Does the implementation of radiation oncology outpatient infection control measures adversely affect patient satisfaction with doctor-patient interaction?

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ABSTRACT

Introduction: There are worldwide concerns of an impending avian influenza outbreak, with nations formulating infection control strategies to prepare for such an event. Little evidence exists for how infection control measures impact on the provision of cancer services, or how patient experience would be affected. Our aim was to compare patient satisfaction with doctor-patient interaction, during and following a period of infection control measures.

Methods: We measured patient satisfaction using a validated 29-question instrument for two weeks during the implementation of strict infection control measures as a result of the severe acute respiratory syndrome outbreak (T1), and compared results with a two-week period after measures had been lifted (T2).

Results: A total of 296 patients were surveyed, 149 at T1 and 147 at T2. Most patients indicated overall satisfaction, with 92.3 percent and 86.9 percent satisfied at T1 and T2, respectively (p-value is not significant). Mean satisfaction index was 3.02 and 3.04 out of 4 at T1 and T2, respectively (p-value is not significant). However, the responses for several individual questions did differ significantly between time points. At T1 more patients indicated satisfaction for understanding the doctor's plans (p-value is 0.001), while at T2, more patients indicated satisfaction for being told how to care for their condition (p-value is 0.04).

Conclusion: The study demonstrated high patient satisfaction at both time points. Similar levels of satisfaction despite infection control measures may be due to patients being more tolerant of problems in doctor-patient interactions during the outbreak due to media campaigns. This research may facilitate those healthcare services planning to minimise the impact of infection control measures on patient care.

Keywords: doctor-patient interaction, infection control, patient satisfaction, radiotherapy

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INTRODUCTION

Patient-doctor interaction is known to affect compliance, communication, continuity of care, promptness to seek help, patient's level of understanding and retention of information, all of which are essential in the delivery of high quality clinical care, with increased satisfaction rates leading to increased quality.[1-3] However, with the increasing threat of potential infectious disease outbreaks, such as severe acute respiratory syndrome (SARS)[5] or avian flu[5,6] and the threat of bioterrorism, the need for extra-precautionary measures, such as observation of infectious disease protocols and implementation of strict security measures,[7] may influence the level of patient satisfaction with their doctor's visit.

Our experience has shown that overall patient satisfaction with patient-doctor interaction remains high despite the outbreak of an infectious disease and the implementation of harsh infection control protocols.[8] However, to date, there have been no published reports comparing patient satisfaction during an infectious disease outbreak with satisfaction during a non-infectious period. Hence, the primary aim of this study was to compare patient satisfaction with doctor-patient interaction in an outpatient radiotherapy centre during and after an infectious disease outbreak. Our secondary aim was to determine what factors might affect satisfaction with doctor-patient interaction.

Table Ia. Domains and response categories during infectious and post-infectious periods.

Domains and items	Response categories (n=149) during infectious period				Mean†	p-value	Response categories (n=147) during post-infectious period				Mean†
	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)			Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	
Information exchange domain					3.23	0.6					3.26
Q1: I will follow the doctor's advice because I think he/she is absolutely right.	0	0	62.4	37.6		0.06	0.0	0.0	50.7	49.3	
Q2: I really felt understood by my doctor.	0	4.0	69.8	26.2		0.08	0.7	3.5	57.4	38.3	
Q3: After my last visit with my doctor, I feel much better about my concerns.	1.4	4.8	66.0	27.9		0.02*	0.0	7.2	51.1	41.7	
Q4: I understand my illness much better after seeing this doctor.	2.8	11.7	60.7	24.8		0.09	0.7	7.9	54.7	36.7	
Q5: This doctor was interested in me as a person and not just my illness.	0.7	14.4	58.2	26.7		0.3	1.4	8.4	55.9	34.3	
Q6: I feel I understand pretty well the doctor's plans for helping me.	0	0	66.4	33.6		0.003*	0.0	6.8	58.9	34.2	
Q7: After talking with the doctor, I have a good idea of what changes to expect in my health over the next few weeks and months.	0	8.1	68.9	23.0		0.2	3.5	8.3	65.3	22.9	
Q8: The doctor told me to call back if I had any questions or problems.	0	7.4	62.8	29.7		0.03*	5.0	4.3	59.6	31.2	
Q9: I felt the doctor was being honest with me.	1.4	2.0	60.1	36.5		0.4	4.2	2.8	54.2	38.9	
Q10: The doctor explained the reason why treatment was recommended for me.	0	4.7	63.8	31.5		0.03*	4.9	4.9	54.5	35.7	
Interpersonal skills domain					2.93	0.5					2.97
Q11: The doctor did not take my problem very seriously.	17.8	64.4	11.6	6.2		0.07	30.8	55.2	10.5	3.5	
Q12: The doctor did not give me all the information I thought I should have been given.	15.0	64.6	16.3	4.1		0.3	24.0	58.9	13.0	4.1	
Q13: I didn't have a chance to say everything I wanted or to ask all my questions.	20.3	62.8	15.5	1.4		0.6	20.5	61.0	14.4	4.1	
Q14: The doctor was not friendly to me.	30.6	59.9	6.1	3.4		0.5	29.5	56.2	6.8	7.5	
Q15: I would not recommend this doctor to a friend.	21.8	61.3	14.1	2.8		0.3	24.1	57.4	11.3	7.1	
Q16: The doctor seemed to brush off my questions.	20.1	66.7	11.1	2.1		0.7	25	63.2	9.0	2.8	
Q17: The doctor should have told me more about how to care for my condition.	8.3	31.0	49.7	11.0		0.2	10.9	40.8	40.8	7.5	
Q18: It seemed to me that the doctor wasn't really interested in my physical well-being.	19.2	63.0	14.4	3.4		0.5	22.1	58.6	12.4	6.9	

† Mean of transformed scores, so that for each question (whether positively or negatively framed), a high score is equivalent to higher satisfaction.

* Significant

Table Ib. Domains and response categories during infectious and post-infectious periods.

Domains and items	Response categories (n=149) during infectious period				Mean†	p-value	Response categories (n=147) during post-infectious period				Mean†
	Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)			Strongly disagree (%)	Disagree (%)	Agree (%)	Strongly agree (%)	
Empathy domain					2.77	0.8					2.78
Q19: The doctor considered my individual needs when treating my condition.	3.5	12.5	67.4	16.7		0.4	6.3	16.8	58.7	18.2	
Q20: There were some things about my visit with the doctor that could have been better.	7.9	32.9	54.3	5.0		0.3	7.9	36.0	46.0	10.1	
Q21: It seemed to me that the doctor wasn't really interested in my emotional well-being.	16.8	65.7	13.3	4.2		0.5	20.1	63.3	9.4	7.2	
Q22: The doctor seemed rushed today.	18.6	64.8	14.5	2.1		0.5	19.6	66.7	9.4	4.3	
Q23: The doctor should have shown more interest.	7.6	34.5	51.7	6.2		0.02*	15.4	38.5	35.7	10.5	
Q24: There were aspects of my visit with the doctor that I was not very satisfied with.	11.9	63.6	21.7	2.8		0.2	17.5	55.2	21.0	6.3	
Quality of time domain					2.98	0.8					2.99
Q25: The doctor went straight to my medical problem without first greeting me.	18.1	68.1	13.2	0.7		0.3	20.4	62.0	14.1	3.5	
Q26: The doctor used words I did not understand.	13.3	65.7	17.5	3.5		0.6	17.8	62.3	17.8	2.1	
Q27: There wasn't enough time to tell the doctor everything I wanted.	16.4	62.3	19.9	1.4		0.2	19.9	63.7	12.3	4.1	
Q28: I feel the doctor did not spend enough time with me.	16.0	65.3	17.4	1.4		0.046*	21.2	63.7	9.6	5.5	
Q29: I feel the doctor diagnosed my condition without enough information.	18.3	70.4	9.9	1.4		0.1	23.1	58.7	12.6	5.6	
Summary question											
Q30: Overall, I am satisfied with my doctor-patient interaction.	0.7	7.0	65.0	27.3		0.1	7.6	5.5	53.8	33.1	
Mean Satisfaction Index for all patients.					3.02	0.5					3.04

† Mean of transformed scores, so that for each question (whether positively or negatively framed), a high score is equivalent to higher satisfaction.

* Significant

METHODS

This research was approved by our institutional ethics review board. We used a previously-validated 29-question patient satisfaction questionnaire (Questions 1–29, Tables Ia–b) specific for radiotherapy centre outpatient visits.[9] The questionnaire was designed to evaluate four aspects (or "domains") of doctor-patient interaction: information exchange, interpersonal skills, empathy and quality of time. We also added one additional question assessing "overall" satisfaction (Question 30, Table Ib). For every question, patients were asked to indicate agreement (strongly disagree, disagree, agree, strongly agree).

To be eligible for the survey, consented patients had to consult a doctor at our radiotherapy centre during either of the two time periods of the study. The two periods were during the infectious disease outbreak (T1, May 19–31, 2003), and four months following the lifting of infection control measures (T2, November 3–14, 2003). To be eligible, patients had to be aged 18 years or older with intact cognition. Patients were asked to anonymously fill in the questionnaire after the consultation and deposit the completed questionnaire into a closed survey box placed in the separate patient waiting area. Follow-up on the survey forms distributed was done by a dedicated radiotherapy nurse to ensure

a good response rate. Results of T1 were not made known to participating doctors to reduce behavioural modification biases.

Statistical analyses were performed using the Statistical Package for Social Sciences version 11.0 (SPSS Inc, Chicago, IL, USA). Response categories were compared between the two time periods using the Pearson chi-square test. Responses to each question were also re-coded into two categories: satisfied versus dissatisfied, and also compared using the Pearson chi-square test. To compare domains and an overall "satisfaction index", responses were scored out of four, and transformed so that one correlated to least satisfied, and four to most satisfied. Mean satisfaction was averaged across each domain of the original questionnaire (i.e. for the four domains of "information exchange", "interpersonal skills", "empathy" and "quality of time") and overall, and compared by t-tests. Uni- and multivariate analyses evaluated the following patient characteristics: age, sex, race, paying class, tumour type, cancer stage, type of visit, presence of family member, language, education level and time waiting for consultation. All p-values reported are two-tailed.

RESULTS

During T1, there were a total of 197 first consultation patient attendances at the radiotherapy centre. Of the 197 patients, 11 were ineligible due to young age or cognition. Of the remaining 186 eligible patients, 174 agreed to participate and 149 questionnaires were returned (response rate of 80.1%). During T2, there were a total of 167 first consultation patient attendances at the radiotherapy centre. Of the 167 patients, five were ineligible due to cognition. Of the remaining 162 eligible patients, 157 patients agreed to participate and 147 questionnaires were returned (response rate of 90.7%). Patient characteristics are displayed in Table II, and are comparable between groups.

Results for each of the time periods for individual questions are shown in Tables Ia–b. There was no difference in mean satisfaction index between time periods: this was also reflected in the results of Question 30, where 92.3% and 86.9% of patients were satisfied overall ($p = 0.1$). Significant differences in responses occurred for feeling better about concerns (Q3, $p = 0.02$), understanding the doctor's plans (Q6, $p = 0.003$), being told to call back with questions (Q8, $p = 0.03$), the doctor explaining the reason for treatment (Q10, $p = 0.03$), doctor showing interest (Q23, $p = 0.02$), and doctor spending enough time (Q28, $p = 0.046$). When categorised as "satisfied" versus "dissatisfied", more patients indicated satisfaction for understanding the doctor's plans at T1 (100.0% versus 93.1% at T2, $p = 0.001$), while at T2, more patients indicated satisfaction for being told how to care for their condition (51.7% versus 39.3% at T1, $p = 0.04$) (data not shown). When comparing each individual domain between the two time periods, there were no significant differences found. On multivariate analysis, there was no significant association between variables and satisfaction when comparing the satisfaction index for the two time periods.

DISCUSSION

There has been no prior research that we are aware of investigating how infection control measures might impact on the experiences of oncology outpatients. This is no longer an esoteric question, as evidenced by our experience with SARS, and worldwide concerns of an avian influenza outbreak and bioterrorism. Our institution was in a unique position to evaluate patient satisfaction with doctor-patient interaction, and this opportunity will only arise again should a further outbreak occur. Healthcare providers and governments must anticipate the impact of such an outbreak on all healthcare services, and oncology is no exception. It is well established that cancer patients undergoing radiotherapy should avoid prolonged breaks in treatment, and patients awaiting radiotherapy for long periods also do worse. By its very nature, an infectious disease outbreak has an unknown time horizon potentially lasting many months or even years. Thus, in the event of an outbreak, radiotherapy outpatients will likely still attend for their treatment, and would do so under strict infection control measures. We hypothesised that these measures may adversely impact on the patient experience.

It is interesting to note that the overall level of satisfaction was similar during and after the outbreak of an infectious disease. This was despite the strict implementation of compulsory use of personnel protective equipment, such as gloves, gown, goggles and N-95 mask by healthcare workers, wearing of mask and gown by patients, the implementation by the hospital of a "no visitor" rule (with a limit of one visitor if there were compassionate grounds), minimisation of physical contact with patients (including avoidance of greetings with handshakes), and restricted physical access into hospitals.[10,11] Indeed our previous research indicated that 23.1% of patients perceived these measures as impacting negatively on doctor-patient interaction.[8] We hypothesise that the similar levels of satisfaction despite infection control measures may be due to a combination of factors.

During the outbreak, there was wide media coverage with daily updates of the outbreak situation. The media encouraged the population to unite as

one in combating the outbreak, and doctors were portrayed as frontline heroes fighting a war against an unknown disease.[10,12] Hence, patients may have been more tolerant during the outbreak of problems in doctor-patient interaction and may have lowered their expected level of satisfaction to accommodate the difficulties already faced with the outbreak. Thus public education and media campaigns may play an important role in maintaining high levels of patient satisfaction.

In addition, to cope with the additional infection control measures, extra non-medical staff were hired to help cope with the sudden need for manpower to man temperature checking stations, telephone helpline and volunteer guides. Hence, patients seen during the infectious period may have been better served before their clinic appointment time and more likely to accept a lower level of satisfaction with doctor-patient interaction, compensated by a better pre-clinic experience. Thus, institutions implementing such costly measures may find that excellent pre-clinic services may reap some benefits. It is clear that further research is required to better understand the reasons underlying satisfaction during the implementation of infection control measures.

There were several responses to questions where patients were not particularly satisfied at either time point, including the fact that "some things about the doctor's visit could be better" (Q20), "the doctor could have shown more interest" (Q23), and "the doctor should have told me more about how to care for my condition" (Q17). These responses provide important feedback that may allow improvements in our institution. Unfortunately for Question 20, patients were not asked to specify which things about the doctor's visit they were dissatisfied about. We can only assume that "the things that could be better" could include information about caring for their illness and/or lack of interest shown by their doctor. Thus, for the future use, we suggest for this satisfaction questionnaire to be refined to include an open-ended question allowing patients to list the items they wished that could be improved for their next doctor's visit. This might provide feedback to the department and allow changes enabling a more satisfactory visit. This is an important issue given that the question actually asks the patient to synthesise all of the perceived problems with the consultation into a single response.

In conclusion, there was no decrease in radiotherapy outpatient satisfaction during the implementation of strict infection control measures. This information should be useful for institutions and health services when planning to minimise the impact of future infectious disease outbreaks on patient care.

Table II. Patient characteristics for both time periods.

Patient characteristics	During infectious period	Post-infectious period
Patient age (years)		
Median	53.0	58.0
Gender (%)		
Male	32.9	37.9
Female	67.1	62.1
Ethnic group (%)		
Chinese	84.6	82.8
Malay	7.4	9.0
Indian	3.3	4.1
Other	4.7	4.1
Does patient speak English? (%)		
No	37.6	41.4
Yes	62.4	58.6
Paying class (%)		
Private	17.4	10.3
Subsidised	82.6	89.7
Cancer primary type (%)		
Breast	41.6	48.3
Lung	19.5	21.4
Gastric	6.7	3.4
Colorectal	6.0	4.1
Nasopharyngeal carcinoma	11.4	6.9
Lymphoma	6.0	3.4
Other	8.7	12.5
Cancer stage (%)		
In-situ	0	2.1
Stage I	21.5	14.5
Stage II	34.9	41.4
Stage III	18.8	14.5
Stage IV	24.8	27.5
Visit type (%)		
New patient	17.4	16.6
Follow-up	36.9	41.4
Treatment review	22.8	23.4
Mold room	0.7	0
Simulation	10.1	6.9
Radiotherapy treatment	12.1	11.7
Was family member present? (%)		
No	61.7	55.2
Yes	38.3	44.8
Patient's highest education level (%)		
No school	0	0
Elementary school	34.2	33.8
Secondary school	45.0	49.0
College	8.7	7.6
University	7.4	4.8
Postgraduate school	4.7	4.8
Time spent waiting (minutes)		
Median	15.0	15.0
Range	0–120	0–120
Language of patient's questionnaire (%)		
English	59.1	55.2
Chinese	40.9	44.8

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