

What do patients expect from consultations for upper respiratory tract infections?

Cynthia SY Chan

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Background and objective. A cross-sectional survey was conducted amongst patients who consulted for upper respiratory tract infections (URTI) at 22 private practitioners' offices.

Method. A total of 505 adult patients and 504 guardians (parents or grandparents of child patients) completed a self-administered questionnaire.

Results. The majority thought that URTI would not resolve on its own, while half thought that injections would speed recovery. But 78% disagreed with the statement that "taking multiple medications means faster recovery". Although 91% consulted for medicines, only 36% went specifically for antibiotics and 20% for injections. More than half would accept it if the doctor advised no medicine. More guardians (85%) than adult patients (69%) went for reassurance and to exclude complications. Using logistic regression analysis, the more educated respondents and the working guardians had higher knowledge scores, while the working guardians and respondents who knew the viral cause were less likely to worry and to demand antibiotics and injections.

Conclusion. Much patient education and a change in doctors' prescribing habits in the management of URTI are needed in Hong Kong.

Keywords. Respiratory tract infection, knowledge, attitudes, health services demand, general practice.

Introduction

Upper respiratory tract infection (URTI) is a minor and often self-limiting condition, and yet it is the commonest condition for which general practitioners (GPs) are consulted.¹ In the four morbidity studies of private general practice in Hong Kong carried out in 1980, 1982, 1986 and 1994, respiratory illnesses constituted about half of the total patient encounters, and two-thirds of these were URTI.^{2–5}

Many doctors feel obliged to prescribe multiple medications and injections,^{2,6–8} assuming that patients have come for medications for their URTI. The doctor's behaviour may reinforce the patients' idea that they must go to the doctor for many medications for their common cold. Previous studies by our department in 1987 showed that the majority of patients attending a government outpatient clinic were of the opinion that the common cold would not resolve on its own, especially not in children.^{9,10}

Since private practitioners provide about 70% of primary care services,¹¹ this cross-sectional study was undertaken to determine private practice patients' knowledge about URTI, their attitudes and wishes at these consultations.

The hypothesis was that patients consulting private practitioners had similar misconceptions about the natural history and treatment of URTI, and that they, especially the older and the less educated, were less knowledgeable and demanded more medications and injections, whereas patients with accurate knowledge would be less demanding of medicines.

Objectives

The study aimed:

- (i) to determine, by a self-administered questionnaire, the knowledge about the cause, natural history and treatment of URTI, the attitudes and wishes at consultation, and the consultation behaviour of adult patients 18 years or older who visited their general practitioners for URTI;
- (ii) to determine the knowledge, attitudes, wishes and consultation behaviour of guardians (parents or

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Department of Community and Family Medicine, The Chinese University of Hong Kong, 4th Floor, Lek Yuen Health Centre, Shatin, New Territories, Hong Kong.

- grandparents) of children (17 years old or younger) who visited their general practitioners for URTI;
- (iii) to compare the knowledge, attitudes, wishes and behaviour of the above two groups concerning the cause and management of URTI;
 - (iv) to determine if the knowledge, attitudes, wishes and behaviour of the above two groups are influenced by variables such as age, sex, education, occupation status, and the child's age and sex.

Method

A self-administered questionnaire in Chinese was developed and pilot tested for face validity in two private practitioners' offices in August 1989. The views of two family medicine academics and a number of general practitioners were sought to ensure the content validity of the questionnaire. Refinement of the wordings and the survey protocol were made after the pilot test. The versions for adult patients and for guardians were similar except for the details about the child's health and basic data. The two versions were printed in different colours for easy recognition.

In April 1990, private general practitioners who were honorary clinical tutors of the Department of Community and Family Medicine of The Chinese University of Hong Kong were invited to join the study. Each doctor was asked to recruit consecutively 30 adults and 30 children who presented with URTI.

URTI was defined according to the International Classification of Primary Care (ICPC) and ICHPPC-2-defined criteria^{12,13} with slight modification: i.e. any one symptom of runny nose, nasal congestion, sore throat or cough of less than 2 weeks duration, with or without a fever $< 39.4^{\circ}\text{C}$, and with or without malaise.

After the doctor had seen the patient and decided the consultation was for a URTI, the adult patient or the guardian was invited to fill in the questionnaire and return it to the receptionist.

Exclusion criteria from the study were: (i) anyone who was illiterate; (ii) any children who were unaccompanied by their parent or grandparent; and (iii) anyone who had already filled out the questionnaire once.

A respondent was defined as anyone who had filled out the questionnaire, i.e. either an adult patient or a guardian.

All the questionnaires were collected by June 1990. A knowledge (K) score was compiled by assigning one point for each correct answer to five knowledge items (cause, prognosis in adults and in children, the effects of medicines and of injection). An attitude and wish (AW) score was calculated taking account of the respondent's level of worry, confidence in home care, acceptance of doctor's advice about requiring no medicines,

and request for antibiotics and injections. The scores were categorized into either high or low score groups.

Data were analysed using the Statistics Package for Social Sciences (SPSS). Multiple logistic regression analysis was performed to determine the possible effects of inter-related variables (such as age, sex, education and occupation status of the respondents) on the adult patients' and guardians' scores.

Results

Doctors' response

Of the 53 private practitioners and one private hospital group practice who were actively teaching students in April 1990, 21 doctors and the one group practice consented to participate, giving a response rate of 42%. The geographical locations of these clinics included five in Hong Kong island, 12 in Kowloon and five in the New Territories. All but three of the doctors had higher qualifications or training.

Significantly more tutors with postgraduate qualifications in family medicine or other specialities agreed to participate in the study (46% versus 16% who had none; $P < 0.05$, Fisher's exact test). There was no statistical difference with respect to the geographical location of the physicians' practices between the participants and non-participants.

Patients' response

Each doctor recruited 4–31 adult patients (mean = 28) and 10–53 children (mean = 23). The group practice recruited 41 adult patients and 46 children.

The total number of patients excluded from the study was 160, including 106 illiterates and 54 children unaccompanied by guardians. Five doctors did not return their lists of exclusions.

There were 58 refusals, 30 missing and 66 incomplete questionnaires. Data analysis was performed on 1009 questionnaires, and the response rate was 87%.

Demographic data

There were 505 adult patients and 504 guardians and child patients in the study (Table 1). All of them answered "Yes" to the question: "Are you seeing the doctor today for URTI?"

The age distribution of the children was as follows: 16% were < 2 years old, 32.5% 2–5 years, 32.5% 5–10 years and 19% 10–17 years. Half were boys and half were girls.

23% of the adult patients and 21% of the children were new patients.

Knowledge about URTI

About half of the respondents (54%) thought that bacteria were the cause. Only 28% knew that URTI is caused by viruses.

TABLE 1 Demographic data of respondents

	Total (n = 1009)		Adult patients (n = 505)		Guardians (n = 504)		Chi-square*	P value
	No.	%	Total	%	Total	%		
Age								
18-29	380	38	257	51	123	24		
30-39	468	46	156	31	312	62		
≥ 40	134	13	76	15	58	12	101.7	< 0.0001
Unknown	27	3	16	3	11	2		
Sex								
Female	698	69	292	58	406	81		
Male	297	30	210	41	87	17		
Unknown	14	1	3	1	11	2	68.3	< 0.0001
Education								
Primary	247	25	92	18	155	31		
Secondary	642	64	342	68	300	60		
Tertiary	102	10	65	13	37	7	26.5	< 0.0001
Unknown	18	2	6	1	12	2		
Occupation status								
At home	557	46	133	28	324	64		
Working	519	51	344	72	175	35		
Unknown	33	3	28	6	5	1	132.9	< 0.0001
Doctor's district								
Hong Kong island	160	16	87	17	73	15		
Kowloon	502	50	248	49	254	50		
New Territories	347	34	170	34	177	35	1.4	0.5

* Comparing total numbers of adult patients and guardians and excluding unknowns.

The majority (69%, $n = 698$) of the respondents disagreed with the statement that "In adults, URTI will resolve without seeing the doctor." Almost all (90%) disagreed when the statement was about URTI in children.

Up to one-third of both groups knew that it may take 5-7 days for URTI to get better.

The majority (78%, $n = 791$) of the respondents disagreed with the statement that "Taking multiple medications means faster recovery." About half (48%, $n = 486$) of the respondents agreed with the statement that "Injections would make URTI recover sooner."

The adult patients and the guardians had similar mean K scores (Table 2).

Consultation behaviour with URTI

In general, the majority (72%, $n = 724$) of the patients would normally consult the doctor within the first 2 days of URTI.

For the present episode of URTI, about half (53%) of the guardians said that their child had been ill for 1-2 days, while 35% had been ill for 3-5 days. For the adult patients, 46% had been ill for 1-2 days and 39% 3-5 days.

Forty per cent of adult patients and 21.5% of children had self-medicated prior to consultation ($P < 0.001$), and 22% of adult patients and 24% of children had consulted another doctor for the present episode of URTI.

Attitude about URTI and wishes at consultation

The majority (57%, $n = 568$) of the respondents agreed with the statement: "I would accept the doctor's advice if he did not recommend any medicine after making the diagnosis." About 67% of the respondents who knew the viral nature of URTI would accept the doctor's advice compared with 53% of those who were unsure or thought that bacteria were the cause ($P < 0.001$).

The respondents answered "Yes" or "No" to a list of questions about their wishes and reasons for consultation.

The majority (91%, $n = 915$) went for medications so that they could recover faster. Only 69% went specifically for cold and cough medicines. The proportions who had come for antibiotics and injections were much lower: 36% and 20% respectively. More adult patients (45%) would request antibiotics, while only 37% of guardians would request antibiotics for their child ($P < 0.05$).

The adult patients and the guardians had similar mean AW scores (Table 3).

Other reasons for consultation

Seeing the doctor for reassurance (73%), worry about complications (73%) and worry about URTI lasting for too long (67%) were also important reasons for consultation.

TABLE 2 Knowledge of adults and guardians about URTI

Knowledge	Adult patients		Guardians	
	No.	%	No.	%
Cause				
<i>Virus</i>	159	31	122	24
<i>Bacteria</i>	260	52	287	58
<i>Don't know</i>	84	17	90	18
URTI will resolve on its own				
<i>In adults</i>				
<i>Yes</i>	138	28	159	32
<i>No</i>	364	72	334	68
<i>In children</i>				
<i>Yes</i>	41	8	54	11
<i>No</i>	463	92	444	89
Multiple medicines: faster recovery				
<i>Yes</i>	84	17	116	24
<i>No</i>	417	83	374	76
Injections: faster recovery				
<i>Yes</i>	264	53	222	45
<i>No</i>	235	47	272	55
No. of days for recovery				
<i>1-2</i>	32	7	15	3
<i>3-4</i>	126	25	150	31
<i>5-7</i>	161	33	166	34
<i>More days/don't know</i>	172	35	155	32
K score* (mean)	1.98		1.98	

* 1 point for each answer in italics.

There were significant differences in the reasons for consultation amongst the guardians and the adult patients (Table 3). Many more guardians took their child to the doctor for reassurance (85% versus 69% of adults, $P < 0.001$), and to exclude complications (87% versus 70% of adults, $P < 0.001$). More adult patients (82%) than guardians (67%, $P < 0.001$) consulted because the URTI had lasted for too long.

Scoring

The cut-off points used to define high or low scores were set such that the numbers in each comparison group were not too small for statistical analysis (at least around 50). The high and low score groups were classified as follows (Table 4): for K score, high score = 4 or 5, low score = 0 or 1; for AW score, high score = 5, low score = 0 or 1 or 2.

Those who had higher K scores were more correct in their knowledge about URTI, and those with higher AW scores were more confident about home management, less worried, more receptive to the doctor's advice and less demanding for antibiotics and injections.

Multiple logistic regression analyses

After adjustment by logistic regression (Table 5) for age, sex, occupation status and education level of the respondents, child's sex and age, and geographical

TABLE 3 Attitudes, wishes and reasons for consultation for URTI

	Adult patients		Guardians	
	No.	%	No.	%
Attitudes				
<i>Worry</i>				
<i>Not at all</i>	27	47	115	12
<i>Slightly</i>	240	48	326	65
<i>Very much</i>	235	5	62	23
<i>Confidence about self care</i>				
<i>Yes</i>	283	57	307	63
<i>No</i>	218	43	182	37
<i>Accept if doctor does not recommend medicine</i>				
<i>Yes</i>	285	57	283	57
<i>No</i>	215	43	214	43
<i>If no medicine is dispensed, doctor's fee should be</i>				
<i>The same</i>	76	15	50	10
<i>Reduced</i>	381	77	367	75
<i>No charge</i>	42	8	75	15
Wishes				
<i>To obtain medicines for faster recovery</i>				
<i>Yes</i>	469	96	446	93
<i>No</i>	21	4	34	7
<i>For URTI medicines</i>				
<i>Yes</i>	356	76	343	76
<i>No</i>	113	24	107	24
<i>For antibiotics</i>				
<i>Yes</i>	205	45	159	37
<i>No</i>	256	55	276	63
<i>For injection</i>				
<i>Yes</i>	116	25	87	20
<i>No</i>	341	75	343	80
AW score* (mean)	3.38		3.38	
Other reasons for consultation				
<i>For reassurance</i>				
<i>Yes</i>	329	69	405	85
<i>No</i>	150	31	72	15
<i>To exclude complications</i>				
<i>Yes</i>	335	70	405	87
<i>No</i>	145	30	63	13
<i>URTI lasted too long</i>				
<i>Yes</i>	383	82	294	67
<i>No</i>	85	18	142	33
<i>For sick leave certificate</i>				
<i>Yes</i>	127	28	87	20
<i>No</i>	334	72	343	80

* 1 point for each answer in italics.

district of the doctor, education was the only significant variable influencing the K scores for both adult patients and guardians. Adult patients with tertiary education and guardians with secondary or tertiary education were more likely to have higher K scores than those with primary education.

TABLE 4 Knowledge (K) and attitude and wish (AW) scores by group

Category	K score				AW score			
	Adult patients		Guardians		Adult patients		Guardians	
	No.	%	No.	%	No.	%	No.	%
0	36	7.3	37	7.9	5	1.1	9	2.2
1	143	29.1	141	29.9	28	6.3	33	8.0
2	174	35.4	156	33.1	70	15.6	52	12.6
3	87	17.7	89	18.9	127	28.3	108	26.2
4	36	7.3	28	5.9	124	27.7	119	28.8
5	15	3.1	20	4.2	94	21.0	92	22.3
Mean	1.98		1.98		3.38		3.38	
SD	1.15		1.19		1.22		1.30	
Low score	0-1		0-1		0-2		0-2	
High score	4-5		4-5		5		5	

Guardians who worked outside the home were more likely to have higher K and AW scores. Patients visiting doctors who practised in Kowloon and the New Territories were less likely to have high K and AW scores than those consulting doctors who practised on the Hong Kong island.

Respondents who knew the viral cause of URTI and those who did not think that pills or injections enabled faster recovery were more likely to have a higher AW score.

Other variables such as past illness, numbers of consultations for URTI in the past year, new or old patient, prior self-medication and prior doctor consultation were not significantly related to the K or AW scores.

Discussion

The level of knowledge in the respondents

It was interesting to note that even though the majority (60%) of respondents claimed knowledge of self-management of URTI, half of them consulted the doctor within the first 2 days of their present illness.

Only one-third knew the viral aetiology of URTI. The majority of the lay public could not tell the difference between bacteria and viruses. However, correct knowledge was found to be significantly related to high AW scores in the respondents. It is likely that a greater attempt to educate patients about the aetiology of URTI may increase their acceptance of the doctor's advice and decrease their demand for antibiotics and injections. This finding will be further confirmed by prospective studies.

Despite the possibility that the respondents could have had prior education about URTI from their physicians, 90% believed that children would not recover spontaneously, and the same belief was held by 70% regarding URTI in adults. There was a great misconception about the natural history of URTI and the potential of the body's defence and recuperating mechanism. There had been no improvement compared with the 1987 study on government outpatients.⁹⁻¹⁰ Much health education is still needed in this area.

Did patients come requesting antibiotics and injections?

With the misconception about the need for medications to enable recovery for URTI, it was not surprising to find that 91% consulted the doctor for medications. However, only 45% of adult patients and 37% of guardians went specifically for antibiotics. The pressure on the doctor to prescribe was mainly for oral medication for symptomatic relief.

Even though half of the respondents were of the opinion that injections could induce faster recovery, only 25% of adult patients and 20% of guardians went requesting an injection. The discrepancy between belief and demand could be explained by the fear of pain, or their perception that their URTI was not severe enough to warrant such a potent and drastic treatment.

Despite the belief that one should go to the doctor for medicine to get better, the majority was not of the opinion that recovery would be enhanced by increasing the number and types of medications. The belief held by many doctors that patients in Hong Kong prefer multiple medications for their URTI does not seem well founded.

TABLE 5 Odds ratios for having higher knowledge (K) and attitude and wish (AW) scores by multiple logistic regression

	K score (high versus low)		AW score (high versus low)	
	Adult patients	Guardians	Adult patients	Guardians
No. in group	212	214	182	179
Education				
Primary	1	1	1	1
Secondary	7.3**	7***	2.2	0.7
Tertiary	21***		3.3	
Doctor district				
Hong Kong island	1	1	1	1
Kowloon	0.4*	0.06***	0.5	0.1***
New Territories	0.7	0.02***	0.3*	0.2**
Age in years				
18–29	1	1	1	1
30–39	2.2*	2.1	1.1	1.9
≥ 40	1.3	0.2	0.3	1.4
Occupation status				
At home	1	1	1	1
Working	1.5	3.8**	1.2	6.7***
Sex				
Female	1	1	1	1
Male	1.1	1.7	0.7	0.3
Cause of URTI				
Don't know/bacteria			1	1
Virus	na	na	2.8*	4.0**
Multiple medicines: faster recovery				
Yes			1	1
No	na	na	3.4*	6.4**
Injections: faster recovery				
Yes			1	1
No	na	na	4.3***	2.3

* $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.
na = not applicable, not included in model.

What if the doctor does not comply?

Despite patients' wishes for medications, the majority of them (56%) were willing to accept the doctors' advice if no medication was required. Doctors should feel more confident about advising their patients on the necessity of medications and should not overly worry that they may displease their patients by not yielding to their requests.

Of course there is also the financial aspect to be considered as three-quarters of the respondents thought that the doctor should charge lower fees if no medicine was dispensed. With the present system in Hong Kong in which doctors are dispensing medicines to patients, these opinions are not unexpected. Separation of consultation and medication charges may help the patient to appreciate the worth of the doctor's professional service irrespective of any drugs dispensed.

The district in which the doctor practised

The district in which the doctor practised was found

to be a significant variable for both the K and AW scores. There could have been socio-economic differences between the three districts, but there was no information on whether the patients were from the same area as the doctor's practice. As the number of doctors in each district was small, this particular finding may reflect only the styles of practice of the specific doctors in the study.

Generalizability of the results

The sample size of 1009 was sufficiently large that there was 95% confidence that the error rate was <5%.¹⁴ Hence the results of the study are generalizable to the literate patients or guardians who accompanied their child to visit private physicians' offices for URTI.

For subgroup analysis, the effect of age could be clearer if there had been more respondents aged 40 or over.

Despite the relatively small number of respondents with tertiary education ($n = 102$), its effect was great

and education was shown to be a significant factor for high knowledge scores. The effect of education could have been greater if more guardians with tertiary education had been surveyed.

As mentioned before, by selecting patients of honorary tutors, there could have been a bias towards better knowledge and higher receptivity of the doctor's advice than the general public, especially when three-quarters of the respondents were old patients of doctors who had higher qualifications in family medicine or other specialities.

Conclusion

There is much room for patient education in the aetiology and management of URTI in Hong Kong. Based on the findings that the majority of respondents disagreed with the use of multiple medications and were receptive of the doctor's advice about their need for medications, there is firm ground for doctors in Hong Kong to change their prescribing habits for URTI.

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