



A Cross-Sectional Comparison of Physician Empathy with Patient Assessment of the Same at a Tertiary Care Hospital in Kolkata, India

De Abhishek¹, Misra Raghunath²

Financial Support: None declared
Conflict of Interest: None declared
Copy Right: The Journal retains the copyrights of this article. However, reproduction of this article in the part or total in any form is permissible with due acknowledgement of the source.

How to cite this article:

Abhishek D, Raghunath M. A Cross-Sectional Comparison of Physician Empathy with Patient Assessment of the Same at a Tertiary Care Hospital in Kolkata, India. *Natl J Community Med* 2018; 9(1): 64-70.

Author's Affiliation:

¹Demonstrator; ²Professor and Head, Department of Community Medicine, Institute of Post-Graduate Medical Education and Research (IPGME&R), Kolkata

Correspondence

Dr. Abhishek De
dr.abhishek.de@gmail.com

Date of Submission: 09-01-18

Date of Acceptance: 25-01-18

Date of Publication: 31-01-18

ABSTRACT

Background: Empathy is necessary for a successful medical practice. There have been very few studies comparing empathy of physicians with their patients' rating. This study conducted to measure the empathy of physicians at selected OPDs of IPGME&R and SSKM hospital; to compare this with patient's assessment of the same and also to compare empathy between "technological centric" and "people centric" disciplines.

Methods: Cross-Sectional observational study using standardized tools of measuring empathy in physicians (JSE) and patients (JSPPPE). Convenience sampling was used.

Results: Gender concordance (patient and physician have the same sex) was 60%. Mean JSE and JSPPPE were most in agreement for Cardiology and General Surgery and least for Neurology and Orthopedics. Association of above-average JSPPPE score with type of OPD, Physician Gender and Gender Concordance. Agreement between JSE and JSPPPE Scores was 38.9%.

Conclusions: No significant differences observed between empathy rating of "people-centric" and "technology-centric" disciplines. Gender and gender concordance emerged as important factors that govern patient's perception of empathy.

Keywords: empathy, gender-concordance, physicians, people-centric, technology-centric

INTRODUCTION

Empathy is: "Understanding a person from his/her frame of reference rather than one's own, or vicariously experiencing that person's feelings, perceptions and thoughts."¹

The society for General Internal Medicine defines empathy as "the act of covertly acknowledging the emotional state of another without experiencing that state oneself"^{2,3}

The research team at Jefferson Medical College proposed the commonly used definition of Empathy⁴:

"Empathy is a predominantly cognitive (rather than an emotional) attitude that involves an under-

standing (rather than feeling) of experiences, concerns and perspectives of the patient, combined with a capacity to communicate this understanding."⁵

In recent times, the most vexing issue has been the decline of empathy in medical care.² Empathy leads to better outcomes and patient safety, hence, positively influencing patient health. Miscommunication, especially in an outpatient setting, may provoke fear and frustration in the patient, physician or disappointment in .⁶ Proper communication during patient care leads to fewer malpractice claims. A physician's empathy for his patients is essential for a fulfilling and successful practice of medicine, since evidence points to the fact that attending to the patient's emotional frame of mind

enhances the latter's perception of the communication exchange process.⁷ Taken with the fact that empathy has been observed to be a potentially protective factor against the stress experienced by clinicians⁸, it follows that research on physician empathy as well as identifying ways to maintain and improve it are both ethically and financially necessary.

Prior studies on doctor-patient relationships have been conducted mainly from the perspective of the physician.⁹ Only a few studies from this part of the world have asked patients to give their assessment of a relationship.¹⁰

The present study sets out to address the said research gap on empathy from the patient's viewpoint with the specific objectives to measure the empathy of physicians at selected OPDs of IPGME&R and SSKM hospital and to compare this with patient's assessment of the same. The study objectives were also to explore the socio-demographic profile of the patients and to compare empathy between "technological centric" and "people centric" disciplines

METHODS

Study Design:- Cross-sectional Study. **Study Setting:-** Selected OPDs of SSKM Hospital, Kolkata. **Study Period:-** March to June, 2017. **Study Population:-** 1. Senior & Junior doctors of selected. OPDs of SSKM hospital. 2. Patients of the sampled doctors.

Sample Size: Patients =440, Doctors=44. The sampling technique followed was Convenience Sampling

Inclusion Criteria:- For Doctors: A "Senior Doctor" was defined as an Associate Professor or above and a "Junior Doctor" ,Intern & up to Associate professor .For patients, a minimum of two visits with their respective doctors. Of those initially recruited, those who didn't complete the JSPPPE questionnaire or had some identifiable mental illness were excluded from analysis.

Ethical considerations: - Due Ethical permission was taken from the Institutional Ethics Committee (IEC), IPGME&R and SSKM Hospital Kolkata. Informed Verbal consent was taken from Physicians & adult patients. Informed Assent taken from persons accompanying patients <18 yrs of age.

Study Instruments. For assessing Doctors' self-rating of their empathy: Jefferson Scale of Empathy (JSE). For assessing Patients' rating of their treating physician's empathy, Jefferson's Scale of Patients Perception of Physician Empathy(JSPPPE) as well a pre-designed, pre-tested structured interview sche-

dule to capture their basic socio-demographic data and other relevant questions.

About the JSE: A self administered, 20-item surveyed developed by researchers at the Centre for Research in Medical Education & Health Care(CRMEHC) at Sidney Kimmel Medical College, Thomas Jefferson University ,Philadelphia, USA. The JSE has received substantial international attention: it has been translated into 38 languages and used in 54 countries worldwide¹¹⁻¹³ and has extensive cross-cultural validity.

Scoring of the JSE: 20 questions, each with a 7-point incremental grading system, from 1 through 7. Total score is the sum of the individual question scores.

About the JSPPPE: A researcher-administered 5-item rating scale of perceived physician empathy ,also developed by Thomas Jefferson University , USA. It, too, has been translated into many languages and has cross-cultural validity.^{14,15} The scoring pattern is similar to the JSE.

Study Technique: Six "people-centric" medical disciplines and "technology-centric" departments each were chosen according to their accessibility and OPD schedule. (Table 1). In each OPD, we randomly selected two senior physicians and two junior physicians who were manning the OPD on separate days. The doctors were introduced to the objectives and purpose of the study and informal consent was taken from them. A copy of the JSE was handed over and collected a while later. The patients who were consulting these respective doctors on the days of the survey were approached by way of an exit interview immediately after they had finished their consultation. They were explained the purpose and method of the study in detail in their mother tongue and informed consent was taken from them. Reassurance was given that their responses would be kept anonymous so as to avoid social desirability bias .Data was captured in the interview schedule as well as the JSPPPE questionnaire. For very young patients who could not respond on their own, the responses of the persons accompanying them were recorded after proper informed assent was taken.

Operational definitions:

Residence:- URBAN- Residential area under municipal corporation; RURAL-Residential area under Panchayat. **Income Criteria:-** BPL-Those earning less than Rs. 445.38 per capita per month in rural areas and less than Rs. 572.51 in urban areas^{16,17}. **"People-Centric":-** Disciplines where clinical skills and patient interaction are of paramount importance. **"Technology- Centric":** Specialties where technology -based diagnoses and/or interventions

are of prime importance for patient management patient management.^{5,18}

Statistics: Background characteristics of the patients and doctors were described using simple proportions. Comparison of mean JSE scores by type of discipline was done by using Mann-Whitney Test. Association of JSPPE score with selected patient variables was performed using Chi-squared test of Independence. Linear regression was used to test the prediction of Mean JSE Score by the independent variables which emerged significant on bivariate analysis during the Chi-squared test mentioned above. Bivariate analysis of the association between JSE score and JSPPE score was done by Fisher’s Exact Test with a right-sided one-tailed hypothesis.

RESULTS

Most of the patient population were adults (83%).Minors and elderly were about equal in proportion. They were predominantly male (64.1%) and 60% of them had a rural residence.(Table 2)

Regarding their economic status, about half of them were reportedly living below the poverty line (51.6%).More than a third of them(35%) were educated at least till secondary level. Only about 40% of the cases were referred, rest were direct attendees at the hospital.

A detailed analysis of the physicians selected during the course of the study revealed the following: About 64% of doctors were from “technology centric” disciplines (Table 3).

Females outnumbered males in a ratio of 70:30 approximately. As per the design of the study, there were equal numbers of ‘senior’ and ‘junior’ doctors. Gender concordance, which was defined as the physician having the same sex as the patient was about 60%.

Overall, mean JSE scores for “people-centric” and “technology-centric” disciplines were 89.88±12.52 and 85.87±14.50 ,respectively, which was significantly different (t=3.051, p=0.002, Mean difference =4.011, CI of the difference: 1.43-6.59).The JSPPE scores, too, were significantly different in these disciplines:21.39±5.59 for people-centric departments and 19.49±5.56 for technology centred ones. This difference, too, was significantly different (t=3.460, p=0.001, Mean difference=1.89, CI of difference:0.82 -2.97) From the above illustration, in each of the two ‘types’ of disciplines, half of the departments showed a situation where the mean JSPPE score was less than that of the JSE. The disparity was worst in the departments of Cardiology (a difference of almost 55%) and General Surgery (a difference of almost 50%).On the flip side,

the mean JSE and JSPPE were most closely related in the departments of Neurology (2.5%) and Orthopedics (5%).In the departments of Pediatric Medicine, ENT and OBG, no physicians had rated themselves above the mean JSE score for “technology-centric disciplines”.

Table 1: List of Medical Disciplines selected for the study

People centric “OPDs” (6)	Technology centric “OPDs” (6)
Community Medicine	ENT
General Medicine	Gastroenterology
Neurology	Gynecology
Pediatric Medicine	Nephrology
Psychiatry	Orthopedic Surgery
Cardiology	General Surgery

Table 2: Background characteristics of the study population (patients=440):

Characteristics	Frequency (%)
Age groups	
Minors	35 (8)
Adults	365 (83)
Elderly	40 (9.1)
Gender	
Female	158 (35.9)
Male	282 (64.1)
Residence	
Rural	266 (60.5)
Urban	174 (39.5)
Economic status	
APL	213 (48.4)
BPL	227 (51.6)
Education	
Illiterate	64 (14.5)
Upto Primary	121 (27.6)
Upto Secondary	154 (35)
HS and above	101 (22.9)
Case Type	
Direct	251 (57)
Referred	189 (43)

Table 3: Background characteristics of the physicians (n=44):

Characteristics	Frequency (%)
OPD Type	
People-Centric	161 (36.6)
Technology Centric	279 (63.4)
Physician Gender	
Male	14 (30.4)
Female	32 (69.6)
Seniority	
Senior	23 (50)
Junior	23 (50)
Gender Concordance	
Physician gender same as patient	267 (60.6)
Physician gender different than patient	173 (39.4)

Table 4: Association of selected variables with JSPPE Score

Patient variables	<= Mean JSPPE Score	> Mean JSPPE Score	Total	χ^2, p
Sex				
Female	79(50.0)	79(50.0)	158(100.0)	.005,0.943
Male	142(50.4)	140(49.6)	282(100.0)	
Residence				
Rural	140(52.6)	126(47.4)	266(100.0)	1.555,0.212
Urban	81(46.6)	93(53.4)	174(100.0)	
Education				
NA	6(30.0)	14(70.0)	20(100.0)	3.475,0.176
Upto Primary	32(52.5)	29(47.5)	61(100.0)	
Beyond Primary	183(51.0)	176(49.0)	359(100.0)	
Type of OPD				
“People-centric”	61(37.9)	100(62.1)	161(100.0)	15.464,<0.0001
Technology-centric”	160(57.3)	119(42.7)	279(100.0)	
Physician Gender				
Male	169(54.5)	141(45.5)	310(100.0)	7.720,0.005
Female	52(40.0)	78(60.0)	130(100.0)	
Physician-Patient Gender Concordance				
Discordant Gender	113(65.3)	60(34.7)	173(100.0)	25.970,<0.0001
Concordant Gender	108(40.4)	159(59.6)	267(100.0)	

Fig 1: Comparison of mean JSE scores by type of discipline and corresponding mean JSPPE scores for the study population (n=440)

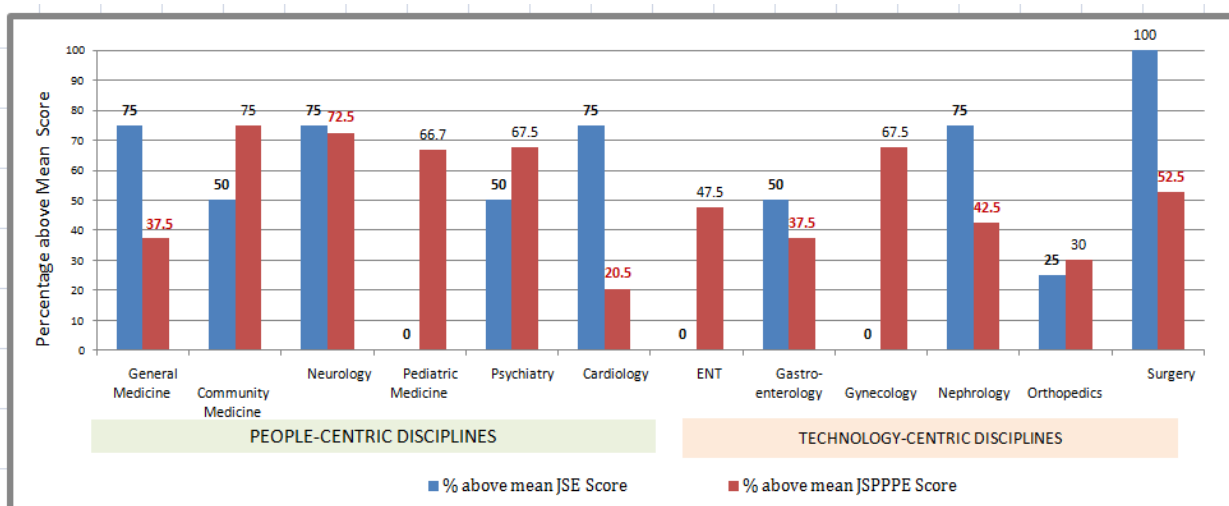


Table 5: Association between JSE scores and JSPPE scores

JSPPE Score (patients)	JSE Scores(Physicians)		Total (%)
	<=Mean	> Mean	
<= Mean	86 (38.90)	135 (61.10)	221 (100)
> Mean	104 (47.50)	115 (52.50)	219 (100)
Total	190	250	440

$\chi^2 = 3.296, df=1, p=0.043$ (Fisher Exact, one-tailed test)

Upon testing the association of an above-mean JSPPE score with selected patient variables (Table 4), type of OPD, Physician Gender and Gender Concordance were significantly associated. However, when these results from vicariate analysis were entered into a linear regression model with Mean JSPPE score as the Dependent Variable, no significant predictors could be noted. Finally, when bivariate analysis of the association

between an above-average JSE score and an above-mean JSPPE score was done (Table 5), the association came out to be statistically significant. ($\chi^2 = 3.296, df=1, p=0.043$ [Fisher Exact, one-tailed test])

DISCUSSION

This cross-sectional study on the perceived empathy of physicians as seen by their patients and correlated with their physicians’ self-rated empathy attempted to measure doctor’s empathy in a tertiary-care, outpatient setting and correlate that measurement with patient’s rating of their doctor’s empathy.

Correlation between JSE and JSPPE Scores:

Patient satisfaction and consequently, patient compliance were shown by Kim and associates¹⁹ to re-

late directly to a patient's empathic behaviour. Perception of a physician's "affective empathy" in preference to his "cognitive empathy" compounded with a sense of partnership had the strongest impact on patient satisfaction and compliance.¹⁹

The problem of social desirability bias may have led the study subjects to give a favourable opinion of their caregivers, a phenomenon seen in consonance with previous observations upon the same issue.^{20,21} A comparison of the patient's perception of the relationship with physician's perception of the same in a previous study showed that in 90% of patients, both physicians and their patients agreed that the relationship was satisfactory, and the association was statistically significant ($p=0.03$).⁶ In the present study, we found that 61.1% of patients giving a satisfactory rating of their doctors were in agreement with their physician's self-rating of empathy.

Specialty-wise differences in the JSE scores:

It has been proposed in other research studies around the world that physicians in people-oriented specialties have higher empathy scores than those dealing with technology centric disciplines.^{5,18} In a Japanese study⁵ involving 285 physicians, The mean JSE scores for doctors in people-oriented specialties and technology-oriented specialties were 112.9 and 106.9, respectively. The difference was statistically significant ($F(2,282) = 8.4, p < .001$), which is borne out by our study as well ($t=3.051, p=0.002$).

In a study comprising 704 physicians 22, psychiatrists obtained the highest mean JSE score, followed by General Medicine, Pediatrics, Emergency Medicine and Family Medicine. The lowest mean scores came from Anesthesiologists, Orthopedic Surgeons, Neuro-surgeons and Radiologists. In our study, Psychiatry was not included as a discipline. General Medicine, Community Medicine, Cardiology, Nephrology and Surgery scored the highest mean JSE scores.

Two studies^{23,24} comparing 462 physicians in "people-oriented" disciplines with 242 in "technology-oriented" practices showed that the former outscored the latter not only in total score but individual items on the JSE as well. However, such a clear demarcation was not observable in our findings.

In a large-scale study of 12,829 physicians²⁵, the highest rates of malpractice claims were from Neurosurgeons, Orthopedics, OBG practitioners, general surgeons and Anaesthesiologists. Empirical evidence also suggests that an amicable physician-patient relationship reduces not only the actual

malpractice litigation but also the patients' intention to prosecute.²⁶

Low education and JSPPE Scores:

The finding that people of lower education level have greater empathy (data not shown), though statistically not significant, corroborates the prior research that for the educated class, dissatisfaction with patient care may stem from the fact that doctors are seen to have control/power over their near and dear ones, which is quite unacceptable to them.² In a detailed study on patient satisfaction in a Malaysian tertiary care health institution²⁷, overall low education was significantly associated with satisfaction with medical care ($p=0.030$). Highly educated patients were less satisfied with their physician's care, in other studies conducted by Nora, et al²⁸ and Johari et al²⁹, respectively.

Physician Gender and Empathy Scores:

Prior research on a diverse range of populations has found that female trainee doctors had significantly higher empathy scores, even when the score on the JSE was considered item-wise.^{18,28-30} Numerous empirical studies support the notion that Gender-wise difference in empathy may govern physicians' style of patient approach and delivery of patient care^{5,31-36}. In other studies, female physicians were more likely to encourage patients to talk about positive issues, use more verbal cues and interact for a longer period^{5,37-42}.

Empathy and Gender Concordance:

As noted in our findings, Gender concordance was proportionately almost same as a prior Malaysian study on patient satisfaction at a tertiary hospital.²⁷ However, in our study, we found a statistically significant association between an above-average JSPPE score and gender concordance whereas in the Malaysian study, there was no such difference. Howell, Gardiner and Concato,⁴³ in their study of empathy, found that satisfaction with medical treatment was not related to the doctor's gender. A peculiarity of Oriental cultures may be the propensity for more discussion of social and psychosocial problems in an informal way when patients consult with same-sex doctors.

The findings need to be replicated in a larger, multi-centric study.

CONCLUSION

In this study, there were no important observed differences between the physician's self-reported empathy and that rated by their patients, when considered as two main types of disciplines—"people-oriented" and "technology-oriented". Further, it remains the subject of further investigation

as to why no physicians had rated themselves above the mean JSE score in the departments of Pediatric Medicine, ENT and OBG. It was observed that patients with a lower educational background had better empathy feedback about their doctors.

The differences in empathy rating of patients attending “people-centric” and “technology-centric” disciplines underlines the fact that Doctor-patient communication is always two-way² and a patient can well provide positive or negative feedback to a physician’s expression of empathy; it is the physician’s job to use the self-reflection to understand and make use of this.⁴⁴ Patients expect physicians to have the necessary communication skills to express their empathy and cater to both their physical and psychological needs.⁴⁵

Gender concordance was an important determinant of the patient’s perception of empathy provided by her/his health care provider(HCP) in our study.

ACKNOWLEDGEMENTS

We thank the administration, physicians and staff of IPGMER and SSKM Hospital for permission and cooperation in conducting the study.

REFERENCES

- Gary R. Vanden Bos, (Ed). *APA Dictionary of Psychology*. Second edition, Washington DC, USA. American Psychology Association, 2015; p. 365
- Mishra S. Violence against Doctors: The class wars. *Indian Heart Journal* 67(2015):289-292
- Halpern J. What is clinical empathy? *J Gen Intern Med* 2003;18:670-674.
- Hojat M, Gonnella JS, Nasca TJ et al. Physician empathy: Definition, measurement, and relationship to gender and specialty. *Am J Psychiatry* 2002, 159:1563-1569.
- Hojat M: Empathy in Patient Care: Antecedents, Development, Measurement, and Outcomes. New York: Springer; 2007.
- Boutin-Foster C, Charbon ME. Problematic Resident-Patient Relationships. The patient’s perspective. *J Gen Intern Med* 2001; 16:750-754
- Patricia LB. Lockyear. Physician-Patient Communication: Enhancing Skills to Improve Patient Satisfaction CME activity- *Medscape Today*
- Shamasundar, MRC. Reflections: Understanding empathy and related phenomena. *American Journal of Psychotherapy* 1999;53: 232-245.
- Hahn SR, Kroenke K, Spitzer RL et al. The difficult patient: prevalence, psychopathology and functional impairment. *Gen Intern Med* 1996;11:1-8
- Lin EH, Katon W, Von Korff M, et al. Frustrating patients: physician and patient perspectives among distressed high users of medical services *Gen Intern Med*.1991;6:241-6
- Hojat, M., Mangione, S., Nasca, T. J., et al. The Jefferson scale in physician empathy: Development and preliminary psychometric data. *Educational and psychological measurement* 2001; 61:349-365
- Hojat M, Gonnella JS, Nasca TJ, et al. The Jefferson Scale of Physician Empathy: Further psychometric data and differences by gender and specialty at item level. *Academic Medicine (supplement)* 2002; 77:S58-S60.
- Hojat M, Louis DZ, Maxwell K, et al. The Jefferson Scale of Empathy (JSE): An update. *Health Policy Newsletter* 2011; 24:5-6.
- GC Kane, Gotto JL, Mangione S, et al. Jefferson Scale of Patient’s Perceptions of Physician Empathy: Preliminary Psychometric Data. *Croat Med J*. 2007; 48:81-6
- Hojat M, Louis DZ, Maxwell K, et al. Patient perceptions of physician empathy, satisfaction with physician, interpersonal trust, and compliance. *International Journal of Medical Education*. 2010; 1:83-87 .DOI: 10.5116/ijme.4d00.b701 83
- Planning Commission. Government of India. Expert Group on Methodology for Estimation of Poverty. New Delhi, India. November 2009. Available at: http://planningcommission.gov.in/reports/genrep/rep_pov.pdf. Accessed December 15, 2017.
- Planning Commission. Government of India. Press note on Poverty Estimates. Available at: http://planningcommission.gov.in/reports/genrep/Press_pov_27Jan11.pdf. Accessed December 15, 2017.
- Kataoka et al.: Measurement and correlates of empathy among female Japanese physicians. *BMC Medical Education*.2012 12:48. doi:10.1186/1472-6920-12-48
- Kim SS, Kaplowitz S, Johnston MV. The effects of physician empathy on patient satisfaction and compliance. *Eval Health Prof* 2004;27:237-51.
- Kane RL, Maciejewski M, Fineh M. The relationship of patient satisfaction with care and clinical outcomes. *Med Care*. 1997; 35:714-30
- Kane R. Understanding health care outcomes Research. Gaithersburg Md. Aspen Publishers;1997:67-86
- Hojat M, Gonnella, JS., Nasca, TJ, et al. Physician empathy: Definition, components, measurement, and relationship to gender and specialty. *American Journal of Psychiatry*, 159, 1563-1569.
- Hojat, M, Gonnella, JS., Nasca, TJ, et al. The Jefferson Scale of Physician Empathy: Further psychometric data and differences by gender and specialty at item level. *Academic Medicine*, 77, S58-S60.
- Hojat M, Gonnella JS, Erdman JB, et al. Physicians’ perceptions of the changing health care system: Comparisons by gender and specialties. *Journal of Community Health*, 25, 455-471.
- Taragin, MI, Sonnenberg, FA, Trout, et al. Does physician performance explain interspecialty differences in malpractice claim rates? *Medical Care* 1994; 32:661-667.
- Moore PJ, Adler, NE and Robertson, PA. Medical malpractice: The effect of doctor-patient relations on medical patient perceptions and malpractice intentions. *Western Journal of Medicine*; 173:244-250.
- Azizam NA, Shamsuddin K. Healthcare Provider-Patient Communication: A Satisfaction Study in the Outpatient Clinic at Hospital Kuala Lumpur. *Malays J Med Sci*. May-Jun 2015; 22(3): 56-64

28. Nora MS, Tahir A, Hamzah AG. Does Putrajaya health clinic meet their client's expectation? *Malays J Health Manag.* 2007;**4**(1):27-35.
29. Johari R, Tahirm A. Patient satisfaction in Klang hospital. *Malays J Health Manag.* 2006;**1**(1):55-62.
30. Hojat M, Gonnella JS, Mangione S, et al. Empathy in medical students as related to academic performance, clinical competence and gender. *Medical Education* 2002; 36:522-527.
31. Bertakis, KD, Helms, LJ, et al. The influence of gender on physician practice style. *Medical Care* 1995; 33:407-416.
32. Bylund, CL, & Makoul, G. Empathic communication and gender in the physician patient encounter. *Patient Education and Counseling* 2002; 48:207-216.
33. Fruen M, Rothman A, Steiner, J. Comparisons of characteristics of male and female medical school applicants. *Journal of Medical Education* 1974; 49:137-145.
34. Henderson JT, Weisman, CS. Physician gender effects on preventive screening and counseling: An analysis of male and female patients' health care experiences. *Medical Care* 2001; 200139:1281-1292.
35. Maheux, B., Duford, F., Beland, F., et al. Female medical practitioners: More preventive and patient oriented? *Medical Care* 1990;28:87-92.
36. Weisman, CS, and Teitlebaum, MA. Physician gender and the physician-patient relationship: Recent evidence and relevant questions. *Social Science & Medicine* 1985;20: 1119-1127.
37. Cooper-Patrick, L, Gallo, JJ, & Gonzales, JJ. Race, gender and partnership in the patient-physician relationship. *Journal of the American Medical Association* 1999;282:583-589.
38. Hall, JA, Irish, JT, Roter, DL, Ehrlic, CM, & Miller, LH. Gender in medical encounters: An analysis of physician and patient communication in a primary care setting. *Health Psychology* 1994;13:384-392.
39. Meeuwesen L, Schaap C, and Van der Staak, C. Verbal analysis of doctor-patient communication. *Social Science & Medicine* 1991;32:1143-1150.
40. Roter DL and Hall, JA. Gender differences in patient-physician communication. In S. J. Gallant, G. P. Keita, & R. Royak-Schater (Eds.), *Health care for women: Psychological, social, and behavioral influences*. 1997. (pp. 57-71). Washington, DC: American Psychological Association.
41. Roter DL, Hall, JA, and Aoki, Y. Physician gender effects in medical communication. *Journal of the American Medical Association* 2002;288:756-764.
42. Roter DL, Lipkin M and Korsgaard A. Sex differences in patients' and physicians' communication during primary care medical visits. *Medical Care* 1991; 29:1088-1093.
43. Howell EA, Gardiner B, & Concato J. Do women prefer female obstetricians? *Obstetrics and Gynecology* 2002;100:827-828.
44. Lin C-S, Hsu M-Y, F, Chong CF. Differences between emergency patients and their doctors in the perception of patient empathy: Implications for Medical Education. *Education for health*, 21(2):2008
45. Halpern, J. (Ed.). *From detached concern to empathy: Humanizing medical practice*. New York: Oxford University Press. 2001.