impairs their hearing, speech and movement.(26)

LIMITATIONS

One limitation of this study is that it was conducted in only one part of Trinidad. Patient demographics could differ from region to region and it is difficult to say if the study results would be the same in other parts of Trinidad. Another limitation is that many of the patients were elderly and required assistance from their children to use the phone. This could have led to a bias in the patient satisfaction due to these patients being less satisfied with telephone consultations.

Thirdly this study was only done for six months during the COVID-19 Pandemic. The results may change if the study was carried on at a different phase in the COVID-19 pandemic.

This study primarily deals with telephone consultations as the doctors in the health centers did not have access to video conferencing on platforms such as zoom or What's App. Other forms of telemedicine may have different results.

Conducting this survey using a telephone interview was a major limitation as there is no data on those patients who was not able to be contacted or why they were not able to be contacted. This could have overestimated the satisfaction with teleconsultation in this study.

CONCLUSION

This study demonstrated that there was a high patient satisfaction with the use of telephone consultations among chronic disease patients which was initiated at health centres in Trinidad during the COVID-19 pandemic. A significantly greater satisfaction was observed in patients who were younger, employed and who did not have heart disease. The results of this study are favourable for restructuring primary care to incorporate telephone consultations/telemedicine in the management of chronic disease patients.

RECOMMENDATIONS

This study sets the stage for other studies dealing with the feasibility of telephone consultations as a viable alternative to in-person consultations in certain clinical scenarios in Trinidad. Research looking at cost effectiveness and practicality in terms of man power, resources and efficiency needs to be done.(27,28) Study of the effectiveness of telephone consultations in managing patients' illness and disease is also warranted.(29) At completion of this thesis, there has been a decline in the use of telephone consultations at the health centres compared to its use at the beginning of the COVID-19 pandemic. Although telephone consultations most likely will reduce carbon footprints, it is uncertain if the consultation time will be reduced. Snoswell CL et al observed that studies that compared videoconference consultations to face to face consultations found varied outcomes.(30) In another study Alhajri N et al found that there was an increased perceived increase in consultation and documentation time with video consultations as compared to in-patient visits.(31) With respect to why telephone consultations are not used more often in the patient population investigated, it is believed that studies looking at physician perceptions and barriers to telephone consultation which physicians face might shed some light on this matter.

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Appendix 1- Data Collection Tools and Scoring

Demographics

Characteristics	Answer
Gender: M/F	☐ Male ☐ Female
Age	
Education: Nil/ Primary/ Secondary/ Tertiary	☐ Nil ☐ Primary ☐ Secondary ☐ Tertiary
Work: unemployed/ full time/ part time/retired	☐ Unemployed ☐ Employed ☐ Retired
Usual form of transport to clinic: walk, travel, drive	☐ Walk ☐ Travel ☐ Drive
Chronic Conditions(32)	☐ 1-2 ☐ 3-4 ☐ 5 or more
Diagnoses(32)	

Item	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. I can easily talk to my health-care provider					
2. I can hear my health-care provider clearly					
3. My health-care provider is able to understand my health-care condition					
4. I can relate to my health-care provider as if we met in person					
5. I do not need assistance while using the telephone					
6. I feel comfortable communicating with my health-care provider					
7. I think the health-care provided via telemedicine is as good as face to face visits(13)					
8. I obtain better access to health-care services by use of telemedicine					
9. Telemedicine saves me time travelling to the health centre					
10. I do receive adequate attention					
11. Telemedicine provides for my health-care need					
12. I find telemedicine an acceptable way to receive health-care services					
13. I will use telemedicine services again during the COVID-19 pandemic					
14. Overall, I am satisfied with the quality of service being provided via telemedicine					

Likert Scale

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
(1)	(2)	(3)	(4)	(5)

Scoring of Likert Scale for the TSQ Total and its domains

Number of Questions	Category of Question	Score Range	“Not a good Experience”	“Good Experience”
14	Total TSQ	14-70	15-55	56-70
7	Domain1- Quality of care Provided	7-35		
5	Domain 2- Similarity of face to face encounter	5– 25		
1	Domain 3- Perception of the interaction	1 – 5		

Additional Questions:

Domain: Technical Quality- Privacy and Security(33)

	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
1. I felt my privacy was respected during the telephone consultation					

Domain: Usefulness/perceived usefulness(33)

	Strongly Disagree (1)	Disagree (2)	Undecided (3)	Agree (4)	Strongly Agree (5)
2. Telephone consultations reduces my exposure to COVID-19					
3. Telephone consultations saved me taking time off work.					
4. Telephone consultations saved me taking time off from caring about someone at home.					
5. I would like to use telephone consultations after the COVID-19 pandemic					

Open ended question:

1. What did you like best about using telephone conferencing?	
2. What did you like least about using telephone conferencing?	

APPENDIX 2 – Consent to Participate In Telemedicine

Verbal Consent To Participate In Telemedicine Survey

Good day, we are calling from XXXX to see if you are willing to participate in the following study (**CHRONIC DISEASE PATIENTS' SATISFACTION WITH TELEPHONE CONSULTATIONS DURING THE COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY**). We have contacted you because you currently attended the Chronic Disease Clinic at NCRHA.

Are you willing to participate in this study?

I would like to confirm with whom I am speaking with?

Is this _____ (NAME)?

To be sure that I am speaking with the correct person is your date of birth _____?

Purpose and Benefits: The purpose of this project is to determine patients' satisfaction with telephone consultations which were done for Chronic Disease patients during this COVID-19 pandemic.

Nature of Telephone Survey: During this call:

- a. Details of your demographics, medical history and monitoring of your disease may be acquired over the phone.
- b. Nonmedical technical personnel will be conducting the telephone interview.
- c. There would be no video, audio, and/or digital photo recordings during the telemedicine consultation visit.

Medical Information and Records: All existing laws regarding your access to medical information and copies of your medical records apply to this telephone call. Additionally, dissemination of any patient-information from this telemedicine interaction to researchers or other entities shall not occur without your consent, unless authorized under existing confidentiality laws.

Confidentiality: Reasonable and appropriate efforts have been made to eliminate any confidentiality risks associated with this survey.

Risks and Consequences:

You may withhold or withdraw consent to this survey at any time without affecting your right of future care or treatment, or risking the loss or withdrawal of any program benefits to which you would otherwise be entitled.

Financial Agreement: This survey is self-funded.

Do you have any questions that you would like to ask?

Do you understand the information discussed?

Would you be willing to participate in the survey?

APPENDIX 3 – Literature Review

A literature search was performed using the PubMed database, Google Scholar and The Cochrane Library for online journal abstracts and articles. Key search terms used were: “patient satisfaction”, “telephone consultations”, “telemedicine”, “patient satisfaction surveys”, “Telemedicine Satisfaction Questionnaire”, “COVID-19”. A search for information was also done using online newspapers. Emphasis was placed on studies produced since the start of COVID-19 in December 2019 however relevant literature published over the last ten years were also included. Experiences from doctors at health centres were also included in this literature review. A bibliographic review was also utilized for additional relevant articles. Information and studies included were restricted to those published in English and Spanish.

Local Studies

There is only one study in Trinidad on use of telemedicine and this was done in 2016 to care for a patient in a rural part of Trinidad.(34) This was a case study on a patient with a recent cerebrovascular accident and telemedicine was used to remotely care for the patient. Several other studies have been done in Trinidad examining patient satisfaction in primary care by either administering self-administered questionnaires or structured interviews but all of these looked at patient satisfaction in pre-pandemic times. One study used the SF-12 questionnaire to determine quality of life.(35) Another study used the SERVQUAL self-administered questionnaire(36) and the most recent study looked at patient-centeredness and measured the quality of the consultation using the Patient Perception of Patient Centeredness Survey and the Patient Enablement Instrument Score. (37)

Suitability of the telephone consultation

A systematic review by Downes MJ et al. assessed information from two systematic reviews and one randomized controlled trial. The results demonstrated that the telephone consultation is a suitable alternative to face-to-face consultations in the General Practice setting. It was however noted that there was a lack of high level evidence for telephone consultations.(38)

Surveys/questionnaires to assess patient satisfaction with telephone consultations

Surveys are commonly used to assess patient's satisfaction. One study looked at the most used questionnaires for evaluating telemedicine. The Telehealth Usability Questionnaire (TUQ), Telemedicine Satisfaction Questionnaire (TSQ) and the Service User Technology Acceptability Questionnaire (SUTAQ) were among the most frequent questionnaires specific to telemedicine used in the collected articles.(39) No questionnaires specific for phone consultations were found.

Percentage of patients satisfied with telemedicine

Overall satisfaction with telehealth conferencing was looked at in a study by Orlando JF et al. It was found that the 36 studies included used a variety of ways to measure satisfaction. Some used numeric rating scales as a specific question within a satisfaction questionnaire while other used semi-structured interviews. Greater than 80% of patients reported overall satisfaction in the questionnaires and more than 81% were satisfied with telehealth in the semi-structured interviews. This systematic review did review a great deal of evidence to conclude that patients and caregivers are generally satisfied with telehealth but there were some concerns with the methodological quality of the included studies.(6)

In a cross-sectional study, 87.7% of the patients out of 772 responders were satisfied with their telemedicine visit and 45% preferred the telemedicine visit over a face-to-face visit.(7)

Polinski JM et al. also did a large cross-sectional patient satisfaction survey with 1734 patients completing the survey. 95% were very satisfied with all telehealth attributes and 33.3% preferred a telehealth visit to a traditional in-person visit.(8)

Factors affecting satisfaction

Predictors of liking Telehealth which includes telehealth convenience, female gender, quality of care received and an overall understanding of telehealth.(8) Age, education and the type of clinic used also affect patient satisfaction with telemedicine.(18)

Looking at factors which negatively affected patient satisfaction with telehealth consultations, Isautier JMJ et al. identified themes in patient's free text responses as being ineffective communication, limitations with technology, reduced confidence in their doctor and inability to be physically examined, obtain prescriptions and pathology results.(23) Telehealth was also found to be less appropriate for cases where a diagnosis needed to be made and for patients who had a strong desire to see the doctor in person.(16)

Patient satisfaction with teleconsultation during the COVID-19 pandemic

One study in Los Angeles County did a retrospective observational study in an urban medical centre for two months in 2020. They used video telehealth visits and correlated an 11-question Trust in Physician Scale with patient satisfaction. The responses were scored using a 5 point Likert scale. They concluded that patient satisfaction is high with telemedicine during the pandemic. They also noted that many have ideas of restructuring primary care after the pandemic to incorporate telemedicine on a greater scale.(19) Another study used a mixed method approach and used the Primary Care Patient Experience Survey with modifications to assess patient satisfaction with telephone and video conferencing.(16)

Researchers from Saudi Arabia evaluated patient' level of satisfaction with virtual clinics during the pandemic. The virtual clinic included many specialities including family medicine. The study was a cross-sectional study which used an online validated questionnaire. Again a high level of satisfaction was found.(18)

There were three studies that were found which assessed patient satisfaction exclusively with telephone consultations during the COVID-19 pandemic, two from urology clinics and one from a referral hospital. There was a high patient satisfaction with telephone conferencing in all three studies.(9–11) There is generally a paucity of data with regard to patient satisfaction with telephone consultations during the COVID-19 pandemic in primary care. Hopefully this study will aid in filling that gap.

Appendix 4 – Ethical Approval from UWI REC



THE UNIVERSITY OF THE WEST INDIES
ST. AUGUSTINE, TRINIDAD AND TOBAGO, WEST INDIES
CAMPUS RESEARCH ETHICS COMMITTEE
TELEPHONE: (1-868) 662-2002 ext. 82755 E-mail: campusethics@sta.uwi.edu

August, 18 2021

Candice Solomon,

School of Medicine, Faculty of Medical Sciences, #971
Farallon Road, Lange Park, Chaguanas Email:
candice.solomon007@gmail.com

Dear Candice Solomon,

Ref: CREC-SA.1144/08/2021

**Title: CHRONIC DISEASE PATIENTS' SATISFACTION WITH TELEPHONE
CONSULTATIONS DURING THE COVID-19 PANDEMIC: A CROSS-SECTIONAL STUDY**

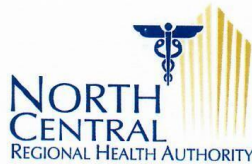
I am pleased to advise that your application for research on the above captioned topic has met the criteria for Exemption from Review from the Campus Research Ethics Committee, St. Augustine.

Sincerely,

Professor Jerome De Lisle Chair
Campus Research Ethics Committee

Digitally generated by UWIScholar

APPENDIX 5 – Ethical Approval from NCRHA REC



OFFICE OF THE CHIEF EXECUTIVE OFFICER

3rd Floor, Building 39, Eric Williams Medical Sciences Complex, Uriah Butler Highway,
Champs Fleurs PBX: (868)-225-4673 Ext: 2490 / 3089 / 5091 D.L. (868)-662-5579
Fax: (868)-663-0671

January 11th, 2022

Ms. Candice Solomon
Student (UWI)
Faculty of Medical Sciences
EWMSC
Mt. Hope.

Dear Ms. Solomon,

Approval to conduct a research project within the NCRHA

Reference is made to the subject at caption.

Please be informed that approval has been granted for the research titled – “**Chronic disease patients’ satisfaction with telephone consultations during the COVID-19 pandemic: A cross-sectional study.**” The commencement of this research indicates that you have understood and accepted the responsibility of maintaining the confidentiality of all data and information collected and processed.

Please be advised that Ethical approval is valid for the period of one year with effect from the date of this letter.

The NCRHA wishes you every success in this undertaking, and looks forward to receiving a SOFT copy of your Project Report within two (2) weeks of completion.

It should also be noted that failure to submit your findings will hinder your chances of conducting research at the NCRHA in the future.

Sincerely,

Davlin Thomas
Chief Executive Officer

x.c: *Public Health Observatory, NCRHA*
Dr. Malachy Ojuro - Director of Health (P.D.), NCRHA
Dr. Abdul Hamid – General Manager, Primary Health Care Services, NCRHA

Board Members: Dr. Steve De Las (Chairman), Mr. Elvin Edwards (Deputy Chairman), Mr. Randolph Clouden, Mrs. Yvonne Bullen-Smith, Mrs. Marie Ayoung-Chee, Ms. Anita Sohan, Dr. Maria Bartholomew, Ms. Kimoy Thomas, Dr. Keith Clifford

APPENDIX 6 – Turnitin Certificate

Thesis turn it in

by Candice Solomon

Submission date: 24-Feb-2023 12:43AM (UTC-0400)

Submission ID: 1912535308

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INTRODUCTION

Background

The first case of COVID-19 in Trinidad and Tobago was reported on the 12th March, 2020. Subsequently, patient's access to medical care was affected due to the government creating laws and enforcing lockdowns, in an attempt to limit the number of persons congregating in public places, as well as patients being afraid to go to their routine clinic appointments in fear of contracting the disease.(1,2). Patient's access to medical care was also being affected globally due to the COVID-19 pandemic. This forced health care systems worldwide to re-evaluate the way in which the doctor-patient consultation occurred and led to the implementation of new telemedicine programs and improvement of existing ones.(3)

Before the COVID-19 Pandemic, only face-to-face consultations were done at the health centres in Trinidad. With the advent of COVID-19, primary care doctors started doing telephone consultations for Chronic Disease patients prior to their clinic appointment in an attempt to reduce the patient's exposure of contracting COVID-19 and still manage their chronic diseases. The Regional Health Authorities provided non-smart phones to facilitate these telephone consultations as a result video consultation was not utilized.

Telephone consultations are considered to be a subset of Telemedicine and it is a means of using technology to provide care to patients remotely.(4) It is important to assess how happy patients are with this type of doctor patient consultation to see how it impacts on quality of care. One indicator researchers have been using to gauge this experience is patient satisfaction.(5) In this study patient satisfaction will be used to assess the patient's experience with this consultation method.

Primary research Question

How satisfied are Chronic Disease patients with telephone consultations during the COVID-19 Pandemic?

Secondary Research Question

What socioeconomic and demographic factors positively and negatively affect patient satisfaction with telephone consultations?

Aim

The aim of this study is to quantify Chronic Disease patient's satisfaction with telephone conferences during the COVID-19 pandemic and to see what socioeconomic and demographic factors affect patient satisfaction.

Primary Objective

What proportion of Chronic Disease patients are satisfied with telephone consultations during the COVID-19 pandemic?

Secondary Objective

What are the predictors of patient satisfaction with telephone conferences?

METHODOLOGY

Study Design

A cross sectional study was done using a patient satisfaction survey. The primary outcome was patient satisfaction with telephone consultations and the secondary outcomes were factors which positively and negatively affect patient satisfaction with telephone consultations.

Study Population

Patients included in this study came from the Chronic Disease Clinics in the St Joseph cluster of Health Centres (Tacarigua Health Centre, St. Joseph Health Centre, Macoya Health Centre and Arouca Health Centre). The study participants were selected from the approximate 3,770 chronic disease patients who had telephone consultations in the four health centres. The location and patient population was targeted as the principal researcher works in this cluster. She had knowledge of how the health centres function, how telephone conferences are done, where to access records and if there were any changes concerning protocols or instructions for telephone conferencing.

Inclusion Criteria

Chronic disease patients that had telephone consultations from September 2020 to February 2021 were selected for this study. (September 2020 was used because this was when telephone consultations commenced in the St. Joseph Cluster of Health Centres. February 2021 was selected as the cut-off date because clinic patients usually have appointments every 6 months and so patients who had telephone consultations in March 2021 would have been a repeat of the patients who were contacted in September 2020.)

Exclusion Criteria

Patients who did not have a telephone consultation.

Sample Size Computation

The calculated average patients that had telephone consultations from September 2020 to February 2021 in all four health centres was 3,770.

The Margin of error used was 5%.

The confidence level needed was 95%

The proportion used was 87.5% (An average of the percentage of patients satisfied) -this value was derived from studies on patients' satisfaction with telemedicine.(6–8)

Using a sample size calculator the minimum sample needed was calculated to be 161. The formula used was:

$$n = N \cdot X / (X + N - 1),$$

where,

$$X = Z_{\alpha/2}^2 \cdot p \cdot (1-p) / MOE^2,$$

Where n = sample size, $Z_{\alpha/2}$ is the critical value, MOE = margin of error, p = sample proportion, N = population size.

In this study 165 patients were sampled.

$$\text{Non - Response rate} = (165 / \text{Expected \% Response Rate}) \times 100$$

Sampling Procedure

The sample size of 165 was divided proportionately among the clinics. The proportion was derived by tallying and averaging the number of patients seen per chronic disease clinic visit at each health centre using the CDC appointment book. It was noted that Arouca LHC saw on average 100 patients, Macoya LHC an average of 70 and both Tacarigua and St. Joseph LHC an average of 60 patients per Chronic disease clinic day. Therefore a sample of 57 patients from Arouca LHC, 40 patients from Macoya LHC, 34 patients from Tacarigua and 34 patients from St. Joseph LHC were randomly selected.

Using an online Research Randomizer tool, patients were selected from each health centre using the CDC Book with patient 1 being the first name in the September 2020 booking. The

patient's files were checked by the research assistant to see if they had telephone conferencing or not. (This would have been documented in the patient's file by the doctor who initially conducted telephone conferences). If a patient didn't have telephone conferencing then they were excluded and the research randomizer tool was used again to select another patient. The CDC books remained at the health centres and no copies were made.

Data Collection Tool

Telephone consultations in the CDC were performed by clinic doctors using a non-smart phone and hence no video conferencing was done. Reviewing studies which focused on patient satisfaction solely with telephone consultations during the COVID-19 pandemic, 3 studies were found. One study which used telephone consultations specifically, used an adaptation of the Telehealth Satisfaction Scale (TeSS) with responses graded on a Likert scale. However there was no mention of piloting the revised survey instrument to examine its validity and reliability. (9) Another study which only used telephone consultations used a 26 closed questionnaire and 5 open questions. The researchers mentioned that it was validated by the Delphi technique and groups of experts however the process was not well documented demonstrating the examination of the survey's validity and reliability. (10) The TSQ was used in one study was used to evaluate patient and physician satisfaction with telemedicine during the COVID_19 pandemic. Telemedicine included both audio and visual conferencing. The TSQ used a 5-point Likert scale for scoring. A TSQ score of 56 or more was considered a good experience. The TSQ has been validated for reliability and internal consistency. (11) The TSQ is a 14-item questionnaire developed by Yip MP et al. 2003 to evaluate patient satisfaction with telemedicine. (12) The TSQ was selected for this study as it was the most appropriate for a telephone consultation. In the other questionnaires there are more questions

with video-based telemedicine and a telemedicine system making them less suitable for this study. The questionnaire was tested on 41 new referrals to a Chinese district hospital where they had the intervention of videoconferencing.(12) Its content and construct have been validated for internal consistency reliability. The TSQ uses a Likert Scale which has 5-points ranging from “Strongly disagree” (1) to “Strongly Agree” (5). The Score for the TSQ varies from 14-70. A total score of ≥ 56 is considered to be a good experience for the patient.(11)(See Appendix 1 for the TSQ questions, Likert Scale and Scoring). The TSQ is composed of three main components: Quality of care provided, similarity to face-to-face encounter and perception of the interaction. Questions 5,7,8,10,11,12,13 and 14 falls under the domain of Quality of Care Provided. Questions 1,2,3,4 and 9 falls under Similarity to face-to-face encounter. Question 6 falls under the domain of Perception of the Interaction. In this study an adaptation of the TSQ was used. Question 4 was modified. Non-smart phones were used for teleconferencing without video capabilities and so the question “I can see my health care provider as if we met in person” was changed to “I can relate to my health care provider as if we met in person. Although this question was altered it still assesses the “Similarity to face-to-face encounter”. Question 7 which assesses “Quality of care provided” was altered from “I think the health care provided via telemedicine is consistent” was changed to “ I think the health care provided via telemedicine is as good as face-to-face visits”(13). As this was the first time telephone conferencing was being used in the Chronic Disease Clinics, the patients could not assess if telephone conferencing provided health care in a consistent manner. In Question 9 the words “hospital or a specialist clinic” was replaced with “ the health centre” as this study was carried out solely at the health centres. With these amendments the modified questions would still assess the subdomains to which the original questions belonged to.

This adaptation to the TSQ would have validity and reliability assessed by a panel of experts by using internal consistency and interobserver agreement on a small sample of patients. In the original TSQ which had 14 questions a score of 56 or more was considered to be a good experience for the patient i.e. at least a score of 4 or more for each question. This adaptation to the TSQ used the same scoring method as the original TSQ.

Questions on patient's characteristics such as age, gender, employment and education were asked in keeping with the study that tested the questionnaire.

Additional questions (AQ) on privacy, usefulness and open ended questions(OEQ) were also asked. The TSQ did not address how the variables of usefulness and privacy affected patient satisfaction and so AQ were included in the survey. AQ1 "I felt my privacy was respected during the telephone consultation" was used to assess the subdomain of "Technical Quality- Privacy and Security".(28) AQ2 "Telephone consultations reduces my exposure to COVID- 19", AQ3 "Telephone consultations saved me taking time off work", AQ4 "Telephone consultations saved me taking time off from caring about someone at home" and AQ5 "I would like to use telephone consultations after the COVID-19 pandemic" were used to assess the subdomain of "Usefulness/perceived usefulness".(28) The subdomain or construct of Usefulness/perceived usefulness was assessed by the indicator variables of convenience, time consequence and a willingness to use in the future.(28) The question on perceived reduction of exposure to COVID-19 was added based on previous studies demonstrating that there is a fear of patients attending clinic appointments due to the COVID-19 pandemic.(1,2) Two open ended questions were added to pick up on factors affecting patient satisfaction that may be extreme, usual or perhaps weren't thought about during this COVID-19

pandemic. These additional questions were reviewed by a two independent

researchers who met and compared the themes of the questions.

Assigned patient's numbers were used instead of names or file numbers for anonymity.

Type of data collected- Quantitative.

Data Collection

Patients randomly selected were called using a telephone by an assistant hired by the primary researcher. The Research Assistant was trained by the Primary Researcher. The Research Assistant was a graduated doctor and had access to the patient's file to get the patient's contact number and number of Chronic conditions. The Research assistant looked at the patient's file for the data. Telephone surveys were performed instead of face-to-face questionnaires. Calling patients into clinic to administer an in-person questionnaire could have possibly exposed patients to the COVID-19 virus and this would have been unethical. Also because of the heavy patient loads in clinic, it was not be feasible to give patients appointments to come in for a face-to-face survey. The person conducting the interview was not the same person doing the telemedicine consultations with the patient. Verbal consent to participate in the study was first obtained as per a standard written script (See Appendix 2). Information on demographics, questions on predictors of satisfaction and the Telemedicine Satisfaction Questionnaire(TSQ) was collected over the phone using the forms in Appendix 1.

If the randomly selected patient was unable to be contacted. Two further attempts to contact the patient was made. If the patient was unable to be contacted then the patient's next of kin was called in an attempt to reach the patient. If the next of kin was unable to be contacted then that patient was excluded and another patient was randomly be selected from the Chronic Disease appointment book using the online Research Randomizer tool. If the tool selected a patient already in the sample then the Randomizer tool was used again to select another patient. The number of patients booked for a particular day was entered into the Randomizer Tool with number 1 being the first patient booked in September 2020 and the

last number being the last patient booked for February 2021. The Principle Researcher was the person entering the data into the Research Randomizer Tool.

Statistical Analysis

Categorical variables were reported as number and percentage. Continuous variables were reported as means and standard deviation if normally distributed. The Shapiro-Wilk test was used to determine normality of data. The results of the Total TSQ, the TSQ and AQ subdomains were reported as medians and IQR. Sociodemographic and clinical predictors of satisfaction were calculated using logistics regression. Associations between Sociodemographic and clinical variables with the subdomains of the TSQ and AQ were calculated using the Mann-Whitney U test and Kruksal Wallis test. The Open-ended questions were used to generate patient satisfaction themes. Statistical significance was considered as $p < 0.05$.

RESULTS

Patient socio-demographic and clinical characteristics

In total, 249 patients were contacted, of which 165(66.3%) patients responded and completed the survey. The survey participants consisted of 56 (33.9%) males and 109(66.1%) females. The mean age of the participants was 70 years (SD=11.9). 84 (33.7%) patients of the total, did not respond or participate in the survey due to the following reasons: poor audio, did not answer their phone, phone not in service or declined to participate.

In comparing the socio-demographic and clinical characteristics of the responders to the non-responders, Table 1 demonstrates that the responders were more likely to be female. There were no other significant differences between these groups based on age, number of chronic diseases, diabetes, hypertension and heart disease.

Satisfaction with telephone consultations

In this study 136 (82.4%) of respondents were satisfied and deemed telephone consultations a “good experience” for care of their chronic illness. The median Total TSQ score, out of a range of 14-70, was 66 (IQR: 57–69) and the mean TSQ score was 62.4 (SD=9.1).

Subdomain 1 (Quality of care provided) scored 37 (IQR: 32-40), subdomain 2 (Similarity to face-to-face encounter) scored 25 (IQR: 21-25) and subdomain 3 (Perception of the interaction) scored 5 (IQR:5-5). (Table 2)

The AQ subdomain (Technical Quality- Privacy and Security) scored 5 (IQR:4-5) and the subdomain (Usefulness/perceived usefulness) scored 10 (IQR:8-12). (Table 2)

Sociodemographic predictors of satisfaction with telephone consultations

As seen in Table 3 there were no significant associations between any sociodemographic variable and telemedicine satisfaction based on good experience according to the TSQ. (Total score>56)

Comorbidity predictors of satisfaction with telephone consultations

Table 4 shows that there were no significant associations between the comorbidities seen in the table above and telemedicine satisfaction.

In Table 5 age was shown to be negatively correlated with “Perception of the Interaction” ($r = -0.22$, $P < 0.05$). There are no other significant associations among the other variables above and the TSQ subdomains.

Table 6 demonstrates that age was negatively correlated with the ASQ sub-domain, Usefulness/Perceived usefulness ($r = -0.371$, $P < 0.05$).

There was also an association between the variable work and the Subdomain:

Usefulness/Perceive usefulness ($P < 0.05$). There was a significant positive correlation between Employed and Usefulness/Perceived usefulness compared to the other two forms of work (Median=14 vs 11 and 10).

A post hoc pairwise comparison was performed to show where the associations were between the different types of work. Significant findings were found between Retired – Employed and Unemployed – Employed ($p < 0.05$).

Associations between the other variables and the AQ subdomains were not seen.

Table 7 displays that there are no significant associations between the TSQ subdomains and the selected comorbidities.

There is an association between Heart Disease and the AQ Subdomain: Usefulness/Perceived usefulness ($p < 0.05$) as demonstrated in Table 9. Those with Heart Disease had a lower Usefulness/Perceived Usefulness score compared to those without Heart Disease (Median 9 vs 11). There were no other associations demonstrated between the comorbidities above and the AQ subdomains.

Themes Generated from the Open-Ended Questions

Table 9 illustrates the themes generated from the OEQ.

DISCUSSION

The results of this study demonstrated a high level of patient satisfaction (82.4%) with telephone consultations during the COVID-19 pandemic. This is consistent with the results from previously published studies in the pre-pandemic era (80% - 95%)(8,14) as well as during the COVID-19 pandemic (97.6% - 86%).(15,16) This demonstrates that the majority of chronic disease patients were generally satisfied with receiving health care via telemedicine.

Previous research which used the TSQ to assess patient satisfaction with teleconsultations were few in number and none was found in the field of primary care. One study used the TSQ on patients of a Urology clinic. The Median Total TSQ 67(IQR60-69) was found to be similar to the results of this study 66(IQR 57-69).(11) However, the mean Total TSQ of another study 73.3(SD15.5) where the patients had teleconsultations for breast cancer was higher than that of this study 62.4(SD9.1).(17) This could be due to the difference in the patient population between the two studies. Cancer patients may have more anxiety of contracting COVID-19 with in-patient visits, due to their compromised immune system.(17) They might also have more health care needs compared to chronic disease patients and could have a greater appreciation for and be more satisfied with telemedicine.

When looking at patient satisfaction using the TSQ subdomains, only one other study similarly reported its findings "Quality of care provided and Similarity to face-to-face contact" using medians and IQR and the results were similar.(11)

Examining the variables which affected patient satisfaction for telephone consultations, associations were found with age, type of work and heart disease. Age was found to have a negative correlation with the subdomains "Perception of the Interaction" and "Usefulness/perceived usefulness". Indicating that younger persons were more likely to have

a better “Perception of the Interaction” and find telemedicine “Useful” compared to an older person. This negative correlation of age with satisfaction was also found in several other studies.(7,17–19) A likely explanation for this observation is that younger persons tend to be more technologically inclined and embrace change easier than those who are older. Younger individuals may also find telemedicine more “Useful” due to convenience and in order to reduce lost time from work compared to older individuals who are no longer actively employed and do not have time constraints.(7)

“Usefulness/Perceived usefulness” was also associated with work. Those who were “Employed” found telephone consultations more useful than “Unemployed” and “Retired” persons. This result may be rationalized due to employed persons saving time off work and traveling costs by utilizing telephone consultations.(20)

Patients with Heart Disease were noted to have a lower “Usefulness/Perceived Usefulness” score compared to those without heart disease. Heart disease patients tend to have multiple comorbidities and complaints and may prefer to have an in person visit for an examination, new symptom or worsening condition.(21) Another explanation for this finding is that heart disease patients also tend to be older patients and so age may be a confounder here.

The OEQ generated several themes which were in keeping with those found in other studies.(16,22,23) The free responses from OEQ 2 highlighted the factors which negatively affected patient satisfaction with telephone consultation in this study.

Telemedicine was introduced into the primary health care system in Trinidad to assist with patient’s access to health care and maintain continuity of care during the COVID-19 pandemic. This was a preliminary study and was done to get feedback from patients with this new method of doctor patient consultation in this population. The results demonstrate that telephone consultations show considerable potential for becoming a permanent fixture in the existing primary care model.

ETHICAL CONSIDERATIONS

With respect to this study:

Informed consent about participating in the study was obtained verbally from patients, and ethical approval was acquired from the CRHA (Appendix 6) and The University of The West Indies (Ref: CREC-SA.1144/08/2021).

Confidentiality of patient information was assured to patients during the verbal consent and was achieved by asking the patient if they were in an isolated space before asking any questions pertaining to the survey. Anonymity was achieved by assigning patient numbers instead of using names or record numbers. The survey forms were collected at the end of the day and secured in a locked cabinet to which only the principal researcher had keys. The principal researcher worked at Tacarigua Health Centre as a PCP!and there were no other affiliations or conflict of interest.

With respect to telephone consultations:

Measures should be taken to ensure that privacy and confidentiality of patient information is not compromised if calls are made in a public place. (24)The patient's autonomy needs to be respected by informing them about the types of consultation modalities available, the risks and benefits involved. They should be able to make a decision as to which consultation format they would like before their appointment.(25) In addition, patients must also be fully informed of treatment options during a telephone consultation as with an in-patient visit. To uphold the principal of beneficence, the standard of care should be the same for telephone consultations and face to face consultations. This can be achieved through education and training of clinicians and can be monitored by

using patient satisfaction and quality control questioners.(25) Challenges to the

principle of non-maleficence may arise when a patient need a physical exam for a medical symptom or they have complex medical problems. Using the modality of telephone consultations in such cases could result in incorrect diagnoses or

inappropriate treatments being prescribed.(25,26) Telephone consultations can also lead to inequity in health care for patients who do not have a phone, internet or monitoring devices at home, problems using technology or a condition that impairs their hearing, speech and movement.(26)

LIMITATIONS

One limitation of this study is that it was conducted in only one part of Trinidad. Patient demographics could differ from region to region and it is difficult to say if the study results would be the same in other parts of Trinidad. Another limitation is that many of the patients were elderly and required assistance from their children to use the phone. This could have led to a bias in the patient satisfaction due to these patients being less satisfied with telephone consultations.

Thirdly this study was only done for six months during the COVID-19 Pandemic. The results may change if the study was carried on at a different phase in the COVID-19 pandemic.

This study primarily deals with telephone consultations as the doctors in the health centers did not have access to video conferencing on platforms such as zoom or What's App. Other forms of telemedicine may have different results.

Conducting this survey using a telephone interview was a major limitation as there is no data on those patients who was not able to be contacted or why they were not able to be contacted. This could have overestimated the satisfaction with teleconsultation in this study.

CONCLUSION

This study demonstrated that there was a high patient satisfaction with the use of telephone consultations among chronic disease patients which was initiated at health centres in Trinidad during the COVID-19 pandemic. A significantly greater satisfaction was observed in patients who were younger, employed and who did not have heart disease. The results of this study are favourable for restructuring primary care to incorporate telephone consultations/telemedicine in the management of chronic disease patients.

RECOMMENDATIONS

This study sets the stage for other studies dealing with the feasibility of telephone consultations as a viable alternative to in-person consultations in certain clinical scenarios in Trinidad. Research looking at cost effectiveness and practicality in terms of man power, resources and efficiency needs to be done.(27,28) Study of the effectiveness of telephone consultations in managing patients' illness and disease is also warranted.(29)

At completion of this thesis, there has been a decline in the use of telephone consultations at the health centres compared to its use at the beginning of the COVID-19 pandemic. Although telephone consultations most likely will reduce carbon footprints, it is uncertain if the consultation time will be reduced. Snoswell CL et al observed that studies that compared videoconference consultations to face to face consultations found varied outcomes.(30) In another study Alhajri N et al found that there was an increased perceived increase in consultation and documentation time with video consultations as compared to in-patient visits.(31) With respect to why telephone consultations are not used more often in the patient

population investigated, it is believed that studies looking at physician perceptions and barriers to telephone consultation which physicians face might shed some light on this matter.

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