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Original article

The relation between patient education, patient empowerment and patient satisfaction: A cross-sectional-comparison study

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ABSTRACT

Purpose: Patient empowerment is a paradigm of clinical practice. The goal of patient empowerment is to lead patients' health and wellbeing. The aim of this study is to evaluate the relation between patient education, patient empowerment and patient satisfaction based on multi-hospital cross-sectional study design in Taiwan.
Methods: In this cross-sectional survey, 609 inpatients in four teaching hospitals in northern Taiwan from August 2009 to July 2010 were recruited. Data were collected using Chinese version of the Patient Perceptions of Empowerment Scale (PPES), Sufficiency of Patient Education Questionnaire (SPEQ) and Patient Satisfaction Questionnaire (PSQ). The multiple linear regression model was used to assess the independent effects of relevant factors on patient empowerment after controlling for the covariates.
Results: The overall mean empowerment scores was 44.80 ± 5.94. There was a significant difference between the total scores and four dimensions of patient empowerment at different hospitals ($t = 5.44$, $p \leq 0.01$). Sufficient patient education ($\beta = 0.568$, 95%CI: 0.486–0.649) and patient satisfaction ($\beta = 0.317$, 95%CI: 0.259–0.375) could significantly predict patient empowerment based on the multiple linear regression analysis, with a total variance was 54.4%.
Conclusions: In conclusion, both sufficient patient education and patient satisfaction were positively related to patient empowerment. Hospitals in Taiwan should try to improve their patients' active involvement toward empowerment.

1. Introduction

Patient empowerment is a paradigm of clinical practice (Bravo et al., 2015). Empowerment aims to develop or strengthen patients' physical, mental, or social skills to reach self-management of diseases and treatment, and self-health determination (Aujoulat, d'Hoore, & Deccache, 2007; Fisher & Owen, 2008). In Taiwan, empowered patients are crucial for healthcare system (Huang, Che, & Yeh, 2010). Healthcare providers have to provide patients with sufficient information and options to make informed choices (Huang et al., 2010; Koekenbier et al., 2016). The goal of empowerment is to lead patients' health and wellbeing; it emphasizes patient self-efficacy, make informed choices about treatment and care, have a better relationship with health professionals, are committed to adhering to treatment, are willing and able to take more responsibility for care, providing support and integrating resources to reach that goal (Deccache & van Ballekom, 2010; European Patients' Forum, 2015; Pulvirenti, McMillian, and Lawin, 2011). Patient education is a process of patient empowerment designed to enable patients to be responsible for their own health (Falvo, 2004; Malterud, 2010; Piper, 2010). Patient-satisfaction has suggested that promoting nurse empowerment can improve patient outcomes (Donahue, Piazza, Griffin, Dykes, & Fitzpatrick, 2008).

Patient education becomes an essential tool for clinical specialists to rely on that aims at empowering patients to become more autonomous concerning their health management. The education is used to help patients make better choices in line with their values and not to manipulate them, for example, to use patient education in an ethical and professional way (Jotterand, Amodio, & Elger, 2016). One of aims of patient education is to empower patients and increase their participation concerning healthcare decisions (Deccache & van Ballekom, 2010). Jotterand et al. (2016) also indicated that the empowerment model is according to a partnership grounded on the idea that the source of the rebiasing comes from within the decision maker. Since patients remain the agent initiating and generating behavioral change, the potential for manipulation or imposition of values is thus diminished. Basically, patient education strives as much as possible toward empowering patients for self-rebiasing (Jotterand et al., 2016). Previous findings

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demonstrated the benefits of patient education in terms of health status and disease management (Couturaud, Frachon, Guillou-Bideau, & Leroyer, 2002). In addition, the nurse intervention derived from the logic that could empower older subjects with chronic illness to better manage their own health and interact with health practitioners more effectively and would result in improved satisfaction as well as in better health and disability outcomes (Friedman, Wamsley, Liebel, Saad, & Eggert, 2009).

Patients' education is an important and essential part of nursing practice. In Taiwan, nurses are required to provide patients appropriate guidance (Che, Yeh, Jiang, & Wu, 2016). From the patient's viewpoint, educations included empowering and non-empowering. In addition to patients appreciate being taught to self-manage the chronic illness whereas perceive nurses as often distracted or not open to dialogue, patients are discharged from the hospital in a short time and it is challenging for nurses to incorporate patient's education into their busy schedules (Che et al., 2016; Nygårdh, Malm, Wikby, & Ahlström, 2012). The status and challenges of inpatient education for Taiwanese nursing professionals also could affect the patient's empowerment.

However, few studies have evaluated patient empowerment in clinical practice in Taiwan. It should be confirmed that Taiwanese hospitals would benefit from moving toward patient-empowerment education and patient satisfaction to patient empowerment.

2. Background

The WHO Regional Office for Europe has embedded patient empowerment in a new European health policy. The Alma Ata declaration defined patient involvement in healthcare as both a right and a duty (WHO European Region, 2012). The empowering and active involvement of patients in clinical care practice is considered an important dimension (Snyder & Engström, 2016). Empowerment can be seen as a philosophy or a vision, as well as a strategy. It is also a systemic issue: processes and structures can be seen as empowering if they enable people to gain knowledge and develop skills needed to problem-solve and make decisions, taking control to the extent that they wish. From a patient's perspective, the knowledge and competence gained through health literacy leads to the strength and empowerment needed to effectively self-manage a disease and its impacts on one's quality of life (Koekenbier et al., 2016).

Nursing professionals should explore how to establish a cooperative, less-hierarchical, mutually-trusting, and respectful relationship with patients that will stimulate reflection on the part of patients; shift patient education from a nurse-centered or disease-centered approach toward a patient-empowerment approach; and assist patients in developing health self-management skills and the potential to control their own health (Huang et al., 2010; Poskiparta, Liimatainen, Kettunen, & Karhila, 2001). In order to meet patient needs and individualize education practices, hospitals should plan an educational strategy for patient empowerment, and provide necessary resources and equipment including patient-needs assessment, patient-education workshops, and interaction time with patients, and patient-education evaluation tools (Rankin, Stallings, & London, 2005).

WHO European Region (2012) reported that cardiovascular disease, diabetes, and chronic respiratory diseases are now the largest causes of death and disability worldwide. This development is bringing about a fundamental shift in health systems and healthcare and thus in the roles of patients. The issue is how patients can be enabled to become active in managing their healthcare. Patient evaluations of healthcare have become increasingly important and strategies are in place to increase patient empowerment in Taiwan (Che et al., 2016; Chen & Chang, 2005; Huang et al., 2010). The National Health Service includes wider use of patient-reported outcomes, personal-health budgets and personal-health plans. There is also evidence to suggest that patient empowerment could be a valued outcome of healthcare interventions that is related to, but independent of, health status. Furthermore, patients may value empowerment as an outcome even if they do not take full advantage of available resources following a healthcare intervention (European Patients' Forum, 2015).

WHO defines empowerment as a process through which people gain greater control over decisions and actions affecting their health, and it should be seen as both an individual and a community process (WHO European Region, 2012). Empowering patients was defined as enabling patients to make use of available knowledge of disease management to achieve the goal of enhancing their quality of life (Chatzimarkakis, 2010; Koff, Jones, Cashman, Voelkel, & Vandivier, 2009; Koekenbier et al., 2016).

In Taiwan, patient education evaluations are part of the hospital accreditation process and the educational websites or patient-education information systems are also created. However, the same situation existed for patient education, which rarely mentioned patients' learning experiences, health-behavior changes, patient autonomy, or patient self-determination or self-management (Che et al., 2016). The clinical practice in Taiwan shows that not all patients need the same disease and self-management knowledge and it is important that professionals need to provide patient-centered education and support patients' active participation in decision-making and self-management for their health and wellbeing. Clinical nurses may fail to evaluate for patients' specific needs or problems with educational materials. A large gap exists between using standard tools or meeting hospital accreditation of patient education and empowering patients through education. Therefore, study is necessary to examine the outcomes of empowering-patient education in clinical practice in Taiwan so as to improve quality of healthcare system, especially for inpatients subpopulation. The aim of this study is to evaluate the relation between patient education, patient empowerment and patient satisfaction based on multi-hospital cross-sectional study design in Taiwan.

3. Methods

3.1. Setting and participants

The purposive sampling for this cross-sectional study was conducted in four general hospitals in northern Taiwan from August 2009 to July 2010. The target population included two medical centers (2000 beds each), a regional hospital (1000 beds) and a community hospital (600 beds). We excluded patients in pediatrics, psychiatry, and intensive care for difficulty of collecting accurate data. We recruited inpatients who were able to express willingness in either Mandarin or Taiwanese and who had been hospitalized for three or more days in internal medicine, surgery, gynecology, neurology, or one or more of the 18 other wards. All participants completed a questionnaire pack at one time point. In addition, for the calculation of the appropriate sample, a sample size of 402 achieves 95% power using effect size 0.05 and five predictor with a significance level (alpha) of 0.05 (Jacob, 1988). A total of 612 inpatients met these inclusion criteria and comprised the study sample and then received questionnaires, of which 609 (99.5%) were adequately completed and implied the sufficient statistical power.

3.2. Procedures and ethical considerations

This study was approved by each hospital's institutional review board (971633B; 97E027; 08-12S). The recruitment was conducted after permission was obtained from each hospital. The potential participants recruited via referrals for the healthcare staff. Before contacting patients, researchers contacted and explained the research procedures and recruiting criteria to nurses, and emphasized that participants' responses were anonymous and confidential.

Researchers then met with participants and explained the purpose of the study, the risks and benefits of participation, and their right to refuse to participate without jeopardizing treatment. The selected subjects were informed by the researcher that the survey was voluntary,

the results would remain anonymous, and there were no right or wrong answers. It was also emphasized that the survey was being done only for the purpose of studying patients' subjective perceptions. Finally, participants were then asked to sign a letter of authorization before completing the self-report questionnaire. Participants were required to complete the questionnaire within 20 min.

3.3. Measurement instruments

3.3.1. The Chinese version of the Patient Perceptions of Empowerment Scale (PPES)

The Chinese version of the PPES is a reliable and valid tool for both evaluating patient-empowerment outcomes and assessing patient empowerment education in clinical and research practice. The original version of the PPES contains 17 items and uses a five-point Likert scale, which ranged from strongly agree to strongly disagree (Lewin & Piper, 2007).

The confirmatory factor analysis results indicate that the second-order, four-factor Chinese version of the PPES provided best goodness-of-fit (Yeh, Lin, & Tung, 2014). It contains a total of 11 items (from 11 to 55 points) and four factors: (1) Information: providing information about treatment and care (Item1: The staff gave me clear information on how best to manage my illness. Item2: Overall, I felt that I was talked at by the staff rather than listened to. Item3: I wish I could have had more say in my treatment and care), (2) Decision-making: getting informed consent by the patient prior to treatment (Item 6: I felt that I always gave my consent before a clinical procedure was carried out. Item 7: I always felt that the purpose of my prescribed medication was fully explained), (3) Individualization: providing individualized care and respecting the patient as an individual (Item 10: The staff did everything possible to help me with anxieties over my illness. Item 11: The staff was always helpful and understanding over visiting times. Item 12: I felt that I was being treated as an individual by all members of staff), and (4) Self-management: self-management of diseases with knowledge and confidence (Item 14: I had to ask for advice about what I should and should not do on discharge. Item 15: At no time did I feel that the truth about my condition was being hidden from me. Item 17: From time to time the staff gave me contradictory advice about my condition). The Cronbach's alpha values of the four subscales were between 0.63 and 0.81(Yeh et al., 2014). Also, the convergent validity and discriminant validity were assessed through confirmatory factor analysis. In the present study, the post-analysis of PPES total-scale Cronbach's alpha coefficient was 0.84. Each factors' internal reliability was 0.87 to 0.88.

3.3.2. Sufficiency of Patient Education Questionnaire (SPEQ)

The SPEQ has been used to evaluate whether the education patients received was sufficient during the hospitalization period. The SPEQ includes 8 items on a five-point Likert scale. The range of total scores is 8 to 40, with lower scores indicating less-sufficient patient education within the hospitalization period (Johansson et al., 2003). The internal consistency of the scale was estimated using Cronbach's alpha coefficients. The coefficients of internal consistency > 0.80 are considered very good and greater that 0.90 are considered excellent (Uner & Turan, 2010). This study's post-analysis Cronbach's alpha coefficient of SPEQ was 0.92.

3.3.3. The Patient Satisfaction Questionnaire (PSQ)

The PSQ has frequently been used as a measurement of quality of nursing care. The PSQ includes 11 questions on a five-point Likert scale (Ferketich, 1991). The PSQ range of total scores is 11 to 55, with higher scores indicating higher degrees of satisfaction with nursing care. This study's post-analysis PSQ total-scale Cronbach's alpha coefficient was 0.91.

3.4. Data analysis

Data were analyzed by SPSS 21.0 using descriptive statistical analysis, paired *t*-test, ANOVA, Pearson correlation and multiple regression analysis. Age and years of education were key factors in patient empowerment. Analysis of covariance (ANCOVA) and post-hoc comparison tests were used to compare differences between the four hospitals, age and education were covariates in the model. The statistical-significance level was defined as 0.05, two-tailed.

4. Results

A total number of 609 participants were recruited for this study. All of them were from 4 hospitals in northern Taiwan. The average age of inpatients was 53.3 years (SD = 17.2). There were 329 males (54.0%) and 280 females (46.0%). The average education level was 10.03 years (SD = 4.77). Half participants (50.7%) had < 9 years of schooling, and 9.9% of patients been unemployed. Significant differences in the total scores of patient empowerment at the hospitals and age were found (Table 1).

After controlling for independent variables, patient age and education years, ANCOVA analysis of the 4 hospitals' scores verified patient-empowerment values on PPES's 4 dimensions (Table 2). Hospitals A and C are both medical centers, Hospital B is a regional hospital, and Hospital D is a local community hospital. Hospital C's patient-empowerment total score (46.90 ± 5.73) was significantly higher than Hospitals A (44.12 ± 5.14) and B (44.39 ± 6.85); Hospital D (45.79 ± 5.14) was also significantly higher than Hospital A. In addition, Hospital C's patients had the highest mean empowerment subscores (information: 13.21, decision: 9.14, individual: 12.54, and self-management: 11.98) than other three hospitals.

To analyze patient education outcomes, and influencing factors thereof, Pearson correlation and multiple regression analysis were performed. Results are shown in Table 3 and Table 4. The significant correlations are sufficiency patient education ($r = 0.677$, $p < 0.01$), patient satisfaction ($r = 0.637$, $p < 0.01$) correlated with patient empowerment (Table 3). The sufficiency of patient education ($\beta = 0.568$, 95%CI: 0.486–0.649) and patient satisfaction ($\beta = 0.317$, 95%CI: 0.259–0.375) were significant predictors of patient empowerment, which accounted for 54.4% of the total variance (Table 4).

5. Discussion

The results of this study show significant differences between the 4 hospitals' empowering-patient education total scores and the four dimensions of PPES. There were significant differences in patient education that correlated with differences in patient empowerment. ANCOVA tests revealed the patient-empowerment total score of Hospital C and Hospital D were relatively significant higher than the other hospitals, that is, inpatients that stayed in Hospital C or D were more empowered than inpatients staying in the other hospitals. The possible reason may due to that Hospital C and D both are from the same medical system and recognize that interventions engaging and involving patients and supporting patient empowerment could produce greater patient satisfaction, better health and lower costs. Nevertheless, the causal relationship between different hospitals and patient empowerment is still needed to clarify.

In Taiwan, according to Taiwanese hospital accreditation standards, nursing professionals should provide appropriate instruction to patients (Joint Commission of Taiwan, 2013). Laws regulating patient instruction include content regarding disease care, pre- and post-examination and treatment, and self-care (Taipei Nurses Association and Taiwan Society of Law and Medicine, 2002). In this study, the sufficiency of patient education and patient satisfaction were significant predictors of patient empowerment. This implied that sufficiency of patient education and patient satisfaction can predict patient

Table 1
Demographic characteristics of participants and comparison of empowerment score (N = 609).

Characteristics	N (%)	Mean (SD)	Empowerment scores Mean (SD)	F/t
Hospital	609 (100)		44.80 (5.94)	5.43**
A	200 (32.8)		44.12 (5.14)	
B	194 (31.9)		44.39 (6.85)	
C	134 (22.1)		46.90 (5.73)	
D	81 (13.3)		45.79 (5.14)	
Age (Mean ± SD)		53.3 ± 17.2		− 0.60*
20–40	151 (24.8)		45.79 (5.14)	
41–60	255 (41.9)		44.72 (6.10)	
61–80	168 (27.6)		45.03 (5.77)	
Over 80	35 (5.7)		43.98 (5.83)	
Gender				3.68
Male	329 (54.0)		45.62 (5.92)	
Female	280 (46.0)		44.63 (5.99)	
Education (years)		10.03 ± 4.77		0.66
0–9	309 (50.7)		45.21 (6.04)	
10–12	163 (26.8)		44.45 (5.98)	
13–16	125 (20.5)		44.54 (5.53)	
Over 16	12 (2.0)		45.25 (7.00)	
Employment status				1.94
Employed	444 (72.9)		44.71 (6.03)	
Unemployed	60 (9.9)		44.15 (5.69)	
Retired/Stay at home	105 (17.2)		45.55 (5.91)	

* $p < 0.05$
** $p < 0.01$

Table 2
Analysis of covariance (N = 609).

	Covariate								Hospitals comparison				
	Age			Education			Adjusted mean						
Variables	F	p	η^2	F	p	η^2	F	p	η^2	A	B	C	D	Post-host
Information	1.83	0.140	0.010	0.31	0.817	0.002	2.87	0.036*	0.016	12.62	12.57	13.21	12.81	C > A* C > B**
Decision	4.62	0.003**	0.025	0.46	0.707	0.003	9.18	0.000***	0.048	8.44	8.50	9.14	9.11	C > A*** C > B*** D > A*** D > B**
Individual	1.31	0.244	0.008	0.42	0.739	0.002	3.44	0.017*	0.019	11.88	11.78	12.54	11.79	C > A* C > B** C > D*
Self-management	0.53	0.661	0.003	0.22	0.877	0.001	4.37	0.005**	0.024	11.18	11.59	11.98	12.04	C > A** D > A**
Empowerment total score	1.91	0.126	0.010	0.03	0.992	0.000	5.42	0.001**	0.029	44.13	44.44	46.87	45.75	C > A*** C > B** D > A*

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 3
Pearson Correlation between dependent and independent variables (N = 609).

Variable	1	2	3	4	5	6	7	8	9
1. Sufficiency patient education	1.00								
2. Patient satisfaction	0.588**	1.00							
3. Patient empowerment	0.677**	0.637**	1.00						
4. Information	0.591**	0.537**	0.808**	1.00					
5. Decision	0.586**	0.478**	0.756**	0.544**	1.00				
6. Individual	0.560**	0.605**	0.811**	0.530**	0.520**	1.00			
7. Self-management	0.454**	0.419**	0.811**	0.514**	0.479**	0.512**	1.00		
8. Age	0.019	0.076	0.022	− 0.007	− 0.028	0.082*	0.009	1.00	
9. Education years	− 0.006	− 0.059	− 0.036	0.007	− 0.003	− 0.060	− 0.049	− 0.600*	1.00

* $p < 0.05$.
** $p < 0.01$.

Table 4
Results of multiple linear regression analysis (N = 609).

Variable	Patient empowerment				Information				Decision				Individual				Self-management			
	β	SE	95%CI	t	β	SE	95%CI	t	β	SE	95%CI	t	β	SE	95%CI	t	β	SE	95%CI	t
Sufficiency patient education	0.568	0.042	0.486–0.649	12.40***	0.163	0.015	0.133–0.192	10.81***	0.134	0.011	0.111–0.156	11.64***	0.128	0.016	0.098–0.159	8.22***	0.143	0.020	0.104–0.181	7.29***
Satisfactory evaluation	0.317	0.029	0.259–0.375	11.07***	0.080	0.011	0.059–0.101	7.48***	0.042	0.008	0.026–0.058	5.13***	0.123	0.011	0.101–0.144	11.08***	0.073	0.014	0.046–0.100	5.28***
R	0.746				0.635				0.608				0.655				0.492			
R^2	0.556				0.404				0.370				0.429				0.242			
Adjusted R^2	0.555				0.402				0.368				0.427				0.239			
F	343.713***				204.876***				177.555***				227.506***				96.487***			

*** p < 0.001.

empowerment. Previous study also showed that improvements in the patients' level and sufficiency of knowledge indicate an increase in patients' cognitive empowerment (Heikkinen, Helena, Taina, Anne, & Sanna, 2008). Empowerment education programs on providing patients with the knowledge to make informed medical treatment decisions in order to improve their quality of life (Fitzgerald M, O'Tuathaigh C, & Moran J, 2015). Better disease management, in turn, leads to lower dependence on healthcare services and more cost-effective use of medical resources. In addition, few researches were conducted to explore the relationship between patient satisfaction and patient empowerment. Previous study assessed the possibility that satisfaction would mediate the relationship between involvement and empowerment, but this was not confirmed (Tambuyzer & Van Audenhove, 2015). Consistent with earlier findings, patient satisfaction and empowerment seem associated, however, the nature of this association remains unclear (Taie, 2011; Tambuyzer & Van Audenhove, 2015; Spence, Laschinger, Gilbert, Smith, & Leslie, 2010). This relationship requires more investigation by intervention studies that could identify the causal association.

Bravo et al. (2015) explained that patient empowerment is an important indicator of healthcare-outcome quality and patient satisfaction. Chen and Chang (2005) advocated the concept of empowerment to redefine Taiwan's patient education in clinical practice, expecting nurses to establish rapport with patients to help them promote health, deal with stress from surgery, establish effective coping behaviors, and achieve the goal of patient empowerment. Empowerment will only occur when patient competence increases, and only then will the patient be compelled to change behavior (Anderson & Funnell, 2010; Holmström & Röing, 2010; Snyder & Engström, 2016; Tang, Funnell, Brown, & Kurlander, 2010). Herbert et al. (2009) pointed out that the main features of patient empowerment include adequate patient education and health information, critical awareness of disease, self-health management and self-efficacy. In the end, patient quality of life and satisfaction with nursing care is also improved (Huang et al., 2010; Koekenbier et al., 2016). Therefore, in order to achieve health-behavior change and patient-care quality outcomes, healthcare providers must work together with patients in the patient-education process to provide adequate information and increase patient satisfaction (Anderson & Funnell, 2010; Huang et al., 2010; Snyder & Engström, 2016).

Skelton (2001) pointed out that in traditional patient education, nursing professionals provided advice based on guidelines or manuals. The clinical nursing professionals were only concerned about their routines and issues of their own choosing (Che et al., 2016). Moreover, in the traditional process of patient education, patients lacked confidence and didn't ask questions, and nurses rarely gave feedback or showed concern for patients' non-verbal expression (Holmström & Röing, 2010). Lewin and Piper (2007) pointed out that in the healthcare system, each patient should have empowerment opportunities. The results of this study show Taiwanese nursing guidance and counseling has yet to become empowering for patients. Patient empowerment only exists when patients actively participate (Snyder & Engström, 2016). This collaborative approach has enabled patients to take more active roles in, and increase responsibility for, personal health and wellbeing (Koekenbier et al., 2016; Weiss, 2006). Through this process, patients re-examine their own values and choices; with the support and respect of healthcare providers, patients can regain control of their health (Malterud, 2010). Empowering patient knowledge was also significantly association with health-related quality of life in clinical practice (Koekenbier et al., 2016).

Empowering-patient education emphasizes being patient-centered and providing patient education that meets the individualized needs of patients (Johansson et al., 2003; Kettunen, Liimatainen, Villberg, & Perko, 2006; Lewin & Piper, 2007; Snyder & Engström, 2016). To encourage patients toward empowerment, in addition to providing information, healthcare professionals should also establish partnerships with patients, listen to patients, discuss with patients, encourage questioning, offer suggestions, and inquire about patients' feelings (Huang et al., 2010;

Johansson, Salanterä, & Katajisto, 2007; Kettunen et al., 2006; Poskiparta et al., 2001). To promote clinical guidance and counseling targeted at patient empowerment, patient-empowerment education must be structured and integrated with nursing job specifications within the healthcare system (Deccache & Aujoulat, 2001), in alignment with the WHO health-promotion goals.

5.1. Methodological considerations

Several limitations should be considered when interpreting the results of this survey. Firstly, empowerment could be defined as a way to strengthen/enhance patients' capacity for self-management of health (health/disease state) by fortifying their physical, mental, and social skills. Due to only survey of patients' education and empowerment by structured questionnaires, it is difficult to explore the empowerment through patient education. Secondly, the study population is selected on a voluntary basis, that is, the potential participants done via referrals for the healthcare staff, which not only would potentially introduce selection bias, but also Hawthorne effect is inevitable since the participants were persons who made a conscious decision to be in the selected hospitals. Voluntary bias could be defined that comes from the fact that a particular sample could contain only those participants who are actually willing to participate in the study and who participate and find the topic particularly interesting are more likely to volunteer for that study, same to those who are expected to be evaluated on a positive level (Heiman, 2002). Thirdly, we evaluated only internal medicine, surgery, gynecology, neurology, or one or more of the 18 other wards, who might have characteristics that differ from those of the general population, that is, the generalization and external validity should be further discussed. Fourthly, we conducted measurements at a single time point, which might not reflect long-term exposure to the patient education or patient satisfaction related to patient empowerment. Finally, this study only obtained subjects from four teaching hospitals in northern Taiwan as the target population. Therefore, the results of this study should not be extrapolated to hospitals in other regions of Taiwan. Future studies using random sampling of hospitals over a wider range of regions would make the research more discursive.

5.2. Conclusions

In Taiwanese clinical practice, most nurses do not pay attention to non-verbal messages and when nurses provide information, patients typically provide brief answers, remain silent, or rarely express themselves at all (Che et al., 2016). Therefore, hospitals in Taiwan should try to improve their patients' active involvement toward empowerment. This study relied on questionnaires and interviews, using the perspectives of inpatients to evaluate treatment outcomes and compare patient-empowerment education between hospitals in northern Taiwan. The study results showed that sufficient patient education and patient satisfaction could significantly predict patient empowerment. Significant differences between the patient-empowerment total scores of the hospitals revealed significant differences in the quality of patient education in different hospitals.

6. Relevance to clinical practice

The researchers recommend that each hospital examine the quality of patient education, and propose improvement strategies, such as reformulating nursing instruction and counseling practices, and providing patient-empowerment training to nursing professionals via continuing education. In addition, we should conform to global trends by establishing standards for patient-empowerment education in clinical nursing practice founded on evidence-based research, and integrate these into the healthcare system. Hospitals should evaluate and improve healthcare quality by providing nursing instruction and counseling based on patient-empowerment concepts, and integrates these practices into the hospital-accreditation standards for nursing practice.

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Conflict of interest

The authors declare no competing interests.

Ethical approval

The Institutional Review Board at Chang Gung Memorial Hospital, Shin Kong Wu Ho-Su Memorial Hospital and Landseed Hospital Taiwan approved this study in January 2009 (IRB No. 971633B; 97E027; 08-12S).

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