A pilot study on the validity and reliability of the Patient Enablement Instrument (PEI) in a Chinese population

Cindy LK Lam[a], Natalie YK Yuen[a,*], Stewart W Mercer[b] and Wendy Wong[a]

[a]Family Medicine Unit, Department of Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong, 3/F, Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong, China and [b]Department of General Practice and Primary Care, Faculty of Medicine, University of Glasgow, 1 Horselethill Road, Glasgow G12 9LX, Scotland, UK.
*Correspondence to Natalie YK Yuen, Family Medicine Unit, Department of Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong, 3/F, Ap Lei Chau Clinic, 161 Main Street, Ap Lei Chau, Hong Kong, China; Email: nykyuen@gmail.com
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Background. The Patient Enablement Instrument (PEI) was developed to measure patients' enablement, which is an indicator of the effectiveness of a primary care consultation; however, to date, the PEI has not been tested in Asian populations.

Objectives. The purpose of this study is to test the acceptability, validity, reliability and other psychometric properties of a Chinese [Hong Kong (HK)] translation of the PEI in Chinese patients in Hong Kong and whether these properties would be affected by different timing of administration.

Methods. A Chinese (HK) translation of the PEI was developed by iterative forward–backward translations and the content validity was assessed by a cognitive debriefing interview with 10 Chinese patients. It was then administered to 152 adult patients attending a government-funded primary care clinic in Hong Kong both immediately after the consultation and 2–3 weeks later by telephone. Internal construct validity was assessed by item-scale correlations and factor analysis, test–retest reliability was assessed by intraclass correlation (ICC) and sensitivity was assessed by known group comparison.

Results. The Chinese (HK) PEI was semantically equivalent to the original PEI for all items. Acceptability of the PEI was high with 83.1% response and 100% completion rates. Statistical analyses showed no difference between test and retest means as well as good reproducibility (ICC 0.75). Internal reliability determined by Cronbach's alpha was >0.8 irrespective of timing of administration. Scale construct validity was confirmed by strong ($r > 0.4$) item-scale correlations and resumed to a one-factor hypothesized structure. PEI scores were significantly higher in younger patients supporting sensitivity. There was no significant difference in the psychometric properties or scores between the assessment results from immediately after and 2-weeks postconsultation.

Conclusions. A Chinese (HK) translation of the PEI equivalent to the original is now available for application to Chinese populations. Pilot testing supported its acceptability, validity, reliability and sensitivity. Further studies to confirm its construct validity and responsiveness will help to establish the Chinese (HK) PEI as an outcome measure of the effectiveness of primary care consultations in Chinese patients.

Keywords. Chinese, content validity, patient enablement, primary care, reliability.

Introduction

The clinical encounter between patient and practitioner is the core activity of all systems of health care. As such, the practitioner–patient relationship has been extensively investigated in conventional care, particularly in the primary care setting.[1–4] However, while various methods exist to measure the effectiveness of primary care consultations, few exist to measure the effectiveness of interpersonal care in primary care.[5] Many primary care consultations are for problems that are self-limiting, for which a favourable biomedical outcome can be anticipated regardless of the activities of the doctor. On the other hand, a large number of

consultations are for multidimensional problems, where physical, psychological and social elements as well as the need for health promotion interact in a complex way that traditional clinical outcomes are not sensitive enough to capture.[6]

There is some evidence to suggest that there is a positive link between patient-centred consultations and health outcomes.[2,3,7] Two core values of family medicine are patient-centred care and holism,[8] upon which is built the concept of patient enablement, first articulated by Howie *et al.*[9,10] 'Enablement' describes a consultation outcome that reflects the extent to which patients understand their health problems and feel able to cope with them as a result of the consultation. According to Wensing, patients find it very important to be able to understand the nature of their problem and manage their own illness,[11] which supports the concept of enablement as a patient-centred health-related benefit resulting from the consultation.

Howie's theory of quality of care implies that greater enablement is achieved when the patient's needs are identified, acknowledged and dealt with in the appropriate context.[12] It recognizes the importance of themes of patient centeredness and empowerment and of the patient's ability to understand and cope with their health and illness and recognized these issues as being conceptually distinct from satisfaction.[5] The original version of the Patient Enablement Instrument (PEI) was developed by Howie *et al.*[5] based on these concepts to assess the enablement of patients after a consultation with their primary care clinician. The PEI has six questions: able to cope with life, able to understand your illness, able to cope with your illness, able to keep yourself healthy, confident about your health and able to help yourself. Each question has four response options: much better/ better (Questions 1–4) or much more/more (Questions 5–6) or same or less or not applicable. The PEI is intended to be a measure of the effectiveness of primary care consultations[13] and has been used for this purpose in several studies in Western countries, including the UK,[10,14] Croatia,[8] the Netherlands[11] and Poland.[15]

Previous studies have shown that patient enablement may be increased by doctor's empathy,[14] familiarity of the patient with the practitioner,[16] positive patient evaluation of the doctor's communication,[17] as well as longer consultation duration[18] and appropriate doctor training.[15] In turn, patient enablement results in greater compliance with therapy and improved outcomes,[18,19] as well as increased well-being up to 1 month post-consultation.[14] A 6-week programme enabling patients with chronic disease in Hong Kong showed that Chinese patients undergoing the programme exhibited significantly higher self-efficacy in managing their illness and felt more energetic, the results of which supported the validity and relevance of the concept of enablement in Chinese culture.[20] In contrast, low enablement is associated with a lack of continuity of care, poor self-perceived health, low educational level and low quality of life.[8]

Hong Kong's health system is a combination of a tax-funded health model combined with a private sector, which account for 56% and 44% of health care spending respectively.[21] Total expenditure on health care amounts to ~5.6% of the gross domestic product. Hong Kong has no mandatory primary care network, which means that patients are free to choose to consult doctors of any specialty, which results in a lack of gate-keeping, increased doctor shopping and increased health care costs.

Ninety-five percent of Hong Kong's population is Chinese and for 91% of the population, the first language is Cantonese.[22] The culture of consultation is traditionally seen as paternalistic, with little chance for conversation or joint decision making by patient and doctor. Chinese society often embodies collectivism and power distance[23] which means that patients rarely assert individual rights during their consultations and that they often behave deferentially towards doctors. While their dissatisfaction with doctor-centred consultation may not be evident during the consultation, it is exhibited by the high rate of doctor shopping and increased consultation rate. One study found that patients in Hong Kong preferred patient-centred consultations, regardless of differences in their age, income, education, housing and sex.[23]

There is very little research on patient-centred care or enablement in Chinese populations. The PEI would be a very useful tool for the evaluation and enhancement of patient enablement in the consultation in order to shift the doctor-dependent paradigm in this part of the world. For a patient-reported outcome measure to be used in Hong Kong, it must first be translated into Chinese and then tested for cross-cultural equivalence, validity and psychometric adequacy. The PEI has never been tested in an Asian population, and the data on its psychometric properties in any populations are rather limited.

The aim of our study was to develop a Chinese [Hong Kong (HK)] equivalent translation of the PEI and to evaluate its acceptability, validity and reliability in Chinese patients. We wanted to confirm that the items of the PEI were valid indicators of the underlying construct and that they share a common principal factor in order to justify direct summation of the item scores. In addition, we wanted to find out whether the Chinese (HK) PEI results would be influenced by patient characteristics and timing of its administration. Results showing the validity and reliability of the PEI in our Chinese population would support its use in other Chinese populations and adaptation of the PEI to other Asian cultures.

Methods

Development of the Chinese (HK) PEI and evaluation on content validity

The Chinese (HK) translation of the PEI was developed according to an internationally recommended method.[24] Two professional translators, who were native speakers of Chinese, translated the original English PEI into Chinese independently. A panel consisting of the translators and two bilingual authors (CLKL and WW) reviewed the translations to form the first draft of the Chinese (HK) PEI. Another professional translator blind to the original PEI back-translated this first draft to English. The back-translation was assessed for equivalence to the original by one of the authors who are a native English speaker familiar with the original PEI (SM). Discrepancies between the original English language PEI and the back-translation of the first draft Chinese (HK) PEI were reviewed and revised by the panel (Appendix 1). Cognitive debriefing on the second draft was performed with 10 Chinese patients to assess the clarity and interpretation of each item and response option. The cognitive debriefing subjects were a convenient sample balanced for age and sex recruited among attendees of a government primary care clinic in Hong Kong. The final version of the Chinese (HK) PEI (Appendix 2) was then used to collect data for psychometric testing.

Subjects

All patients aged 18 years or more consulting one randomly selected doctor in an average size government-funded primary care clinic in Hong Kong from 20 April to 9 May 2009 were included. The clinic is a teaching practice with three to four doctors consulting in any one session. It is situated in an urban, low socio-economic district of Hong Kong. Patients present with similar problems to other government clinics, namely predominantly chronic conditions such as hypertension and diabetes. All doctors speak Cantonese and 99% of the consultations are conducted in this dialect. To recruit patients, a random number table generated by computer was used to select one doctor (by room number) from all those available for consultation during a particular clinical session. The aim, procedures and nature of the study were explained and written consent was obtained from each subject. Patients were excluded if they were unable to communicate in Cantonese, if they were too ill to complete the interview or if they refused to take part in the study. Patients did not receive any incentives for participating in the study.

Data collection

Each subject answered the Chinese (HK) PEI via interview with a trained research assistant, who was not part of usual clinic staff, after the consultation.

Information was gathered on purpose of consultation (chronic disease follow-up or acute illness), age, sex, marital status (single, married, divorced and widowed), education level and occupation (according to the British Registrar General's classification of occupation).[25]

All subjects were followed up by telephone 2 or more weeks after the initial consultation, when the PEI was administered again by a different trained research assistant. Lam *et al.*[26] previously showed that telephone interviews give similar results on health service utilization as those found in face-to-face surveys.

Outcome measures and statistical analyses

The data of all subjects who had completed the follow-up (retest) interviews were included in the analysis of the test–retest reliability. In order to evaluate whether the psychometric properties of the PEI would be affected by the timing of administration, we split the subjects in half for this part of the data analysis. Seventy-six subjects were randomly selected from the 131 who completed the retest to form the sample for the evaluation of delayed administration, and the rest of the 152 who completed the baseline interviews were used as the sample for the evaluation of immediate administration of the Chinese (HK) PEI.

The Chinese (HK) PEI score was calculated by the mean of the scores of the applicable items multiplied by six. Cases that had more than three 'not applicable' items were excluded. Responses of 'much better/much more', 'better/more' and 'same or less' were scored 2, 1 and 0, respectively, giving a summation PEI score ranging from 0 to 12. Descriptive statistics were determined, including mean, SD, percentage of floor and ceiling of scores by assessment time.

Test–retest reliability was evaluated by paired *t*-tests on the difference in mean and also with intraclass correction coefficient (ICC) between test and retest scores. ICC is the recommended test on reproducibility of psychometric measures and the expected standard is $\geqslant 0.7$.[27] Internal reliability was measured by Cronbach's alpha coefficient, for which $\geqslant 0.7$ has been suggested as the standard for group comparison.[28]

The internal construct validity of the PEI items was first evaluated by Spearman's rho correlation, corrected for overlap, between the item and the scale (total PEI) score; an item should be substantially linearly related ($r \geqslant 0.4$) to the underlying concept (total PEI score) being measured. Factor analysis using the varimax rotation method was then performed on the item scores to extract factors that had an eigenvalue >1. As all items should measure the same construct of patient enablement, one principal component factor was hypothesized and they should have similar factor loading and correlation. Sensitivity was also explored by known group comparison of the mean scores by age, sex and consultation reason. It has been

suggested in the literature that patient enablement would be higher in patients who are younger, male, and who present for an acute problem.[8,17] The sensitivity in detecting a difference between groups was evaluated by two-sample *t*-tests. All data analyses were conducted by SPSS 17.0. Ethics approval was given by HKU/HA HKW IRB reference number, UW 07-226.

Results

Content validity and translation equivalence of the Chinese (HK) PEI

The back-translation of the first draft Chinese (HK) PEI was equivalent to the original PEI for all questions and responses, with few exceptions. The review panel found that the literal translation of 'cope with' in Chinese (e.g. 應付 or 適應) was linguistically inappropriate when collocated with 'illness' (疾病); thus, we translated it to the Chinese term that means 'to face' (面對), which is close in meaning to the original. In addition, 'life' was translated to 'daily living'. The native English expert (SM) agreed that the back-translation of the Chinese (HK) PEI was equivalent in meaning to the original. The cognitive debriefing group was composed of 10 patients, 5 male and 5 female, aged 21–74 years (mean 48.4 years), who took 1–6 minutes to complete the test (mean 3.3 minutes). Each item was understood, rated as relevant, appropriate and not difficult and correctly interpreted by >80% of respondents of the cognitive interviews. A few subjects found the title of the instrument redundant and did not clearly interpret that the stem statement was asking about a change. In addition, several suggested that the separation of the response option 'the same or worse (less)' into two ['the same' and 'worse (less)'] options. Therefore, revisions were made to simplify the title, reword the stem question as a question and to separate the response options to improve the clarity of the instrument.

Acceptability and completion rate

The flow of patient response and follow-up is shown in Figure 1: 203 patients were contacted, of whom 31 patients were excluded because of cognitive or physical impairment (9), inability to speak Cantonese (7), aged <18 years (6) or not accessible by telephone for follow-up (9) and 20 refused to take part. One hundred and fifty-two (83.1% response rate among those eligible) completed the baseline survey with no missing data. One hundred and thirty-one (86% of 152) of the participants completed the telephone follow-up interviews, and the median time interval between the two assessments was 15 days (range 14–22 days). Data from two subjects at baseline and three subjects on follow-up were excluded from further analysis because there were more than three not applicable responses on their Chinese (HK) PEI.
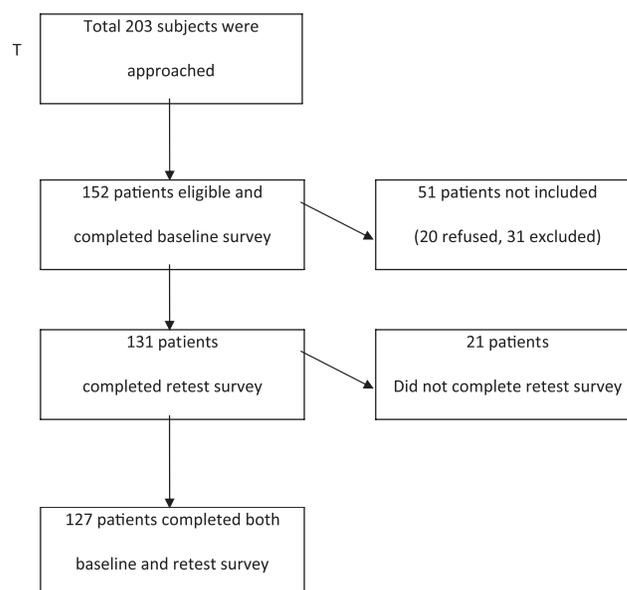

FIGURE 1   *Response and follow-up of patients consulting at Ap Lei Chau Clinic*

The characteristics of the study subjects can be seen in Table 1. Most subjects were elderly and of low education and socio-economic class, and more consultations were for chronic disease rather than acute illnesses. Subject characteristics were similar except for the education level between those who completed and defaulted the follow-up interviews, suggesting little systematic bias in the retest results.

Psychometric properties of the Chinese (HK) PEI

Table 2 shows the distribution of baseline and follow-up Chinese (HK) PEI scores. There were few subjects who had the lowest possible (floor) or highest possible (ceiling) scores at baseline, however a relatively high proportion (18.9%) scored at the floor in the follow-up assessment. The paired *t*-test ($P < 0.124$) indicated no difference between the test and retest means, and the test–retest reliability ICC was 0.75, indicating good reproducibility. The Cronbach's alpha coefficient of internal reliability was 0.84 and 0.85 at baseline and at follow-up, respectively, further supporting the reliability of the PEI.

Table 3 shows the item-scale correlation between each item and the total PEI score by administration time. The correlations were all strong (≥ 0.65) indicating good internal consistency, in support of the internal construct validity.

Only one factor with eigenvalue >1 was extracted by factor analysis, which explained >70% and 67% of the reliable variance of the item scores at baseline and follow-up, respectively. Table 4 shows the factor coefficients and correlations between principal component and the PEI items at baseline and follow-up. Factor loadings of all the items were similar, and correlation

between principle component and the Chinese (HK) PEI were strong (0.69–0.8), further confirming internal construct validity.

Table 5 shows the mean PEI scores by age, sex, and consultation reasons for all subjects. Older (aged 60 years or above) subjects had significantly lower mean PEI scores than younger (aged 18–59 years) subjects, both at baseline and at follow-up. There was no significant difference in mean PEI score with respect to sex or consultation reason. The PEI score on follow-up was significantly lower than that at baseline in subjects who consulted for chronic diseases, but there was no difference for those consulting for acute illness.

TABLE 1   *Characteristics of study subjects*

Characteristics	Baseline ($n = 152$)	Follow-up ($n = 131$)	Default follow-up ($n = 21$)
Mean age (SD)	62.1 (12.68)	62.1 (12.84)	62.2 (11.92)
Age group (years, %)			
18–59	42.1	42.0	42.9
60 or above	56.6	57.3	52.4
Missing	1.3	0.8	4.8
Gender (%)			
Male	38.2	38.2	38.1
Female	61.8	61.8	61.9
Education level (%)[a]			
Nil	23.0	19.1	47.6
Primary	36.2	40.5	9.5
Secondary	35.5	35.1	38.1
Tertiary	5.3	5.3	4.8
Marital status (%)			
Married	67.1	67.2	66.7
Widower	17.8	16.8	23.8
Single	6.6	6.9	4.8
Divorced	8.6	9.2	4.8
Occupation (%)			
Professional	3.3	3.1	4.8
Associated professional	7.2	7.6	4.8
Skilled worker	19.7	19.8	19.0
Semi-skilled worker	16.4	18.3	4.8
Unskilled worker	27.0	26.0	33.3
Housewife	23.0	23.7	19.0
Others	3.3	1.5	14.3
Consultation reason (%)			
Chronic disease	67.1	67.9	61.9
Acute illness	32.9	32.1	38.1

[a]Significant difference between follow-up and default follow-up subjects by chi-square test ($P < 0.05$).

Discussion

We believe that this is the first report in the literature on the validity, reliability and other psychometric properties of the PEI in an Asian population. Such evidence is important to support the cross-cultural application of a patient-reported outcome measure. An equivalent translation is an essential although not sufficient step for the application of an instrument to another population with a different culture and language. In our case, an equivalent Chinese translation could be made for all the PEI items and response options. The term most difficult to translate was enablement in the title as this is a relatively new concept in the collective Chinese culture. Nevertheless, our Chinese patients could understand and identify with the indicators (items) of this construct. This further supports the relevance of the concept of enablement in the Chinese culture, as found by an earlier study that enabling programmes led to beneficial outcomes for Chinese patients with chronic disease.[20]

Our results demonstrated good acceptability of the PEI by Chinese patients with a response rate of 83%, completion rate of 100% and analysable data from 98% of the respondents. The cognitive debriefing interviews showed that all subjects, including elderly ones, could complete the instrument in a few minutes. Most of our subjects were elderly and had a low level of education, which is typical of patients attending public primary care clinics in Hong Kong. We would expect the PEI to be even more acceptable to younger better-educated Chinese patients.

Our mean PEI scores were higher than those found in studies conducted in English-speaking patients (3.1) and comparable to studies for patients consulting in other languages (4.5).[10] This may be explained by cultural differences in illness coping or response to questionnaires. Howie *et al.*[10] found significantly higher enablement scores in 'other language patients', while Freeman *et al.*[29] found higher enablement scores when non-English-speaking patients had consultations in their own language. It may not be valid to directly compare the absolute scores between different cultural groups because each may have different life expectations and coping needs. Qualitative exploration on the

TABLE 2   *Distribution and reliability of baseline and follow-up Chinese (HK) PEI scores*

	Mean (SD) (95% CI)	% Floor	% Ceiling	Cronbach's α	Paired *t*-test, *P* value[a]	Test–retest reliability (ICC)
Baseline ($n = 150$)	4.65 (2.76) (4.21–5.10)	6.0	3.3	0.84		
Follow-up ($n = 127$)	4.22 (3.37) (3.63–4.81)	18.9	3.9	0.85	0.124	0.75

PEI score calculated as mean of answered items times 6, excluding cases that were not applicable or missing in more than three items, range 0–12.
Two baseline and three follow-up subjects were excluded because cases answered not applicable in more than three items.
[a]Only 127 subjects who had valid PEI scores in both baseline and follow-up assessments were included in the test–retest analyses.

TABLE 3 *Item-scale correlations of Chinese (HK) PEI*

	Baseline (n = 76)		Follow-up (n = 76)	
	Mean (SD)	Correlation with total PEI score[a]	Mean (SD)	Correlation with total PEI score[a]
Able to copy with life	0.61 (0.66)	0.68	0.55 (0.70)	0.70
Able to understand your illness	0.80 (0.67)	0.68	0.74 (0.76)	0.77
Able to copy with your illness	0.77 (0.70)	0.83	0.74 (0.79)	0.78
Able to keep yourself healthy	0.96 (0.56)	0.75	0.92 (0.80)	0.76
Confident about your health	0.86 (0.71)	0.84	0.89 (0.79)	0.79
Able to help yourself	0.66 (0.60)	0.67	0.76 (0.75)	0.72

[a]Spearman's rho correlation, corrected for overlap, were all significant, $P < 0.001$.

TABLE 4 *Factor coefficients and correlations between principal component and items of Chinese (HK) PEI*

	Baseline (n = 76)		Follow-up (n = 76)	
	Factor coefficients	Factor correlations	Factor coefficients	Factor correlations
Able to copy with life	0.183	0.68	0.212	0.73
Able to understand your illness	0.193	0.71	0.233	0.80
Able to copy with your illness	0.231	0.85	0.226	0.78
Able to keep yourself healthy	0.222	0.82	0.218	0.75
Confident about your health	0.227	0.84	0.225	0.78
Able to help yourself	0.213	0.79	0.204	0.70
Eigenvalue	3.700		3.448	
Total variance explained (%)	61.67		57.46	

meaning of the scores from respondents would shed light on any difference in the interpretation and function of the concept of enablement between different cultures.

The proportion of subjects scoring the lowest and highest scores were all <20%, which is generally regarded as the threshold for a floor or ceiling effect,[30] suggesting that the Chinese (HK) PEI is potentially sensitive in detecting differences in the outcomes of consultations.

The results of the item-scale correlation and factor analyses supported the internal construct validity of the PEI as a measure of the core concept of patient enablement. All items were relevant and important as shown by the high and almost equal correlations with

TABLE 5 *Mean (SD) of PEI summary score by age, gender and consultation reason*

	Baseline (n = 150)				Follow-up (n = 128)			
	n	Mean	SD	ES	n	Mean	SD	ES
Age group (years)								
18–59	63	5.64[a]	2.76		56	5.20[a]	2.89	
60 or above	85	3.84[a]	2.47	0.65	72	3.47[a]	3.53	0.60
Gender								
Male	58	4.66	2.99		49	4.18	3.57	
Female	92	4.64	2.62	0.01	79	4.27	3.24	0.03
Consultation reason								
Chronic disease	102	4.85[b]	2.95		87	4.31[b]	3.41	
Acute illness	48	4.22	2.28	0.21	41	4.08	3.29	0.07

ES, effect size
[a]Significant difference in mean PEI score between age group by independent t-test (P value < 0.01).
[b]Significant difference in mean PEI score for chronic disease between baseline and follow-up by paired t-test (P value = 0.047).

the total score and the principal factor. The high item-score correlation indicated that not only were the original and Chinese (HK) versions of the PEI similar in language (semantics) but there were also equivalent in function.

The finding of lower PEI scores in the elderly provided some support to the external construct validity of the PEI, which is consistent with existing Western literature.[8] However, there was no difference in PEI score according to reason of consultation contrary to findings in a previous study.[17] One would expect higher enablement scores in those presenting with acute illness, as chronic conditions entail regular follow-up, and doctors would assume that patients are stable and have acquired knowledge of their condition over time, thereby resulting in less enablement achieved at each subsequent consultation. On the other hand, doctors might see the need to help patients with chronic diseases to cope better. Pawlikowska *et al.*[15] also did not find any effect from case mix on PEI scores.

It should be noted that the findings with relation to those presenting for acute versus chronic conditions need to be interpreted with caution since the 'acute illness' group was relatively small. Our study patients presenting with 'acute' conditions were instructed to focus on their original acute problem only; however, there is a chance that they may have found it difficult to separate acute from chronic illness, had they also had chronic illnesses. In addition, it may also have been possible that they had separate consultations (other than those included in the baseline) that might have affected their responses. Nevertheless, we expected that the number of patients presenting for re-consultation in the 2 weeks of the study would have been low.

There was no difference in the scores or psychometric performance of the PEI according to timing of

administration (immediately post-consultation compared with delayed for 2 or more weeks). This not only supported test–retest reliability but also the feasibility of measuring patient enablement with the PEI by telephone up to a few weeks after the consultation. The PEI was originally developed to be administered immediately post-consultation.[5] Our results indicate that a 'delayed' completion of the PEI may be used instead, with beneficial implications for its usage. For patients, they would not have to spend more time at the clinic in addition to their consultation time duration. For clinical practice and research, the option of delayed administration of the PEI over the telephone (or via other means) confers a definite logistical advantage.

It was interesting to note that a higher proportion of subjects had a floor PEI score in the assessment at 2 or more weeks, which might imply the enablement perceived immediately after the consultation was lost with time. This was more apparent in those consulting for chronic diseases whose mean PEI score also decreased with time. This more likely represented a true change rather than poor reproducibility. If it were a systematic bias, then the same change should have been found in all subjects. It is not possible to ascertain whether immediate post-consultation, compared with delayed PEI administration, represented a more accurate reflection of the 'truth', but conceptually, it would take time before a patient could really tell whether he/she had been more enabled. In addition, some patients might feel obligated to give a more positive response when they are interviewed immediately after the consultation, especially if they have a good relationship with the doctor.

Limitations
This pilot study intended to establish the cross-cultural applicability of the PEI in a Chinese population. The results provide preliminary evidence on its internal construct validity and reliability; however, its construct validity in relation to external criteria has not been firmly established. Our findings on the differences between known groups were inconclusive due to limitations of the sample size and the study setting. There are certain factors documented in the literature to be associated with patient enablement, such as patient age and sex, doctor's communication, length of consultation, how well the doctor and the patient know each other (proxy for continuity of care) and overall satisfaction of the visit, which were not explored due inherent difficulties in our primary care clinic. For instance, in our setting, patients are usually not seen by the same doctor, and consultation lengths are fairly standard (around 8 minutes). Further studies should be carried out to test the construct validity of the PEI and to further examine determinants of patient enablement.

Conclusion(s)

The Chinese (HK) version of the PEI is semantically equivalent to the original English language PEI, and our results have supported its acceptability, content and internal construct validity, reliability and sensitivity. As our subjects are of different ages and sex, education levels and social classes, we propose that the PEI is valid for use with the general Hong Kong Chinese population. As all Chinese share the same written language (be it in traditional or simplified form), we hope in the future it can be applied to other Chinese populations worldwide. Further studies should be carried out to evaluate the relationship between PEI scores and other external criteria to confirm its construct validity. Sensitivity in differentiating consultation outcomes in different settings or morbidity groups and responsiveness to changes with intervention will also need to be established.

Acknowledgements

Declaration

References

1 Stewart M, Brown JB, Weston WW *et al*. *Patient-Centred Medicine. Transforming the Clinical Method*. Thousand Oak, CA: Sage, 1995.

2 Little P, Everitt H, Williamson I *et al*. Preferences of patients for patient-centred approach to consultation in primary care: observational study. *BMJ* 2001; **322:** 468.

3 Little P, Everitt H, Williamson I *et al*. Observational study of effect of patient centeredness and positive approach to outcomes of general practice consultations. *BMJ* 2001; **323:** 908–11.

4 Howie JGR, Heaney D, Maxwell M. Quality, core values and general practice consultations: issues of definition, measurement and delivery. *Fam Pract* 2004; **21:** 458–68.

5 Howie JG, Heaney DJ, Maxwell M, Walker JJ. A comparison of a Patient Enablement Instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. *Fam Pract* 1998; **15:** 165–71.

6 Stott NCH, Davis RH. The exceptional potential in each primary care consultation. *J R Coll Gen Pract* 1979; **29:** 201–5.

7   Di Blasi Z, Harkness E, Ernst E, Georgiou A, Kleijnen J. Influence of context effects on health outcomes: a systematic review. *Lancet* 2001; **357:** 757–80.

8   Adzic ZO, Katic M, Kern J *et al*. Patient, physician and practice characteristics related to patient enablement in general practice in Croatia: cross-sectional survey study. *Croat Med J* 2008; **48:** 813–23.

9   Howie JG, Heaney DJ, Maxwell M. Measuring quality in general practice. Pilot study of needs, process and outcome measure. *Occas Pap R Coll Gen Pract* 1997; **75:** 1–32.

10 Howie JG, Heaney DJ, Maxwell M *et al*. Quality at general practice consultations: cross sectional survey. *BMJ* 1999; **319:** 738–43.

11 Wensing M, van Lieshout J, Jung HP, Hermsen J, Rosemann T. The Patients Assessment Chronic Illness Care (PACIC) questionnaire in The Netherlands: a validation study in rural general practice. *BMC Health Serv Res* 2008; **8:** 182.

12 Howie JGR. Addressing the credibility gap in general practice research: better theory; more feeling; less strategy. *Br J Gen Pract* 1996; **46:** 479–81.

13 McKinstry B, Walker J, Blaney D, Heaney D, Begg D. Do patients and expert doctors agree on the assessment of consultation skills? A comparison of two patient consultation assessment scales with the video component of the MRCGP. *Fam Pract* 2004; **21:** 75–80.

14 Mercer DW, Neumann M, Wirtz M, Fitzpatrick B, Vojt G. General practitioner empathy, patient enablement, and patient-reported outcomes in primary care in an area of high socio-economic deprivation in Scotland—A pilot prospective study using structural equation modelling. *Patient Educ Couns* 2008; **73:** 240–5.

15 Pawlikowska TRB, Nowak PR, Szumilo-Grzesik W, Walker JJ. Primary care reform: a pilot study to test the evaluative potential of the Patient Enablement Instrument in Poland. *Fam Pract* 2002; **19:** 197–201.

16 Price S, Mercer S, MacPherson H. Practitioner empathy, patient enablement and health outcomes: a prospective study of acupuncture patients. *Patient Educ Couns* 2006; **63:** 238–45.

17 Mead N, Bower P, Roland M. Factors associated with enablement in general practice: cross-sectional study using routinely-collected data. *Br J Gen Pract* 2008; **58:** 346–52.

18 Mercer SW, Fitzpatrick B, Gourlay G *et al*. More time for complex consultations in a high-deprivation practice is associated with increased patient enablement. *Br J Gen Pract* 2007; **57:** 960–6.

19 Haughney J, Cotton P, Rosen JP *et al*. The use of a modification of the Patient Enablement Instrument in asthma. *Prim Care Respir J* 2007; **16:** 89–92.

20 Siu AM, Chan CC, Poon PK, Chui DY, Chan SC. Evaluation of the chronic disease self-management program in a Chinese population. *Patient Educ Couns* 2007; **65:** 42–50. Epub 2006 Jul 26.

21 Leung GM, Wong IOL, Chan WS, Choi S, Lo SV. Health Care Financing Study Group. The ecology of health care in Hong Kong. *Soc Sci Med* 2005; **61:** 577–90.

22 Population By-census Office, Census and Statistics Department, The Government of the Hong Kong Special Administrative Region. *Hong Kong Statistics, Population and Vital Events [Internet]*. Hong Kong, [updated 2006; cited 2009 Jun 23]. Available from http://www.censtatd.gov.hk/

23 Smith DH, Dixon AS, Lam CLK, Lam TP. Hong Kong patients' preferences for physician communication style. In Smith DH (ed.). *Working Papers on Health Communication and China*, Hong Kong, China: The Intercultural Communication Research Programme of The David C Lam Institute for East-West Studies.

24 Wild D, Grove A, Martin M *et al*. Principles of Good Practice for the Translation and Cultural Adaptation Process for Patient-Reported Outcomes (PRO) Measures: report of the ISPOR Task Force for Translation and Cultural Adaptation. *Value Health* 2005; **8:** 94–104.

25 Bartley M. *Health Inequality: an Introduction to Theories, Concepts and Methods*. Cambridge, UK: Polity Press, 2004: 31.

26 Lam TH, Kleevans WL, Wong CM. Doctor consultation in Hong Kong: a comparison between findings of a telephone interview with general household survey. *Community Med* 1988; **10:** 175–9.

27 Terwee CB, Bot SD, de Boer MR *et al*. Quality criteria were proposed for measurement properties of health status questionnaires. *J Clin Epidemiol* 2007; **60:** 34–42.

28 Nunnally JC. *Psychometric Theory*, 3rd edn. New York: McGraw Hill, 1994.

29 Freeman GK, Rai H, Walker JJ *et al*. Non-English speakers consulting with the GP in their own language: a cross-sectional survey. *Br J Gen Pract* 2002; **52:** 36–8.

30 McHorney CA, Ware JE, Lu R, Sherboume CD. The MOS. 36-Item Short-Form health survey (SF-36): III. Tests of data quality, scaling assumptions and reliability across diverse patient groups. *Med Care* 1994; **32:** 40–66.

Appendix 1. Draft Chinese (HK) PEI with back-translation used in cognitive debriefing with English back-translations in brackets

勉勵病人自強評估量表
(Evaluation Table on Promoting Patients' Self-strengthening Practice)

看過這次醫生後，你感到……
(After this medical consultation, you feel:-

(請於每行的其中一個空格內劃"✓"號):-
(Please check your answer for each statement)

	大爲改善	有所改善	一樣或少了	不適用
	(greatly improved)	(slightly improved)	(the same or less)	(not applicable)
	2	**1**	**0**	
a. 能夠面對生活 (able to face your life)	☐	☐	☐	☐
b. 能夠了解自己的疾病 (able to understand your illness)	☐	☐	☐	☐
c. 能夠面對自己的疾病 (able to live with your illness)	☐	☐	☐	☐
d. 能夠保持自己身體健康 (able to maintain good health)	☐	☐	☐	☐

	大爲增強	有所增強	一樣或少了	不適用
	(greatly increased)	(slightly increased)	(the same or less)	(not applicable)
	2	**1**	**0**	
a. 對自己的健康有信心 (confident about your health)	☐	☐	☐	☐
b. 擁有自助的能力 (able to self help)	☐	☐	☐	☐