

Intercultural comparison of patient satisfaction with physiotherapy care in Australia and Korea: an exploratory factor analysis

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Objectives: The aim of this study was to conduct a cross-cultural comparison of the factors that influence patient satisfaction with musculoskeletal physiotherapy care in Australia and Korea.

Methods: Prospective studies were conducted in Australia and Korea. Patient satisfaction data were collected using the MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy Care (MRPS) from a total of 1666 patients who were attending clinics for physiotherapy treatment of a musculoskeletal condition. Exploratory factor analysis was conducted to identify factors determining patient satisfaction in each cohort.

Results: A four-factor solution for the MRPS was found for the Australian and Korean data sets, explaining 61 and 55% of the variance respectively. Communication and respect, convenience and quality time and person-focused care were factors common to both countries. One factor unique to Korea was courtesy and propriety. For both cultures, global patient satisfaction was significantly but weakly correlated with the outcome of treatment.

Conclusions: The interpersonal aspect of care, namely effective communication and respect from the therapist, appears to be the predominant and universal factor that influences patient satisfaction with physiotherapy care, although other culturally specific factors were identified. Physiotherapists can maximize patient satisfaction with care by addressing those features that uniquely contribute to patient satisfaction in the cultural context in which they are working.

Keywords: Patient satisfaction, Musculoskeletal care, Physical therapy, Physiotherapy, Cultural, Australia, Korea, Factor analysis

Introduction

Patient satisfaction with care is an intrinsically patient-centred and clinically relevant health outcome measure. Levels of patient satisfaction with musculoskeletal physiotherapy care in different countries have recently been reviewed, with a meta-analysis performed of patient satisfaction data collected in England, Canada, USA, Ireland, and Sweden.¹ Overall, levels of satisfaction were high, with a pooled score of 4.44 [95% confidence interval (CI): 4.41–4.46] on a 1–5 scale from high dissatisfaction to high satisfaction.

Understanding the factors that contribute to high patient satisfaction can enable therapists to incorporate those features into health service delivery and

obtain optimal clinical outcomes. Previously, researchers have reported one-factor,² two-factor,^{3–5} and four-factor⁶ solutions for patient satisfaction with physiotherapy care in the United States, and a three-factor model⁷ in Switzerland.

It is not currently known whether factors that impact on patient satisfaction are the same between different countries, or whether there might be determinants that are specific to individual cultures. However, there is preliminary evidence that both universal and unique features of care may exist.⁸ In Europe, North America, the United Kingdom, and Australia, effective therapist-patient communication seems to be a consistent feature of care that results in high satisfaction.^{1,8} However, a comparison of data from Australia and the United States also suggests that differences between these countries do exist. For example, factors about the process of care (e.g.,

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convenient clinic hours and parking, waiting room comfort, and clinic cleanliness) are more highly correlated with patient satisfaction in the United States than in Australia.⁸ This literature suggests that, while interpersonal features of musculoskeletal physiotherapy care may be universal, there may also be culturally specific factors that contribute to high patient satisfaction.

In a previous study, we reported on patient satisfaction in Australia, comparing the overall degree of satisfaction with that from other countries.¹ However, despite the possibility of cultural differences influencing health service delivery and its reception, the Asian region has not previously been the focus of any patient satisfaction study. Latin and North American cultural differences in patient satisfaction have been explored in a study of Spanish speakers in the United States,⁵ in which the authors found high similarity of the cultural groups in the structure of their expectations. In other research, it has been found that Asian-Americans report lower satisfaction with their physician care and health services than other racial or ethnic groups in the United States.⁹

Australia is often considered to be a Western country in the Asian region; however, no comparison between Australia and an Asian country has yet been made regarding patient satisfaction with physiotherapy care. Australia and South Korea are two of the biggest economies in the region, ranked the twelfth and fifth in the world respectively by the United Nations based on their gross domestic product in 2011. The two countries have similar numbers of registered physiotherapists: 23 501 in Australia and 22 827 in South Korea. On the other hand, Australia and South Korea have stark cultural differences, particularly with respect to their backgrounds. Contemporary Australia has had a relatively short existence since its emergence from British colonial status in 1901, whereas current South Korean culture reflects industrialization within an independent peninsula with similarities and marked differences to adjacent Chinese and Japanese cultures.¹⁰⁻¹² A further contrast is that Korean society is seen as hierarchical in social structure whereas Australia is seen as a more egalitarian nation.¹³ There are also notable differences in how physiotherapy emerged in both cultures. Physiotherapy in Korea developed from the work of North American missionaries at the Severance Hospital for rehabilitation of injured soldiers after World War II and the Korean War.¹⁴ Australian physiotherapy emerged earlier, from the work of massage and rehabilitation therapists in World War I and during poliomyelitis epidemics.¹⁵ An important difference in physiotherapy practice between the two countries is that physiotherapists in

Australia have had first contact practitioner status since 1977¹⁶ whereas in Korea, a medical referral is still required for a visit to a physiotherapist. Therefore, while there are geographic and economic similarities between Australia and South Korea, notable differences exist from a cultural perspective. These characteristics of the two countries provide a unique opportunity to investigate cross-cultural aspects of patient satisfaction with physiotherapy care.

The aim of this study was to conduct a cross-cultural comparison of the factors that influence patient satisfaction with musculoskeletal physiotherapy care between Australia and South Korea.

Methods

Design

A total of 1666 patients attending outpatient physiotherapy clinics in Australia and South Korea for treatment of a musculoskeletal condition were recruited for two prospective studies.

Participants and clinics

Patients were eligible if they presented for a treatment of a musculoskeletal disorder, were aged 18 years and over, were able to complete the study questionnaire and could read English or Korean in the Australian or Korean studies respectively. Data from the Australian sample ($n=274$) were collected from seven private practices between September 2008 and November 2009 as described previously.⁸ Data for Korean patients ($n=1392$) were collected from 40 physiotherapy private practices across Korea between December 2008 and April 2009. Both cohorts contained city-based and rural clinics. The Korean clinics were mostly owned by medical doctors and Australian clinics owned by physiotherapists. The larger sample size for the Korean study is due primarily to the fact that the Korean portion of this study was funded, thereby providing research assistance with recruitment and compliance. The Australian arm of the study was unfunded.

Outcome measures

Patient satisfaction with care was measured using the 20-item MedRisk Instrument for Measuring Patient Satisfaction with Physical Therapy Care (MRPS)³⁻⁵ where the mean score of items 1 to 18 provides a measure of patient satisfaction, with 1 indicating high dissatisfaction and 5 indicating high satisfaction. The MRPS has been validated for use in outpatient physiotherapy populations and has acceptable reliability.³⁻⁵ Change in each patient's condition was assessed using a 9-point global rating of change (GRC) scale where 1 indicates 'very much better' and 9 'very much worse'.¹⁷

For the Korean arm of the study, the English version of the MRPS was translated into Korean

using a 'forward' and 'backward' translation and consensus agreement approach, as described by Hurtado.¹⁸ Six translators fluent in Korean and English conducted the first translation independently, aiming to retain the conceptual meaning of each item rather than the literal equivalence.¹⁹ One of the authors (HL) reviewed the translated instrument and, after modifications, developed a preliminary version of the Korean language instrument that was then reviewed by four bilingual people, who confirmed that the clarity of expression, language and conceptual meaning were appropriate. This version was then back translated into English by two people, and reviewed by four others. Forward and backward translation, with modifications as necessary, was repeated until there was consensus between all six translators and an author (HL) that the Korean language version was an appropriate representation of the original MRPS instrument.

Procedure

Consecutive patients presenting for a new course of treatment were invited to participate in the study and given a patient information sheet. On completion of treatment (or after six sessions, whichever came first, following the standardized protocol for administration of the MRPS³⁻⁵), each participant was invited by office staff to voluntarily complete the MRPS patient satisfaction questionnaire in the waiting room of the clinic. Each completed questionnaire was sealed in an envelope to ensure anonymity of the response. While it is possible that patients' levels of satisfaction might have differed if their course of treatment consisted of more than six sessions, by the end of the sixth visit, it is likely that most patients would have had adequate therapeutic experience on which to base their satisfaction ratings.

Data analysis

The MRPS questionnaire includes 18 items on care-related aspects and one global satisfaction item (Item 19). Factor analysis is a procedure used to examine a large set of variables and to reduce them to a

manageable set of underlying concepts.²⁰ Exploratory factor analysis on the first 18 items was conducted with SPSS Version 17.0 (SPSS, Chicago, IL, USA), using principal component analysis with varimax rotation. The approach recommended by Tabachnick and Fidell,²¹ was used to test the solution, where the number of potential factors with Eigen values >1.0 are confirmed by visual inspection of the point of inflection of the scree plot. Allocation of items to each factor was performed by inspection of the component matrix and rotated factor loading plots. Items that loaded highly on a factor in the component matrix and were visually grouped together in the factor loading plot were allocated to that factor. Factors were named by evaluation and synthesis of the items they loaded on.^{20,21} For example, the 'communication and respect' factor loads on three items with the word 'respect' in the question, and four items with 'explained', 'answered', 'advised', and 'instructed' (all communication words) in the question.

Bivariate correlation analysis was conducted to investigate the relationship between scores on individual factors and the global rating of change. Stepwise regression was performed to determine the amount of influence that the factors contributing to patient satisfaction have in determining global rating of change.

Approval to conduct the Australian study was provided by the University of Sydney Human Research Ethics Committee. Ethics approval was not required in Korea as only voluntary survey data were collected.

Results

Two hundred and seventy four participants from seven physiotherapy clinics in Australia and 1392 participants from 40 physiotherapy clinics in Korea participated in this study. A description of both study cohorts is provided in Table 1. Mean patient satisfaction rating for items 1 to 18 on the 1-5 scale was significantly higher for the Australian group

Table 1 Description of Australian and Korean cohorts

Country	Sample size	Age mean (SD)	Gender % F	Minutes to travel to clinic; % of patients	Area treated % of patients	Patient satisfaction mean (Items 1-18) (95% CI)
Australia	274	40 (13)	57	0-15 (66%) 16-30 (23%) 31-60 (9%) >60 (2%)	Low back 20% Neck 15% Lower limb 12% Foot and ankle: 9% Upper limb 4% Multiple 28% Other 13%	4.55 (4.51-4.59)
Korea	1392	44 (16)	58	0-15 (1%) 16-30 (17%) 31-60 (62%) >60 (20%)	Low back 35% Neck 18% Lower limb 19% Foot and ankle: 12% Upper limb 10% Other 8%	3.43 (3.41-3.46)

[Australia: 4.55 (95% CI: 4.51–4.59); Korea: 3.43 (95% CI: 3.41–3.46)]. There was a notable difference in the travel time to clinics between the two cohorts: while 66% of Australians had less than 15 minutes travel time, over 80% of Koreans travelled for more than 30 minutes to get to a clinic ($P < 0.001$). In both cohorts, Item 19, global patient satisfaction was only weakly correlated with treatment outcome measured by the global rating of change (Australia: $r = -0.220$, $P < 0.001$; Korea: $r = -0.280$, $P < 0.001$).

Exploratory factor analysis resulted in the component matrices shown in Tables 2 and 3 for the Australian and Korean data sets respectively. The final factors with item loadings are shown for each cohort in Tables 4 and 5. In the Australian cohort, a four-factor solution emerged, with the following descriptors assigned: (1) communication and respect; (2) convenience; (3) quality time; and (4) person-focused care. Together, these factors explained 61% of the total variance in item scores. Analysis of the Korean data also resulted in a four-factor solution, with the following descriptors assigned: (1) communication and respect; (2) convenience and quality time; (3) courtesy and propriety; and (4) person-focused care. The accumulated variance explained by these four factors was 55%.

Notably, Factor 1 for both cohorts is based on exactly the same eight MRPS items: four concerning respect and four about communication. Factor loadings on these items were similar in both cohorts (Tables 4 and 5). For the Australian data, Factor 2 contained six items describing aspects of convenience of care (convenient office location, parking and office hours, comfortable waiting area, prompt treatment and appropriate registration process). Factor 3 contained three items relating to the quality of care (therapist listened to concerns, adequate treatment time, prompt treatment). The second factor in the Korean cohort was comprised of almost identical items from Australian Factors 2 and 3, but combined into a single factor. For both cohorts, the fourth factor contained three negatively weighted items that, by inference, reflect the importance of person-focused care as opposed to the physical aspects of care (such as modern equipment and clean, comfortable facilities). The third Korean factor appears to be culturally unique. It contains four items that emphasize the importance of courtesy and propriety (appropriate registration, comfortable waiting area, courteous receptionist and convenient office hours).

Bivariate correlations between the obtained factor scores and GRC revealed that patient satisfaction factors do contribute significantly to GRC for both groups (Table 6). However, the effect was stronger for the Korean cohort. The correlations predominantly showed that better treatment outcome was

Table 2 Component matrix for Australian data with item loadings for each factor

Item description	Factor 1 Communication and respect	Factor 2 Convenience	Factor 3 Quality time	Factor 4 Person-focused care
Item 1 The office receptionist was courteous.	0.56	0.02	-0.22	0.42
Item 2 The registration process was appropriate.	0.69	0.25	-0.30	0.16
Item 3 The waiting area was comfortable.	0.58	0.45	-0.34	-0.35
Item 4 The office location was convenient.*	0.36	0.52	0.06	-0.04
Item 5 This office provided convenient parking.	0.39	0.23	-0.10	0.27
Item 6 I did not wait too long to see my therapist.*	0.54	0.41	0.41	0.18
Item 7 The office hours were convenient for me.*	0.64	0.19	-0.21	0.02
Item 8 My therapist spent enough time with me.*	0.70	0.17	0.52	0.07
Item 9 My therapist thoroughly explained the treatment(s) I received.	0.76	-0.38	0.05	0.01
Item 10 My therapist treated me respectfully.	0.77	-0.36	-0.08	0.27
Item 11 The office staff was respectful.	0.80	-0.24	-0.15	0.29
Item 12 The therapist's assistant/aide was respectful.	0.58	0.09	-0.24	0.25
Item 13 My therapist listened to my concerns.*	0.60	0.10	0.64	-0.01
Item 14 My therapist answered all my questions.	0.76	-0.22	0.11	-0.10
Item 15 My therapist advised me how to avoid future problems.	0.67	-0.22	0.11	-0.20
Item 16 The office and its facilities were clean.	0.80	0.09	-0.12	-0.33
Item 17 The office used up-to-date equipment.	0.74	0.01	-0.15	-0.51
Item 18 My therapist gave me detailed home program instructions.	0.68	-0.45	0.05	-0.18

Note: *Items that were negatively worded on the MRPS are shown here in a positive wording format for ease of interpretation. Direction of item loading (+ or -) in the table applies to the positively worded format.

Table 3 Component matrix for Korean data with item loadings for each factor

Item description	Factor 1 Communication and respect	Factor 2 Convenience and quality time	Factor 3 Courtesy and propriety	Factor 4 Person-focused care
Item 1 The office receptionist was courteous.	0.22	0.47	0.17	0.34
Item 2 The registration process was appropriate.	-0.18	0.52	0.21	0.32
Item 3 The waiting area was comfortable.	0.80	0.05	-0.14	0.27
Item 4 The office location was convenient.*	0.80	0.05	-0.01	0.23
Item 5 This office provided convenient parking.	0.75	0.10	-0.23	0.20
Item 6 I did not wait too long to see my therapist.*	-0.40	0.57	0.29	0.14
Item 7 The office hours were convenient for me.	0.67	-0.13	0.43	0.13
Item 8 My therapist spent enough time with me.*	0.72	0.07	-0.18	0.13
Item 9 My therapist thoroughly explained my treatment(s).	0.60	-0.23	0.48	0.13
Item 10 My therapist treated me respectfully.	0.47	0.09	0.12	0.11
Item 11 The office staff was respectful.	-0.21	0.60	-0.16	0.08
Item 12 The therapist's assistant/aide was respectful.	-0.44	0.53	0.21	0.08
Item 13 My therapist listened to my concerns.*	0.48	-0.06	0.26	0.05
Item 14 My therapist answered all my questions.	0.68	0.26	-0.31	0.03
Item 15 My therapist advised me on ways to avoid future problems.	0.54	0.42	-0.34	0.00
Item 16 The office and its facilities were clean.	0.39	0.13	0.48	-0.13
Item 17 The office used up-to-date equipment.	0.58	0.11	0.06	-0.51
Item 18 My therapist gave me detailed home program instructions.	0.52	0.22	-0.02	-0.58

Note: *Items that were negatively worded on the MRPS are shown here in a positive wording format for ease of interpretation. Direction of item loading (+ or -) in the table applies to the positively worded format.

Table 4 The four-factor solution for the Australian cohort, showing item loadings and the cumulative variance explained

Factor 1 Communication and respect	Factor 2 Convenience	Factor 3 Quality time	Factor 4 Person-focused care				
The office staff were respectful	0.80	The office location was convenient*	0.52	My therapist listened to my concerns*	0.64	The office used up to date equipment	-0.51
My therapist treated me respectfully	0.77	The waiting area was comfortable	0.45	My therapist spent enough time with me*	0.52	The waiting area was comfortable	-0.35
My therapist thoroughly explained my treatment/s	0.76	I didn't wait too long to see my therapist*	0.41	I didn't wait too long to see my therapist*	0.41	The office and its facilities were clean	-0.33
My therapist answered all my questions	0.76	The registration process was appropriate	0.25				
My therapist gave me detailed home program instructions	0.68	This office provided convenient parking	0.23				
My therapist advised me how to avoid future problems	0.67	The office hours were convenient	0.19				
The therapist assistant/aide was respectful	0.58						
The office receptionist was courteous	0.56						
23% of variance explained	36% of variance explained	49% of variance explained	61% of variance explained				

Note: *Items that were negatively worded on the MRPS are shown here in a positive wording format for ease of interpretation. Direction of item loading (+ or -) in the table applies to the positively worded format.

Table 5 The four-factor solution for the Korean cohort, showing item loadings and the cumulative variance explained

	Factor 1 Communication and respect	Factor 2 Convenience and quality time	Factor 3 Courtesy and propriety	Factor 4 Person-focused care
The office staff was respectful	0.80			
My therapist treated me respectfully	0.80	I didn't wait too long to see my therapist*	0.60	0.48
My therapist thoroughly explained my treatment/s	0.75	My therapist spent enough time with me*	0.57	0.48
My therapist answered all my questions	0.72	My therapist listened to my concerns*	0.53	0.43
My therapist advised me how to avoid future problems	0.68	The office location was convenient*	0.52	0.26
The office receptionist was courteous	0.67	This office provided convenient parking	0.47	
My therapist gave me detailed home program instructions	0.54			
The therapist assistant/aide was respectful	0.47			
20% of variance explained	34% of variance explained	46% of variance explained	55% of variance explained	

Note: *Items that were negatively worded on the MRPS are shown here in a positive wording format for ease of interpretation. Direction of item loading (+ or -) in the table applies to the positively worded format.

associated with high factor scores. The exception was the factor 'convenience and quality time', in the Korean cohort, for which there was an inverse relationship. Stepwise regression analyses on GRC revealed clear differences between the Australian and Korean cohorts. In the Korean cohort, 25% of the variance in GRC score could be attributed to patients' scores on three factors: communication and respect; convenience and quality time; and courtesy and propriety. For the Australian group, however, only 6% of the variance in GRC score could be attributed to patients' scores on 1 factor, 'communication and respect'. Thus, patient satisfaction factors generally were more important as determinants of perceived outcome with the Korean cohort. Specifically, the factor 'communication and respect', was four times stronger as a determinant of the GRC score in Korea than it was in Australia.

Discussion

Data collected from two culturally distinct populations reveals both common and culturally unique features of patient satisfaction with physiotherapy care. A four-factor solution resulted from factor analysis of the MRPS scores in both Australian and Korean groups, explaining 61 and 55% of the variance respectively. The factor 'communication and respect', was the most prominent contributor to patient satisfaction in both Australian and Korean contexts. 'Convenience and quality time' were also common determinants of patient satisfaction, although these features were combined into a single factor in the Korean cohort and distinguishable as separate factors in the Australian cohort. Another shared factor between the two cultures was 'person-focused care', where individualized, personal physiotherapy treatment is more highly valued than environmental features such as modern, comfortable, and clean facilities. Finally, a combination of 'courtesy and propriety' was found as a unique factor of patient satisfaction for Korean patients.

The factor that accounted for the greatest proportion of variance in patient satisfaction scores in both the Australian and Korean cohorts was: 'communication and respect'. Patients from both countries valued a highly knowledgeable therapist who can explain aspects of care such as diagnosis and treatment, but who also has professional attributes of respect and care. Elements of communication valued by patients included: a clear explanation about treatment and their home program, answering their questions and providing advice about self-help strategies. A qualitative study of patients receiving care in private practices in Australia found that patients rated effective communication by the physiotherapist as the most influential factor for a good

physiotherapy experience, and as a highly desirable quality of a good therapist.²² This factor that was common to both cultures also encompassed elements of respect from the therapist and clinic staff, aligning with medical research that patients highly value respect from their clinician.²³ These results are consistent with research from the United States^{2,3,24} and the United Kingdom^{25,26} that interpersonal features of care are primary determinants of patient satisfaction with physiotherapy care. For example, Beattie and colleagues,³⁻⁵ also using the MRPS, have reported in a number of studies that the dominant factor of satisfaction relates to inter-personal aspects of care in the American context. Also in the United States, Roush and colleagues⁶ found that the first of four dimensions of satisfaction evaluated with the Physical Therapy Outpatient Satisfaction Survey, was a factor that the authors termed 'enhancers', which includes personal interactions associated with a clinic visit, as well as some aspects of the physical environment.⁶ In another American study, Goldstein *et al.*² conducted factor analysis on data collected with the 26-item Physical Therapy Satisfaction Questionnaire, and reported that a single factor about the patient-therapist relationship explained 83% of the variance of patient satisfaction. The weight of this evidence strongly supports the concept that the interpersonal aspects of physiotherapy care are primary and universal contributors to patient satisfaction, regardless of cultural context.

We found the factors 'convenience' and 'quality time' to be distinct dimensions of patient satisfaction in Australia, but are combined in Korea. The separation in the former context suggests that Australians consider location, convenience and comfort to be aspects of the treatment experience that are distinct from the time spent and being listened to that occurs inside the clinic. Koreans, however, seem to perceive the convenience of getting to the clinic and being listened to in an unrushed fashion as a unified experience. One explanation for this may be that the majority of Koreans in this study had travelled 30 to 60 minutes or more for treatment, whereas the travel time for most Australians was less than 15 minutes. Therefore, for Koreans, having quality time with the

therapist is inextricably bound with the effort involved to get to the clinic. The Australian factor, 'convenience', aligns with the third factor reported in Roush's US-based study, 'location', about the ease of locating and travelling to a clinic.⁶ In an early instrument validation study of the MRPS conducted by Beattie and colleagues,³ a similar third factor about convenience of care was reported; however, the two-factor solution reported in that study was preferentially retained as it had the least error variation. Other than these examples, we are unaware of other studies that have reported on the 'convenience and quality time' dimensions of patient satisfaction.

Our results also reveal a third shared factor of patient satisfaction between Australian and Korean cultures, that of 'person-focused care'. Because the loading of the component items about the physical features of the clinic environment (comfortable waiting area, clean facilities and up-to-date equipment) is negative, by inference this dimension of satisfaction is driven by a preference for the personal rather than environmental aspects of care. Although we are unaware of any other research that has identified this specific factor of patient satisfaction, this finding broadly aligns with results from the United States where environmental or 'non-clinical' factors such as clinic location, parking, time spent waiting for the therapist, and type of equipment used, do not strongly correlate with overall satisfaction with care.^{3-5,24,27}

In addition to the common dimensions of patient satisfaction found for Australia and Korea discussed above, our results reveal a factor unique to the Korean culture: that of 'courtesy and propriety', which includes receptionist courtesy, appropriate registration, comfortable waiting environment and convenient office hours. These aspects relate to care prior to the actual treatment session, which may reflect the fact that respect for ritual²⁸ is valued so highly in Korea, perhaps for historical cultural reasons.¹⁰ This suggests that for Korean patients, it is important that these pre-treatment aspects of the therapeutic encounter be conducted in a proper and courteous manner. There may be value in considering specific training protocols for physiotherapists'

Table 6 Correlations between factor scores and GRC for the Australian and Korean cohorts

	Factor			
Australian cohort GRC	Communication and respect $r = -0.279$ $P < 0.001$	Convenience $r = -0.144$ $P = 0.026$	Quality time $r = -0.119$ $P = 0.058$	Person-focused care $r = -0.127$ $P = 0.042$
Variance explained	6%	6%	6%	6%
Korean cohort GRC	Communication and respect $r = -0.461$ $P < 0.000$	Convenience and quality time $r = 0.177$ $P < 0.000$	Courtesy and propriety $r = -0.359$ $P < 0.000$	Person-focused care $r = -0.312$ $P < 0.000$
Variance explained	23%	25%	25%	25%

receptionists in the Korean context, particularly as customer satisfaction is known to be optimal in that culture when staff have received comprehensive and specific training.²⁹ The fact that a visit to a physiotherapist in Korea is dependent on first obtaining a referral from a medical practitioner may further contribute to the significance of these pre-treatment processes.

The four-factor solutions explain 61 and 55% of the variance of satisfaction in the Australian and the Korean cohorts respectively, which indicates that we have been able to capture a reasonable proportion of relevant components of patient satisfaction for each culture. With the exception of the Goldstein *et al.*'s study² mentioned above, previous models of patient satisfaction with physiotherapy care from the United States and Switzerland have explained 47 to 60% of total variance.³⁻⁷

Multiple regression analyses with factor scores revealed that factors contributing to patient satisfaction are more important determinants of treatment outcome (measured by GRC score) in the Korean cohort than in the Australian cohort (25% versus 6% of variance explained, respectively). One explanation for this difference may be that Korean patients perceive the elements of the clinical experience in a more unified manner than Australian patients. An unexpected finding from this analysis was the inverse relationship between the factor 'convenience and quality time' and the GRC score in the Korean cohort, whereby enduring greater inconvenience with the physiotherapy encounter was associated with better perceived treatment outcome. While initially this seems quite counter-intuitive, this finding may be explained, at least in part, by cognitive dissonance theory, which proposes that there is a motivation to maintain a positive attitude towards something that the individual has incurred some cost to achieve.^{30,31} Thus expenditure of effort to overcome inconvenience promotes a positive attitude, if this narrative is part of an individual's cultural background. While Morris³² argues that 'no pain, no gain' is an American narrative of a protagonist who understands that the road to achievement is through hardship, in the present findings it has emerged as characterizing the group of respondents from a country that perceives itself to have few natural resources and to therefore be reliant on its own efforts.

In both countries, global patient satisfaction was only weakly correlated with the global rating of change. The result suggests that, even if patients consider their condition to have improved, they may still be unsatisfied with their physiotherapy care. This underscores our main findings that social, procedural and environmental factors are all associated with patient satisfaction with health care and that we need

to understand these factors to best understand and treat patients.

A final point of consideration is that the mean satisfaction score was significantly lower for Korean patients compared with Australia,⁸ as well as other countries.¹ Such lower satisfaction ratings may be due to different response tendencies rather than to differences in quality of care. Previous research has found that Asian respondents had lower satisfaction with primary care and health services than other racial or ethnic groups.^{9,33,34} Thus one explanation for the present data may be that Asian patients have higher expectations of similar physiotherapy care than Australians. In the context of the service industry, there is evidence that people from Asian cultures generally have higher expectations, and that when expectations are not met, this can reduce satisfaction with their experience.³⁵ Further, in the health care context, patients who have higher expectations about their care report lower satisfaction.^{36,37} One contributor to higher expectations for Koreans may be the extended travel time to attend a physiotherapy clinic. In support of this view is that aspects of convenience (e.g., clinic location) are directly linked with quality time spent with the physical therapist, as we found in Korean Factor 2 'convenience and quality time'.

A potential limitation of this study is that the discrepancy between sample sizes in the two cohorts may have impacted on the findings. However, in the data analyses conducted in this study, sample size does not affect the nature of the findings. Nonetheless, for multivariate statistical techniques such as factor analysis, sample size does impact on the level of confidence in the findings as well as the power to find effects that might exist in the data. Tabachnick and Fidell²¹ argue that at least five cases are required for each observed variable when conducting a factor analysis. With 20 items in the MRPS, this means that a minimum of 100 participants are required to conduct a factor analysis. The sample sizes of the Australian and South Korean cohorts in this study (274 and 1392, respectively), were greater than this minimum. A second set of criteria regarding sample size for factor analysis by Comrey and Lee³⁸ are that samples of 200 are rated as 'fair', 300 as 'good' and over 1000 as 'excellent.' Based on their criteria, the sample sizes employed in this study again qualify for the use of factor analysis. Accordingly, the sample sizes in both cohorts were large enough for the correlations to be reliably estimated, and the factors that emerged to be stable.

In this study we have empirically derived the number and characteristics of factors contributing to patient satisfaction using exploratory factor analysis.

It would be valuable in future studies to investigate independently derived samples from each culture.

Greater understanding of the factors associated with patient satisfaction can enable physiotherapists to better meet the expectations of patients from different cultural groups. To optimize patient satisfaction, there may be no universal mode of service delivery, and physiotherapists may have to adapt to their patient's cultural background, for example, using greater courtesy and propriety with patients from an Asian cultural background.

Conclusions

Factors that influence patient satisfaction with musculoskeletal physiotherapy care were identified and compared between Australia and South Korea. Consistent with international research using the MRPS, our results show that the interpersonal aspects of patient care, namely effective communication and respect from the therapist, is a predominant and universal factor determining patient satisfaction. However, one factor unique to the Korean culture was the expectation of courtesy and propriety throughout the clinic visit. The clinical implication of these results is that the development of effective communication and other inter-personal skills relevant to the therapeutic encounter are critical for patients to achieve high patient satisfaction, even when treatment outcomes are not perceived as optimal. Patient satisfaction may be further enhanced if therapists understand and address additional features of care that uniquely contribute to patient satisfaction in the cultural context in which they are working.

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