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The dynamics of resident–patient communication: Data from Canada*

JASRIT S. PAHAL and HAN Z. LI

Abstract

The objectives of this study were to examine patterns of resident–patient communication and the relationship between resident patterns of speech with patient satisfaction. Forty consultations, ten in each of the four gender combinations (male resident/male patient, male resident/female patient, female resident/female patient, female resident/male patient) were audiotaped and microanalyzed using the Roter Interaction Analysis System. Several findings depart significantly from previous studies with physician-only or physician–resident-mixed samples. First, the average length of the 40 consultations was 19.5 minutes, 11.3 minutes longer than consultations in a physician-only sample drawn in the same clinic previously. Second, male residents engaged in twice as much psychosocial talk as female residents and conducted longer consultations. Third, residents asked 80% of the total questions while patients asked 20% of the questions. Previous studies with physician-only or physician–resident-mixed samples reported that physicians ask 89–99% of the total questions. Finally, patients' overall satisfaction and communication satisfaction were negatively correlated with residents' positive talk, which constitutes 31% of a given resident's total utterances. In the study conducted in the same clinic with a physician-only sample, physician positive talk was 26% and physician positive talk was not correlated with patient satisfaction. Is this a signal that residents should reduce the amount of positive talk? Apparently more studies with resident-only samples *are needed to answer this and other unanswered questions in the field to offer directives to resident training.*

Affiliation(s): J. S. Pahal, H. Z. Li (University of Northern British Columbia)
Correspondence to: Han Z. Li
E-mail: lih@unbc.ca

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1. Introduction

Past research indicates that physician–patient consultations show an asymmetrical pattern of communication, with physicians manifesting a higher percentage of biomedical talk (e.g., Roter and Larson 2001; Desroches 2003) and patients a higher percentage of psychosocial talk (Roter, et al. 1997). It is argued that this asymmetrical pattern of communication between the two parties may have contributed to miscommunication and noncommunication between physicians and patients (Li et al. 2004). It has been found that physicians' psychosocial talk increases patient satisfaction (e.g., Bertakis et al. 1991; Buller and Buller 1987) whereas biomedical talk decreases patient satisfaction (Bertakis et al. 1991). This study continues to examine these two issues, i.e., patterns of physician–patient speech and its relationship with patient satisfaction, in the context of a Canadian teaching clinic. Instead of experienced physicians, all participants were first- and second-year family practice residents. The purpose of this study was twofold: (i) to add to the handful of studies on physician–patient communication in Canada, and, (ii) to examine whether a *residents-only* sample would yield different communication patterns than a physician-only sample or a physician–resident-mixed sample. In the following sections, representative literature on patterns of physician–patient communication and the relationship between physician speech and patient satisfaction are reviewed, and followed by three research questions.

1.1. *Patterns of physician–patient communication*

1.1.1. *Gender differences.* Past research has shown that substantial differences exist between the way fe-

male and male physicians communicate with patients (Brink-Muinen et al. 2002; Davis 1988; Hall et al. 1994; Barnsley et al. 1999). It was found that female physicians conducted longer consultations, talked more positively, gave more psychosocial information, and were more reassuring and encouraging than their male counterparts (Hall and Roter 2002; Street 2002). In a review of the literature, Roter and Hall (2004) reported that consultations conducted by female physicians lasted a full two minutes longer than male physicians, and female physicians were more patient-centered, engaged in more partnership building and emotionally focused talk than male physicians.

Male physicians, on the other hand, gave more instructions and advice on what patients should do, and they were more verbally dominant and imposing (Brink-Muinen et al. 2002). However, some researchers found the opposite: male physicians spent more time with patients, engaged in more facilitative communication, and made more expressions of concern than did female physicians (Roter et al. 1999).

Weijts (1994) found that when female physicians are paired with female patients and male physicians are paired with male patients, they conducted longer consultations than opposite-gender dyads; female physicians and female patients talked the longest, and female physicians and male patients talked for the least amount of time.

Street (2002) concluded that gender differences between male and female physicians exist, but are small; male and female physicians perhaps are more similar than different in their communication styles. Although not exhaustive, the above-mentioned research shows that researchers are divided regarding male and female physicians' communication styles. The first objective of this study was to further explore similarities and differences in communication styles between male and female physicians, but with a residents-only sample.

1.1.2. *Physician and patient patterns of speech.* Physicians and patients engage in similar amounts of information giving (Frederikson 1995). As conversation partners, physicians and patients supply each other information, patients describe symptoms and narrate reasons for the visit, whereas physicians provide information regarding diagnosis, treatment plans, and offering advice on relevant issues. Physicians and patients also exhibited similar amounts of social talk (Desroches 2003). However, the two parties diverge when it comes to asking questions (Beisecker and Beisecker 1990; Frankel 1990; Roter 1984; Roter and Frankel 1992), with physicians asking almost all of the questions during a consultation, and patients asking very few. Deveugele and colleagues (2004) found that physician speech is comprised mainly of giving directions, counseling, giving information, and asking questions. On the other hand, Desroches (2003) found that patient talk is characterized by biomedical information giving, psychosocial exchange (giving information about their lifestyle, psychosocial concerns, and asking for reassurance), and positive talk (laughing, approving, complimenting, agreeing, and empathic statements). The second objective of the present study was to examine similarities and differences in resident and patient speech, in an attempt to compare them with previous research with physician-only and physician–resident-mixed samples.

1.2. *Physician patterns of talk and patient satisfaction*

Physician patterns of talk with patients have been shown to affect patient satisfaction (e.g., Bertakis et al. 1991; Roter and Hall 2004). Desroches (2003) found that close-ended questions and facilitative statements (back-channel responses, changing the subject, checking for understanding, and asking the patient's opinion) had a negative effect on patient satisfaction. The author argued that close-ended questions did not encourage patient participation in the conversation, and that physician facilitative statements may have been perceived by patients as controlling and interruptive.

Frederikson (1995) found that dealing with patient concerns, exploring patient expectations, patient ideas, and discussing problem solutions were directly and positively correlated with patient satisfaction. These behaviors on the part of physicians accounted for 87% of the variation in variables measuring patient satisfaction. Frederikson points out that patients place importance on receiving information from physicians, but only when the exchange allows them to participate: patients would like to be active rather than passive recipients of medical care. Bertakis et al. (1991) concluded that since physicians control the pace and content of medical encounters, it is imperative to continue the study of physician communicative behaviors and patient satisfaction, with the hope that research may be able to help physicians modify their communication patterns, thus increasing patient satisfaction. This theme constitutes the third objective of the present study.

2. Research questions

The above literature review leads to the three research questions of the present study:

1. What is the role of gender in resident–patient communication? Do male and female residents communicate with male and female patients differently?
2. What are the patterns of communication between residents and patients?
3. Which categories of resident speech are correlated with patient satisfaction?

3. Methods

3.1. *Context*

This study took place at the John G. McKenzie Family Practice Clinic (Faculty of Medicine, University of British Columbia) in Prince George, British Columbia. Data collection began in mid-2003 and concluded in mid-2004. Upon finishing their courses, medical students must complete a two-year residency program before pursuing family medicine. Experienced family physicians provide guidance and assistance to residents when needed. That is, residents mostly conduct medical consultations with patients alone. Residents are paid on a salary basis, whereas physicians in British Columbia are paid on a fee-for-service basis. Physicians receive payment for the number of patients they see (up to a maximum number per day). In comparison with their mentors, residents have fewer time constraints.

3.2. *Participants and recruiting procedure*

3.2.1. *Residents.* First- and second-year residents were given background information on the objectives of the study. All residents, five females and four males, agreed to participate. They signed a consent form and were given a code number to maintain anonymity. Demographic information on the residents was not collected; however, all participating residents were under the age of 35 at the time of data collection.

3.2.2. *Patients.* A table and a chair were placed at the entrance to the clinic and the researcher (the first author of this study) greeted patients and briefly informed them about this study and asked for their participation. They were told that if they agreed to participate in this study, their consultation with their physician would be audio-taped and that they would need to fill out a questionnaire when they came out of the consultation room. Those who agreed to take part were reassured that their responses to the questionnaire would not be seen by their physician, and that they could withdraw at any time should they so wish. Eighty-eight percent of the patients approached agreed to participate in this study.

The mean age of patients was 43.43 years (SD = 14.98), and the majority had some post-secondary education (37.5% community/technical college, 22.5% university). The majority (60%) were currently employed, and English was the first language of 39 out of 40 of the patients. The patient whose first language was not English rated her English as 'fair'. The majority of the patients rated their health as either 'excellent' or 'good' (21.1% and 55.3%, respectively); 15.7% rated their health as 'fair', and 7.5% as 'poor'. The appointments were nonemergent in nature and the health problems included a common cold, back pains, pregnancy check-ups, car accident related problems, and regular physical examinations.

3.2.3. *Data collection process.* A quota system was used for each of the four gender combinations. Availability of the residents took priority. Data collection started with all four gender combinations simultaneously and was completed within a year because residents rotated among several sites and data were only collected on one site. A total of forty dyads were audio-taped, ten in each gender combination: male resident/male patient, male resident/female patient, female resident/male patient, and female resident/female patient.

3.3. *Recording apparatus*

Video cameras were located in all examination rooms in the clinic for evaluation purposes, and consisted of inconspicuous units embedded in thermostats. For the purposes of this study, the lens of the camera was covered to provide audio only. The recording apparatus (VCR and television) is located in the room adjacent to where the video camera is located, and can be adjusted without coming into contact with either the physician or the patient.

3.4. *Patient questionnaire*

Patients were asked to fill out a short questionnaire immediately after their medical visit that contained questions on various types of satisfaction, health status, and demographic information. The questionnaire was adapted from Roter et al. (1997). Hall and colleagues (1994) found the questionnaire to be reliable and valid (Cronbach alpha = 0.93).

3.5. *Transcription of consultations*

Audio-taped consultations were converted into digital (MP3) format. The consultations were then transcribed verbatim in preparation for coding. Through the use of code numbers, transcribed consultations did not contain any information that could identify the residents or patients.

3.6. *Data coding and interscorer reliability*

The Roter Interaction Analysis System (RIAS) was used to code the data. In order to maximize accuracy and efficiency, coding was done on the transcripts while listening to the audio soundtrack of the encounter. The unit of analysis was an utterance, which is defined as the smallest string of words with meaning

(Hall et al. 1994; Li 1999a; Roter 1977; Roter and Hall 1992). This unit can vary from a lengthy sentence to a single word. In this study, utterances were coded according to the categories derived from the study by Roter et al. (1997). According to the RIAS system, speech can be classified into forty categories, which are mutually exclusive when tone and context are taken into consideration (coding guidelines are in place for coders to determine which variable an utterance falls into depending on the context and tone to avoid a situation in which an utterance can be coded into more than one category). In this study, the forty categories were grouped into nine composites based on commonalities (see Table 1). For example, psychosocial exchange consists of five categories: gives information (lifestyle), gives information (psychosocial), counsels (lifestyle/psychosocial; physician only), self-disclosure (physician only), and asking for reassurance (patient only). The number of each of these utterances was tallied for both resident and patient. The groupings were identical to the speech patterns and categories in past research (Roter 1997; Roter and Hall 1992).

Fifteen percent of the consultations were coded by two independent coders. Interscorer reliability was 0.79 (Pearson correlation). Disagreements between coders were discussed in light of the scoring standards. In some cases, audiotapes were referenced in order to reconcile differences.

Table 1. *Composite categories of the Roter Interaction Analysis System (Roter et al. 1997)*

Communication behavior	RIAS coding categories
Questions, close-ended	Closed-ended questions (medically related, therapeutic regimen, lifestyle, psychosocial/feelings, and other)
Questions, open-ended	Open-ended questions (medically related, therapeutic regimen, lifestyle, psychosocial/feelings, and other)
Biomedical information	Statements conveying information about medical condition and therapeutic regimen. Also, counseling in medical/therapeutic aspects, and requests for service (patient)
Psychosocial exchange	Statements and recommendations about lifestyle and psychosocial concerns, self-disclosures (physician only), and asking for reassurance
Positive talk	Laughing, approvals, compliments, agreement, empathic statements, reassuring/optimizing, legitimizing statements, partnership-building statements
Negative talk	Showing concern (negatively), disapproval statements, criticisms
Social talk	All personal, social statements, not pertaining to the medical consultation
Facilitation	Back-channel responses, changing the subject, checking for understanding, bids for repetition, asking for understanding, and asking for opinions
Orientation	Orientation statements

3.7. *Data analysis*

SPSS for Windows (Statistical Package for the Social Sciences, Version 12, 2003) was used to analyze the data. The forty utterance types were tallied into nine groupings: close-ended questions, open-ended questions, biomedical information, psychosocial exchange, positive talk, negative talk, social talk, facilitation, and orientation statements.

3.8. *Converting frequencies into rates*

On account of the differences in speech rate and the length of consultations, comparison of raw frequencies would not provide as useful a comparison as rates. Thus, the frequencies observed for the nine speech categories for both residents and patients were standardized (Kollock et al. 1985; Li 1999b, 2001). Rates were calculated by dividing the frequency of each individual's speech category by the total number of utterances that the individual made during the consultation. Because of the small numerators and large denominators, the rates were very small. Following Beaumont and Cheyne (1998), these rates were multiplied by a constant, which was the grand mean of all utterances for that particular interaction divided by two. For example, resident '65' asked a total of four open-ended questions, and made a total of 181 utterances during the consultation. Dividing these two numbers gives us 0.02, which was multiplied by one-half of the grand mean (calculated to be 237.01), yielding the rate of open-ended questions for resident '65' to be 5.24.

3.9. *Patient satisfaction*

Patient satisfaction was measured by thirteen questions that constituted four categories: overall satisfaction, communication satisfaction, expertise satisfaction, and affect satisfaction. The four categories were similar to those used by Evans et al. (1992), who differentiated physician's communication style into expressed interest, technical competence, and affective tone. The questions that constituted the four satisfaction constructs were selected by the authors using a theory-driven approach.

Overall satisfaction was made up of four questions: 'the goal of my visit today was achieved', 'my doctor told me all I wanted to know about my condition and treatment', 'I have health problems which should have been discussed today but were not' (the scale for this question was reversed for data analysis), and 'my doctor answered all my questions'. Item analysis revealed a reliability coefficient of 0.60 (standardized alpha), with an item mean of 4.41 (SD = 0.01). On a Likert scale, 'strongly disagree' was coded as 1, 'disagree' as 2, 'unsure' as 3, 'agree' as 4, and 'strongly agree' as 5. A mean of 4.41 indicates fairly high satisfaction.

Affect satisfaction contained three questions: 'my doctor acted bossy and domineering at times during my visit today', 'my doctor made me feel important today', and 'my doctor seemed to be in a hurry'. Standardized item alpha was 0.02 with an item mean of 4.39 (SD = .07).

Communication satisfaction consisted of three questions: 'my doctor asked me whether I understood what he or she had told me about my condition or treatment', 'whether I was satisfied with the way my doctor and I communicated today', and 'during my visit today, whether I felt there were times when my doctor and I miscommunicated'. Standardized alpha was 0.51, with an item mean of 4.44 (SD = 0.12).

Expertise satisfaction consisted of three questions: 'I have great confidence in my doctor', 'my doctor has a reasonable understanding of my life circumstances', and 'my doctor has a good understanding of my past health history'. Standardized alpha for expertise satisfaction was 0.79, with an item mean of 4.07 (SD = 0.15).

4. Results

4.1. *Patterns of communication between residents and patients*

4.1.1. *Number of words spoken and utterances made.* The average number of words spoken during consultations was 1319.53 (SD = 781.26) and 888.95 (SD = 695.57) for residents and patients, respectively. The difference was statistically significant, $t(39) = 6.13$, $P < 0.01$.

The mean number of utterances made during the consultation was 266.78 (SD = 154.92) for residents and 207.40 (SD = 128.56) for patients. The difference was statistically significant, $t(39) = 6.86$, $P < 0.01$.

4.1.2. *Mean rates and percentages of speech categories.* Means of the rates and percentages for each of the nine speech categories were calculated and are summarized in Table 2.

Resident speech was characterized by positive talk (31.5%), biomedical information giving (23.0%), and facilitation (17.2%). Patient speech was mainly comprised of positive talk (36%), biomedical information giving (31%), and psychosocial exchange (19%).

Residents asked four times as many close-ended questions (9% vs. 2.2%), and almost four times as many open-ended questions (3.5% vs. 0.9%) than did patients. Patients engaged in psychosocial exchange for an average of 19% of their talk, whereas it accounted for 4.5% for residents.

A 2 by 2 MANOVA was conducted to examine the differences between residents and patients in each of the nine speech categories. The analysis showed a significant role main effect (resident versus patient), $F(9, 67) = 33.85$, $P < 0.001$, Wilks's lambda = 0.18, $\eta^2 = 0.82$.

Table 2. *Mean rates and percentage of speech categories by resident and patient*

Category	*Resident (n = 40)*			*Patient (n = 40)*		
	Mean	SD	% Total	Mean	SD	% Total
Questions, close-ended	19.56	10.53	9.0%	4.97	4.40	2.2%
Questions, open-ended	7.58	5.23	3.5%	1.88	2.02	0.9%
Biomedical information	49.96	19.35	23%	68.66	36.35	31%
Psychosocial exchange	9.60	8.58	4.5%	41.76	24.38	19%
Positive talk	69.01	16.41	31.5%	80.36	4.75	36%
Negative talk	1.52	1.57	0.7%	2.12	2.52	1%
Social talk	11.37	10.56	5.2%	11.41	14.27	5.2%
Facilitation	37.44	13.60	17.2%	10.28	5.72	4.6%
Orientation	11.74	11.67	5.4%	0.08	0.28	<0.1%

4.1.3. *Close-ended questions.* Residents asked significantly more close-ended questions than did patients, $F(1, 75) = 64.51$, $P < 0.001$, $\eta^2 = 0.46$.

4.1.4. *Open-ended questions.* Residents asked significantly more open-ended questions than patients, $F(1, 75) = 40.90$, $P < 0.001$, $\eta^2 = 0.35$.

4.1.5. *Biomedical information.* In this category, patients made significantly more statements of this nature than did residents, $F(1, 75) = 8.30$, $P < 0.01$, $\eta^2 = 0.10$.

4.1.6. *Psychosocial exchange.* Patients engaged in significantly more psychosocial talk than did residents, with means of 41.76 versus 9.60 utterances, respectively, $F(1, 75) = 59.86$, $P < 0.001$, $\eta^2 = 0.44$.

4.1.7. *Facilitative statements.* As shown in Table 1, residents made almost four times as many facilitative statements than patients, $F(1, 75) = 137.65$, $P < 0.001$, $\eta^2 = 0.65$.

4.1.8. *Orientation statements.* Residents made significantly more orientation statements during the conversation than did patients, $F(1, 75) = 38.625$, $P < 0.001$, $\eta^2 = 0.34$.

4.2. *Gender differences*

4.2.1. *Length of consultation.* The average length of consultations was 1180.35 seconds (SD = 689.59) or 19.67 minutes. There was no statistical difference in the length of consultations conducted by male and female residents, although male residents conducted

longer consultations (22.18 minutes) than female residents (17.17 minutes).

4.2.2. *Number of words.* Male residents spoke more words on average (1560.90) during their encounters with patients than their female counterparts (1078.10), $F(1, 38) = 4.13$, $P < 0.05$.

4.2.3. *Number of utterances.* Male residents made more utterances than female residents (310.05 vs. 223.50, respectively), but this difference was not statistically significant.

Interestingly, patients made more utterances with male residents than with female residents (252.85 vs. 162.00), $F(1, 38) = 5.57$, $P < 0.05$.

Furthermore, the total number of utterances made by both residents and patients was greater for the male-resident dyads (562.85 for M/M and M/F) than for the female-resident dyads (385.50 for F/F and F/M). This difference was statistically significant, $F(1, 38) = 4.38$, $P < 0.05$.

4.2.4. *Psychosocial statements.* Male residents made an average of 12.5 psychosocial statements, compared to 6.7 for female residents, $F(1, 38) = 5.09$, $P < 0.05$.

Male and female residents did not differ on any of the other eight remaining speech categories. However, patients did ask male and female residents different numbers of open-ended questions: patients asked male residents an average of 2.5 open-ended questions, and they asked female residents 1.2 open-ended questions per consultation, $F(1, 38) = 4.34$, $P < 0.05$.

4.2.5. *Patient biomedical information giving.* Male patients made an average of 82.27 biomedical statements during consultations, whereas female patients made 55.05 statements. This difference was statistically different, $F(1, 38) = 6.38$, $P < 0.05$.

This was the only patient speech category in which male and female patients differed. No significant differences were observed in the number of words spoken, utterances made, or lengths of consultations for male and female patients.

4.2.6. *Dyads differences.* A 2 by 2 MANOVA showed no significant main effect for the gender combinations in the nine speech categories and no significant interaction effect. ANOVA did not show significant differences among the four gender combinations in terms of the length of the consultations. The average time was 18.64 minutes for the male/male consultations, 25.71 minutes for male/female consultations, 14.94 minutes for female/female consultations, and 19.31 minutes for female/male consultations. Opposite-gender dyads talked longer than same gender dyads, but the difference was not significant.

4.3. *Resident speech categories and patient satisfaction*

As can be seen in Table 3, no large correlations were observed. Two significant negative correlations were observed between physician positive statements and patient overall satisfaction and patient communication satisfaction (−0.34 and −0.40, respectively; $P < 0.05$).

Table 3. *Correlations among physician communication categories and patient satisfaction variables*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Dr. close-ended questions	—	**0.57****	−0.25	−0.05	**−0.41****	0.11	−0.25	0.11	0.18	0.03	0.11	−0.01	0.16
2. Dr. open-ended questions		—	−0.25	−0.05	−0.44**	−0.03	−0.26	**0.41****	0.14	0.06	0.22	−0.27	−0.07
3. Dr. biomedical talk			—	0.17	0.07	0.10	**−0.43****	**−0.35****	−0.21	0.05	0.07	0.09	0.15
4. Dr. psychosocial talk				—	−0.09	**0.44****	−0.28	0.23	**−0.38***	0.04	−0.05	−0.03	−0.22
5. Dr. positive talk					—	0.10	**0.37***	−0.13	**−0.33***	**−0.34***	**−0.40***	−0.01	0.01
6. Dr. negative talk						—	−0.19	−0.05	−0.10	0.02	0.01	−0.07	−0.03
7. Dr. social talk							—	−0.07	−0.02	0.12	−0.18	0.10	0.16
8. Dr. facilitation								—	**−0.32***	−0.07	−0.03	−0.25	−0.31
9. Dr. orientation									—	0.25	0.19	0.21	−0.07
10. Pt. overall satisfaction										—	**0.63****	**0.45****	0.30
11. Pt. communication satisfaction											—	0.22	0.25
12. Pt. expertise satisfaction												—	**0.48****
13. Pt. affect satisfaction													—

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

The relationships between patients' self-rated health status and the four patient satisfaction variables were examined. The only significant correlation was between patients' self-rated health status and affect satisfaction, $r(38) = -0.39$, $P < 0.01$, indicating that patients with better health felt that physicians treated them better. Partial correlations between the nine resident speech categories and patient affect satisfaction were calculated controlling for patient health status. No significant correlations appeared.

5. Discussion

This study has generated several intriguing findings. The speech patterns between residents and patients have similarities as well as difference from the patterns observed in more experienced family physicians and their patients. The following is a detailed discussion.

5.1. *Asymmetric talk: Residents and patients*

5.1.1. *Question asking.* The most outstanding difference between residents and patients was in their disproportions in question asking, with residents asking 80% of the total questions and patients 20%. Patterns of question asking between experienced physicians and patients at the same clinic were quite different: physicians asked 89% of the questions and patients asked 11% of the questions (Desroches 2003). These significant differences indicate that residents behaved differently from experienced physicians: they allowed patients to ask more questions. Researchers in other parts of the world have also reported lower rates of patient question asking than in our study.

West and Frankel (1991) found that physicians initiated between 91% and 99% of the total questions asked in the medical interaction. In contrast, patients engaged in very little question asking during the medical visit (Frankel 1990; Roter and Frankel 1992). Roter (1984) reported that in the entire medical consultation there were very few (3%) direct medical questions initiated by the patient. Moreover, most questions asked by the physician were close-ended in form (Roter and Frankel 1992), which allowed for little elaboration by the patient.

Roter (1984) provided several explanations for the lack of patient question asking. First, patients may perceive their question asking as bothering their physician, thus refraining from asking questions. Second, physicians may have conveyed nonverbal cues to discourage patients from asking questions; and third, some questions may be answered by the physician before the patient had a chance to ask. Other researchers found that even when patients disagreed with their physician, they still would not explicitly voice their disagreement by asking questions (Speedling and Rose 1985; Beisecker and Beisecker 1990). Some patients would rather keep their uncertainty to themselves than ask their physician for clarifications (Beisecker and Beisecker 1990).

In a recent study, Li and Lundgren (forthcoming) demonstrated that a short-training session on question asking immediately before a patient entered the consultation room received positive results. Compared with the untrained group, patients in the trained group had significantly higher ratings on all four satisfaction variables, i.e., overall satisfaction, communication satisfaction, expertise satisfaction, and affect satisfaction. Li and Lundgren reasoned that when patients took the initiative to ask questions, physicians did not stop them from doing so. When patients participated more in the medical consultation by asking more questions, they were more satisfied.

Taken together, it can be argued that medical consultation, like any other forms of conversation, is evanescent, and requires on-line monitoring and quick response (Clark and Schaefer 1989). To be effective, it is essential for both parties to keep track of its moment-by-moment changes (Clark and Brennan 1991) and coordinate on the process and content of the conversation. If patient question asking is a way to coordinate on the medical consultation, patients should make efforts to do so.

5.1.2. *Psychosocial talk.* Patients engaged in four times as much psychosocial talk as did residents. These results are congruent with much of the research previously done with experienced physicians. Beach et al. (2004) found that physician self-disclosure only occurred in 17% of primary-care interactions. Past studies have posited that patients are hesitant to express emotional concerns and that opportunities to do so during encounters are initiated by the physician (Eide et al. 2004). Eide and colleagues (2004) stated that patients seldom verbalize their emotions directly and spontaneously during medical consultations, but rather tend to use indirect cues to express emotionally laden issues. The high proportion of patient psychosocial talk found in our study may be an indication that patients feel free to express emotional and lifestyle concerns with their residents.

5.1.3. *Facilitation and orientation.* In addition to question asking, other categories of speech that corroborate the claim that physicians control the content and direction of the consultation are the 'facilitation' and 'orientation' speech composites. For residents, these two speech categories account for over a fifth of their total speech; for patients, they account for less than one-twentieth. By using facilitative speech (back-channeling, bids for repetition, asking the patient for his/her opinion, checking for understanding, and changing the subject), the resident navigates the conversation in order to obtain an adequate amount of information to make an accurate diagnosis, while at the

same time allowing them to steer the conversation in a different direction if information is not needed.

The asymmetrical pattern of communication between residents and patients found in the present study is in line with past research (Lieberman 1996; Waitzkin 1985). By not asking questions, patients do not participate in the medical onsultation as much as they should (Meeuwesen et al. 1991; Speedling and Rose 1985). The high proportion of physician question asking and facilitation indicates that the consultations were physician-centered, yet not physician-monopolized. Residents exerted control over the direction and content of the consultation, but at the same time facilitated and encouraged patients to talk about their psychosocial concerns.

5.2. *Speech pattern differences between male and female residents*

The only category out of nine in which a statistically significant difference was observed between male and female residents was psychosocial talk. Male residents made almost twice as many psychosocial utterances with patients than their female counterparts. This result is in direct contradiction to previous studies, which have generally stated that female physicians engage in more psychosocial talk, and are more reassuring and encouraging than male physicians (Hall and Roter 2002; Street 2002). Furthermore, it has been posited that male physicians give more general instructions and directives to patients (Brink-Muinen et al. 2002); this was not observed in this study. A possible explanation is that upon graduating from medical school, male and female residents start off being similar in the way they interact with patients and subsequently diverge over the course of their careers. It is also possible that male residents may overcompensate in their attention to psychosocial speech in reaction to society's stereotypes of male physicians.

5.3. *Length of consultations, words spoken, and utterances made*

The average length of the forty consultations recorded in this study was 19.5 minutes. Previous studies done with physicians have yielded different results: the average length of an American medical consultation is 16 minutes, whereas in Britain it is 5 to 6 minutes (Roter et al. 1997). Interestingly, medical consultations in the same clinic with experienced physicians were 8.2 minutes in length (Desroches 2003; Li et al. 2004). Two possible explanations for this difference are that residents, being paid on a salary basis, had fewer time constraints than physicians, and residents were inexperienced and less efficient.

Residents spoke significantly more words than their patients: residents accounted for 59.7% of the total words spoken in any given consultation, and patients 40.3%. The asymmetry observed in the proportion of words spoken is similar to that reported by Hall et al. (1988).

Male and female residents did not differ *statistically* in the length of consultations conducted with patients, although male-conducted consultations averaged approximately 22 minutes, and female-conducted consultations lasted approximately 17 minutes. These results are in contradiction to studies done in the past, which state that, on average, female physicians conduct longer consultations than male physicians (Hall and Roter 2002; Street 2002). From two meta-analytic reviews of studies from 1967 to 2001, Roter and Hall (2004) found that medical visits with female physicians were two minutes longer than males. In this study, male-conducted consultations were five minutes longer than female-conducted consultations.

Brink-Muinen et al. (2002) reported that male physicians were more verbally dominant and imposing during medical visits. This study supports this assertion to some extent: male residents spoke 59% of the words whereas female residents spoke 49% of the words.

5.3.1. *Dyad differences.* Same-gender dyad consultations in this study took *less* time than did opposite-gender dyad consultations: male/male and female/female consultations lasted 16.8 minutes, whereas opposite-gender dyad consultations lasted 22.6 minutes. Female/female consultations were the shortest, lasting only 15 minutes. Although statistically significant differences were not found, this finding does contradict previous research. Weijts (1994) reported that same-gender dyads conducted longer consultations than opposite-gender dyads, female physicians and female patients talking longer than female physicians and male patients.

5.4. *Resident speech categories and patient satisfaction*

In the present study, few significant correlations were found between resident speech categories and patient satisfaction, which contradicts findings in past research where physician speech patterns influence patient satisfaction (Bertakis et al. 1991; Desroches 2003). The only significant correlations found in this study were between residents' positive talk and patients' overall and communication satisfaction. Higher levels of positive talk (laughing, approval statements, compliments, agreement statements, empathic statements, reassuring/optimizing, legitimizing, and partnership-building statements) by the residents translated into lower levels of patient satisfaction. It may seem counterintuitive that compliments, approval statements, empathic, and other positive statements made patients less satisfied. However, previous researchers have provided some insight

(Wofford et al. 2004). Wofford and colleagues conducted an analysis of patient complaint forms in order to establish significant categories of patient concerns. They found that patients were dissatisfied and filed complaints when they felt disrespected by and distrusted their physicians. In a study conducted in the same clinic two years previous to the present study, Desroches (2003) found that experienced physicians in the same clinic spent 26% of their total utterances on positive talk. In the present study, residents spent 31.5% of their total utterances on positive talk. Desroches (2003) did not find a negative correlation between physicians' positive talk and patient satisfaction. It is possible that residents' excessive positive statements may have been 'too much' for patients. It is argued that residents may be aware that patients were skeptical of their expertise, and overcompensated by making more positive statements, which in turn displeased patients.

5.5. *Limitations*

This study sampled medical consultations among first- and second-year practicing residents in a teaching clinic. The sampling procedure was not strictly random. Therefore, generalization of the results to resident–patient communication in general is premature. Another limitation is that no data were collected on the diagnostic outcome of the patients, which may influence patient satisfaction. Therefore, interpretation of the correlations between resident speech categories and patient satisfaction should be cautious.

6. Conclusion

Three findings in this study are significantly different from past research on patient communication with a physician-only sample at the same clinic. First, the average length of consultations was 19.7 minutes, twice as long as those in the physician-only sample. Amid a heated debate on the direction of Canada's controversial healthcare system, this information can be very useful to health policy makers. If family physicians were paid on a salary basis instead of a fee-for-service basis, would they spend more time with their patients?

Second, residents asked 80% of the total questions while patients asked 20% of the questions. In the physician-only sample, physicians asked 89% of the questions and patients 11%. Apparently, residents allowed patients to ask more questions than physicians. Did the factor that residents have fewer time constraints than physicians play a role?

Finally, patients' overall satisfaction and communication satisfaction were negatively correlated with residents' positive talk, which constitutes 31.5% of a given resident's total utterances. In the physician-only sample, physician positive talk was 26% of a given physician's total utterances and physician positive talk was not correlated with patient satisfaction. Is this a signal that residents should reduce the amount of positive talk? Apparently more studies with *resident-only samples* are needed to answer this and other unanswered questions in the field to offer directives to resident training.

Note

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Jasrit Pahal completed an undergraduate degree in Biology (minor in Psychology) at the University of British Columbia, Canada, in 2002. He then obtained a Masters of Science degree in Community Health at the University of Northern British Columbia, Canada, in 2004. He is currently working as a full-time researcher at the British Columbia Rural and Remote Health Research Institute. His future aspirations are to attend medical school and practice rural medicine.

Han Z. Li is an Associate Professor of Psychology at the University of Northern British Columbia. Her research articles have appeared in a number of forefront journals including the *European Journal of Social Psychology*, *Language and Social Psychology* and *Discourse Processes*. She has recently published a socio-psychological novel, *The Water Lily Pond*, with Wilfrid Laurier University Press. Address for correspondence: Department of Psychology, University of Northern British Columbia, 3333 University Way, Prince George, BC, V2N 4Z9, Canada. E-mail: lih@unbc.ca