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CLINICAL ISSUES

The effectiveness of multimedia learning education programs on knowledge, anxiety and pressure garment compliance in patients undergoing burns rehabilitation in Taiwan: an experimental study

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Aim. This study examined the effectiveness of multimedia learning education programmes (MLEPs) on knowledge, anxiety and pressure garment compliance behaviour of burn patients.

Background. MLEPs are increasingly suggested as education methods that can be used by health professionals in daily practice. A systematic review of the effectiveness of computer-based education demonstrates its acceptability to patients. However, few studies have empirically tested this approach.

Design. Experimental study.

Methods. An experimental study was conducted at a burn centre of a medical centre in Taipei, Taiwan. Participants were randomly assigned to either experimental (n = 28) or control groups (n = 30). Both groups were given pre-tests and post-tests to measure their knowledge, anxiety and pressure garment compliance behaviour.

Results. At two weeks, the results of this study showed that the MLEP had 'statistically' significantly improved patients' burn knowledge, reduced individual anxiety and enhanced pressure garment compliance behaviour.

Conclusion. This controlled study demonstrated that a two week MLEP can be a useful intervention to improve care compliance and reduce anxiety in patients undergoing burns rehabilitation period.

Relevance to clinical practice. Burn injury patients undergoing rehabilitation are likely to benefit from multimedia learning education intervention programmes. More comprehensive health economic evaluation needs to be undertaken. Further studies exploring a longer term follow-up are also required.

Key words: experimental design, nurses, nursing, patient teaching, rehabilitation, wound care

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Introduction

Burn injury is the fifth leading cause of accidents and adverse effects death in Taiwan (Taiwan Department of Health 2008) and the fourth in the USA (Modjarrad *et al.* 2007). Each year, over 500,000 people seek medical assistance for acute burn injuries, and approximately 40,000 per year sustain significant burn injuries requiring hospitalisation in the USA (Beth 2005). Over one-third of admissions exceeded a 10% TBSA (total body surface area) wound, and 10% exceeded a

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30% TBSA burn. Most of these admissions included severe burns of vital body areas such as the face, hands and feet (American burn association 2008). The yearly direct and indirect costs of burn injury are enormous, with the average annual cost per burn patient being US$99,773, a figure that rises significantly for patients with extensive burns. A large proportion of these costs can be directly attributed to the management of burn-related scars (Brown 2001). Furthermore, in addition to the economic impact, burn-related scars and disfigurement can often cause body image disturbances, significant impairment or loss of physical function and are frequently associated with anxiety and depression (Van Loey & Van Son 2003). These problems can be confounded by economic challenges for burns patients, many of whom have their employment prospects severely restricted because of scar contracture limiting their ability to perform certain jobs (Van Loey & Van Son 2003). Closely related to this, many patients spend enormous amounts of money on reconstructive surgery (American burn association 2008).

Rehabilitation programmes and interventions start at the time of admission to the burn centre (Edgar & Brereton 2004, Macintyre & Baird 2006). Early treatment by specialist nurses and the multidisciplinary team in dedicated burns unit play a crucial role in the subsequent physical and emotional health of patients (Edgar & Brereton 2004). During the initial care period, attitude, knowledge and behaviour of patients are important elements in the rehabilitative process (Van Loey & Van Son 2003, Beranova & Sykes 2007). Patients need education about their wound to reduce anxiety and also to improve compliance with wound care. An important aspect of nursing practice in this area of care is educating patients about the care they will receive to improve the rehabilitative process (Doupi & van der Lei 2005). This study is designed to assess the impact of a multimedia learning education programme (MLEP) on knowledge, anxiety and pressure garment compliance behaviour of patients with burns injury.

Literature review

Burns and Hypertrophic scar

Burn injury can often cause dramatic changes in body presentation because of disfigurement and disability (Chang *et al.* 1995). Hypertrophic scars are atypically raised, textured or contracted skin surfaces created by healing skin (Stewart *et al.* 2000, Brown 2001). Burn patients with scars and disfigurement frequently experience isolation, loneliness and a sense of helplessness because of the long-term effects of their injury (Kishman 2004). In addition, patients who are unable to cope effectively with the disfigurement or dysfunction are at higher risk for wound infection, non-compliance with therapeutic care, depression, social isolation and obsession with changes in body image (O'Connor 1999). This potential lack of compliance with therapeutic care can actually worsen the physical and emotional impact of the burn – particularly non-compliance with dressings (Macintyre & Baird 2006). A particularly important aspect of burn management is patient compliance with pressure garments – specialised types of clothing made from elasticised material that are used to prevent or flatten developing hypertrophic scars on burned skin (Van Loey & Van Son 2003, Macintyre & Baird 2006).

Nurses play a key role in the rehabilitation process by helping patients to adjust to their new body image and to develop processes to deal with the alterations in their life caused by their injuries (Weinstock-Zlotnick *et al.* 2004, Van den Kerckhove *et al.* 2005). Improvement in patient knowledge about their illness and treatment provides benefits for both patients and practitioners (Beranova & Sykes 2007). Traditionally, practitioners working with burns patients have provided patients with information about the prevention of hypertrophic scar development and rehabilitation by verbal or written information in leaflets (Macintyre & Baird 2006). However, despite this, the literature highlights the need to maintain the education of patients about their burn injury to improve wound outcomes and enhance compliance with therapy (Cheng *et al.* 1996, Macintyre & Baird 2006). Therefore, patient education tasks are increasingly important for nurses working with burns patients, but this creates workload challenges. In Taiwan, the majority of general burns unit staff are assigned eight to ten patients each per day, making it difficult for them to allocate sufficient time to undertake education and counselling with their patients (Jung *et al.* 2003, Lee *et al.* 2005). As a result, care satisfaction of burn patients has declined in Taiwan (Jung *et al.* 2003, Lee *et al.* 2005).

Multimedia learning education programmes

Patient education is a key element of nursing practice in all types of cultures and care settings. Increasingly, patients are requesting information that will assist them in becoming more knowledgeable consumers and active participants in their own health care (Beranova & Sykes 2007). Educational materials designed to deliver information and promote active participation in health care decisions can be effective tools for empowering patients (Wofford *et al.* 2005). Multimedia can be used in preparing patients for procedures, providing information, teaching coping strategies and facilitating

self-care behaviours (Wofford *et al.* 2005, Malic *et al.* 2007). Nurse-developed multimedia instruction can also be beneficial and cost effective in delivering standardised information to more patients in a timely manner (Wofford *et al.* 2005). Moreover, it can be used with the goals of increasing patient knowledge, teaching specific coping skills or enhancing self-care behaviours to reduce patient's anxiety or improve compliance with therapy (Beranova & Sykes 2007).

Over the last decade, the use of educational computer-based technology for patient education has increased dramatically. MLEP is now commonplace in community hospitals, health departments and office waiting rooms (Wofford *et al.* 2005, Beranova & Sykes 2007). In most health care settings, there is limited time for patient education, and any teaching that is provided typically focuses on the illness, medications, treatments and managing self-care. MLEP can be used to present new information and reinforce information previously learned (Jerant *et al.* 2007). MLEP also provide consistent instruction and are useful for educating people with low literacy skills or those with visual impairments that affect their ability to read printed materials (Doupi & van der Lei 2005, Wofford *et al.* 2005). Patients reported improved knowledge levels about treatment options for their condition, increased confidence in managing their condition, were more satisfied about their health plan and were more confident in communicating with physicians and participating in decision-making (Doupi & van der Lei 2005, Wofford *et al.* 2005, Jerant *et al.* 2007).

Jerant *et al.* (2007) found that patients with colorectal cancer reported a more effective self-efficacy after using multimedia computer programme. Malic *et al.* (2007) point out the multimedia education package that delivers tailored information to burn patients can enhance treatment compliance and functional recovery. Similarly, Beranova and Sykes (2007) demonstrate that the computer-based education can be useful, acceptable to patients and an effective way to deliver illness-related health information. On the whole, MLEPs have been successful in patient education programmes (Doupi & van der Lei 2005, Wofford *et al.* 2005, Beranova & Sykes 2007).

Method

Study aims and objectives

The primary purpose of this study was to determine whether a multimedia information intervention designed for burn patients would improve patients' wound-related knowledge, anxiety levels and pressure garment compliance.

Research hypothesis

Null hypothesis

There will be no difference between the reported knowledge, anxiety and pressure garment compliance in patients undergoing burn rehabilitation stage by receiving MLEP vs. standard information brochure education (SIBE).

Experimental hypothesis

Patients undergoing burn rehabilitation stage by receiving MLEP will report experiencing high knowledge, less anxiety and good pressure garment compliance than those receiving SIBE.

Study design

A single-blind randomised controlled trial experimental design was used to test the effectiveness of the multimedia education programme on the three outcome variables: knowledge, anxiety and pressure garment compliance. To examine these issues, burn patients were randomly assigned to two groups: Group 1 – experimental – was provided with the MLEP and Group 2 – control – was provided with the SIBE on burns used by the burns unit as predischarge information.

Participants and sampling

Participants for this study were recruited from a 2900-bed academically based medical centre with burn rehabilitation ward in Taipei, Taiwan between 1 February 2004–31 October 2004. Recruitment inclusion criteria were as follows: (1) over 18 years of age; (2) burns of more than 5% TBSA; (3) speak Chinese; and (4) presenting problem related to over deep partial second-degree burns, superficial partial burns with local wound infection, any mention of hypertrophic scar of healed or grafted burns and donor sites. The exclusion criteria included the following: (1) those who were not able to answer or write the questionnaire and (2) those who had other co-morbidity that may interfere with intervention – for instance clinical depression.

Power calculation

The sample size was estimated using Power and Precision version 3 (Biostat Inc., Englewood, NJ, USA). We used pressure garment compliance behaviours as the primary outcome indicator. We then computed the required sample

size based on α set at 0·05, power = 90% for a two-tailed independent *t*-test design. The estimated sample size was 25 per group, but to allow for dropout rates, we recruited 30 patients per group.

MLEP intervention

The development of the MLEP intervention was based on a literature review of prior research results (Cheng *et al.* 1996, Jung *et al.* 2003, Edgar & Brereton 2004). The first main section of MLEP contains information about burn wound anatomy, burn aetiology, functional zones of the burn wound, complication, early management and reconstructive treatment of burn injuries. The second part included indications for pressure garment usage, method of wearing garments and skin care, which used flash 2D computer animation film and pictures in the programmes. Subjects were then introduced to the MLEP and provided with a brochure about burn injuries. Each subject in the control group received only the burn care brochure – constituting standard care and a subsequent follow-up visit by the researcher to answer any questions.

Instruments

In this study, questionnaires were developed with their structure and format being based on similar questionnaires used by Chang *et al.* (2002) and Lo *et al.* (2002). A demographic data sheet was used to record participant's data. The effectiveness included the measurement of burn-related knowledge, anxiety and pressure garment compliance behaviours with the KBRS, APS and PGCBS scales. Data for these self-reported measures were collected before and after intervention.

Case information

The case information questionnaire was used to measure the respondents' demographic characteristics. These included age, gender, education level, marital status, religion, occupation, private medical insurance, percentage of TBSA, duration of injury with burn, family income, hypertrophic scar and physical symptoms.

Knowledge of burn rehabilitation scale (KBRS)

The KBRS (Lo *et al.* 2002) was applied to measure the level of burn-related knowledge by participants. The KBRS consists of 18 questions listing hypertrophic scar form with burn injury, wound care of burn injury and rehabilitation of burn injury. Each question item offers response choice on a two-point scale, 1 = answered correctly, 0 = answered incorrectly or unanswered. A higher score means a higher knowledge of burn rehabilitation. As for the reliability of the questionnaire, the KR-20 value for internal consistency was 0·86; the two weeks test-retest reliability was 0·88 in this study.

Anxiety perception score (APS)

The APS contained 10 items developed by Chang *et al.* (2002) to assess burn patients' level of anxiety after burn injury during the rehabilitation stage. The scale can be completed quickly and does not require specialist knowledge to score. Respondents answer each of the statements using a four-point Likert-type rating scale, ranging form 1–4: 1 = not at all, 2 = a little bit, 3 = moderately, 4 = extremely. The APS has a range of possible scores from 10–40. The higher the score, the more serious the level of anxiety perceived. In this study, a Cronbach's α coefficient of 0·78 was reported; the two weeks test-retest reliability was 0·80.

Pressure garment compliance behaviours scale (PGCBS)

The fourth questionnaire, the PGCBS (Lo *et al.* 2002), was applied to measure the level of pressure garment compliance behaviours by participants. There were 15 items. It comprises five points, 0 means never (The patient never does these behaviours), 4 means always (the behaviour occurs all the time). The PGCBS has a range of possible scores from 0–60. A lower score means a less compliance with pressure garments. In this study, a Cronbach's α internal consistency was 0·75; the test-retest reliability was 0·78.

Ethical considerations

Permission to conduct this study was obtained from Taipei Veterans General Hospital Research Ethics Review Board (IRB No: 94-07-03A), which is responsible for the protection of human subjects. Medical services for the patients were not influenced by whether they participated, did not participate or withdrew from the study. Participants who agreed to take part were given an information sheet, and if they were willing to participate, signed a consent form. After written consent, using a computer-generated list in sealed envelopes, the subjects were assigned into either the experimental or the control group. Anonymity was used in the study to safeguard privacy through assigning identification number rather than other identifiers.

The intervention programmes were held in a quiet, private room to maintain privacy. The data were collected using

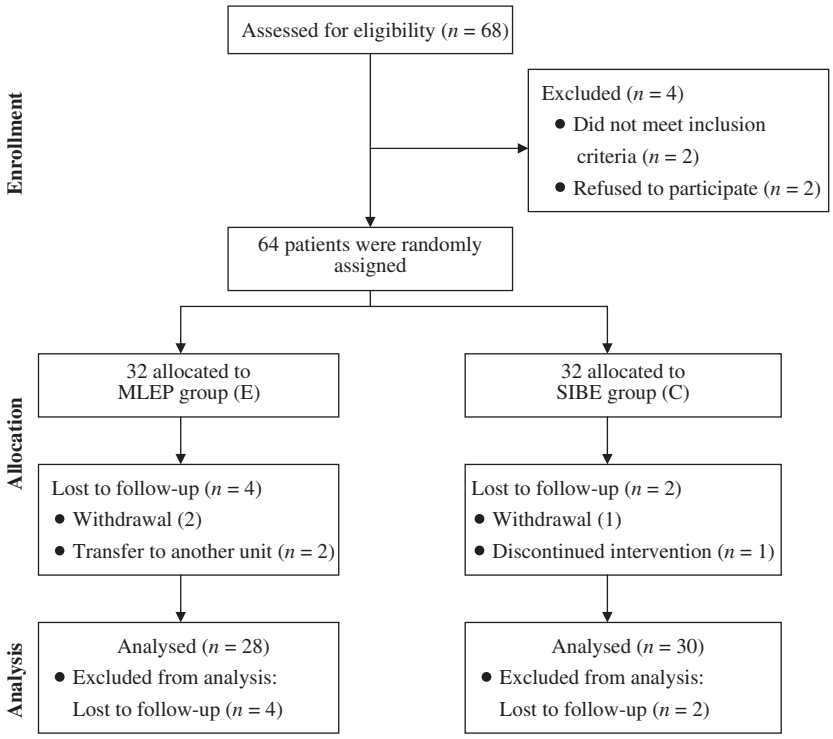

Figure 1 Flow diagram of subject progress through the phases of the randomised trial.

questionnaires completed by the subjects themselves. The subjects of the experimental group received individual MLEP by one research nurse. In the control group, the same instructor stayed in the room with the subject during the 30–45 minute intervention period taking notes or merely conversing with the subject or family members, and the control group subjects received SIBE only during an inpatient visit. Each group was followed up for two weeks. Two weeks after the initial contact, the researcher reserved an appointment with the subjects to obtain the data to complete the final questionnaire. They all completed the questionnaire in 15–20 minutes. Figure 1 illustrates the flow of participants through the research period.

Data analysis

After gathering data, a quantitative analysis was performed by using SPSS software, version 12.0 (SPSS Inc., Chicago, IL, USA) and was double entered to ensure accuracy. The statistical methods used were the Chi-square test or Fisher's exact test and two independent samples *t*-test to determine the significance of differences of characteristics of subjects between the control group and the intervention group. Student's *t*-test was used to determine the differences between the intervention and control groups on gain scores and baseline score of burn patient's KBRS, APS and PGCBS. An analysis of covariance regression (ANCOVAR) was used to determine the difference in post-test between the intervention and control groups. All values are reported as the mean ± SD, with a $p < 0{\cdot}05$ being considered significant.

Findings

Subject characteristics

During the research period, 68 patients underwent study eligibility screening. Of those, four (6%) were found to be ineligible for the following reasons: cognitive impairment (1), illiteracy (1) and refused to join this study (2). The remaining 64 individuals who met the study eligibility criteria agreed to participate and were randomised. Six patients (four experimental, two control) were excluded from the analyses because of loss to follow-up, and the dropout rate was 10% (Fig. 1); 28 cases in the experimental group and 30 cases in the control group completed the study. Table 1 summarises the characteristics of the remaining 58 participants. Subjects' average age in the MLEP group was 45·10 years and 53·70 years in the SIBE group. Forty-five patients (77·6%) were married, and most patients in both groups completed senior high school. The majority (70·7%) had been unemployed and had no income during the study period. However, 87·9% ($n = 51$) had private medical insurance. The average number of days of burn injury was 70·52 (SD 1·5). Also, we estimated that there were no

Table 1 Distribution and comparison of the demographic data between groups ($N = 58$)

Variables	Total ($n = 58$)			Experimental ($n = 28$)			Control ($n = 30$)				
	n	%	M ± SD	n	%	M ± SD	n	%	M ± SD	χ^2/t^b	p
Age			49·51 ± 0·01			45·10 ± 9·7			53·70 ± 0·81	3·58	0·045
% of TBSA			30·50 ± 0·5			32·15 ± 1·5			28·67 ± 4·5	2·54	0·063
Duration of injury with burn (days)			70·52 ± 1·5			68·76 ± 2·7			72·14 ± 2·5	0·78	0·562
Monthly family income (NT$)			23979 ± 15200			24898 ± 28286			13979 ± 17200	1·92	0·061
Gender											
Male	25	43·1		8	28·6		17	56·7		1·89	0·131
Female	33	56·9		20	71·4		13	43·3			
Education level											
Elementary school	3	7·3		3	14·6		3	13·4		2·58	0·147
Junior high school	13	39·1		13	34·1		13	30·1			
Senior high school	30	46·3		30	46·3		30	45·3			
≥College graduate	12	7·3		12	5·0		12	4·5			
Marital status											
Married	45	77·6		20	71·4		25	83·3		1·18	0·271
Unmarried	13	22·4		8	28·6		5	16·7			
Occupation											
Employed	17	29·3		8	28·6		9	30·0		1·72	0·125
Unemployed	41	70·7		20	71·4		21	70·0			
Private medical insurance											
Yes	51	87·9		25	89·3		26	86·7		1·48	0·253
No	7	12·1		3	10·7		4	13·3			
Religion											
Buddhism	18	31		8	29		10	33		2·36	0·512
Taoism	14	24		8	29		6	20			
Folk	22	38		10	36		12	40			
Other	4	7		2	3		2	7			
Physical symptom											
Yes	51	87·9		24	85·7		27	90·0		0·25	0·701
No	7	12·1		4	14·3		3	10·0			
Hypertrophic scar											
Yes	52	90·0		27	96·0		25	83·0		0·01	0·921
No	6	10·0		1	4·0		5	17·0			

Chi-square test was used for the comparison of the experimental and control groups.
NT$, New Taiwan Dollars.

differences in demographic data between the groups at baseline ($p > 0·05$).

Pre-intervention programmes

As shown in Table 2, burn subjects' KBRS, APS and PGCBS scores at the beginning of the study were similar between the two groups.

Comparison of KBRS

The mean pre-test score for perceived KBRS for the subjects in this study was 15·0 (SD 3·9). The scores for KBRS in pre-test and post-test for the experimental and control groups are presented in Table 3. To examine the effect of MLEP, a paired t-test was used to examine the change in perceived KBRS from pre-test to post-test in each group. Significant statistical differences ($t = 5·55$, $p < 0·001$) were revealed in the experimental group, while no statistical difference ($t = 0·47$, $p = 0·64$) was shown in the control group. Analysis of covariate (ANCOVAR) was used to analyse the effectiveness of MLEP. Age and the pre-test scores for KBRS were entered as covariance. The assumption of homogeneity of regression slop ($F_{(1·54)} = 1·37$, $p = 0·26$) was not violated for ANCOVAR. Excluding the influences of age and baseline KBRS, perceived KBRS in the two groups revealed a significant difference ($F_{(1·54)} = 9·05$, $p = 0·04$, $\eta = 0·14$).

Comparison of level of anxiety perceived

The mean baseline score for anxiety of the subjects in this study was 18·9(SD 7·3). Individual scores revealed that

Table 2 Baseline score on KBRS, APS, PGCBS in the control group and experimental group

	Total (n = 58)			Experimental (n = 28)			Control (n = 30)				
Variables	M	SD	Range	M	SD	Range	M	SD	Range	t	p-value
KBRS	15·0	3·9	10–18	17·8	3·4	12–18	12·4	3·3	10–18	1·66	0·221
APS	18·9	7·3	15–35	16·7	6·4	15–25	21·0	5·6	16–35	0·67	0·534
PGCBS	30·0	2·5	10–40	35·5	2·0	15–40	30·0	2·4	10–35	0·64	0·573

KBRS, Knowledge of burn rehabilitation scale; PGCBS, pressure garment compliance behaviours scale; APS, anxiety perception score.

Table 3 Difference between pre-test and post-test results in KBRS, APS, PGCBS

	Total (n = 58)		Experimental (n = 28)			Control (n = 30)		
Variables	M	SD	M	SD	t	M	SD	t
KBRS								
Pre-test	15·0	3·9	17·8	3·4	5·55*	12·4	3·3	0·47**
Post-test	17·5	1·7	19·8	1·5		13·5	1·7	
APS								
Pre-test	18·9	7·3	16·7	6·4	2·24*	21·0	5·6	1·95**
Post-test	17·8	8·3	14·6	9·3		20·9	7·3	
PGCBS								
Pre-test	30·0	2·5	35·5	2·0	4·56*	30·0	2·4	0·34**
Post-test	34·3	4·5	38·9	4·8		31·3	5·2	

t, comparison means between pre-test and post-test scores with group. *$p \leq 0{\cdot}05$; **$p > 0{\cdot}05$.

21 (36%) of the study subjects had no symptoms; 27 (46·6%) had mild anxiety; eight (13·8%) had moderate anxiety; and two (3·4%) had severe anxiety.

Using a paired t-test to examine the score changes from pre-test to post-test for each group, the experimental group revealed a significant statistical improvement from pre-test to post-test scores (t = 2·24, p = 0·03); whereas, for the control group, there was no significant difference in pre-test and post-test scores (t = 1·95, p = 0·06).

Using age and baseline scores for anxiety as a covariate in the ANCOVAR analysis, the assumption of the homogeneity of regression slope ($F_{(1·54)}$ = 3·05, p = 0·56) was met for the analysis. Excluding the influences of age and baseline anxiety, the feeling of anxiety in the two groups demonstrated a significant difference ($F_{(1·54)}$ = 4·20, p = 0·045, η = 0·072).

Comparison of PGCBS

The mean pre-test score for perceived PGCBS for the subjects in this study was 30·0 (SD 2·5). The scores for PGCBS in pre-test and post-test for the experimental and control groups are presented in Table 3. To examine the effect of MLEP, a paired t-test was used to examine the change in PGCBS from pre-test to post-test in each group. Significant statistical differences (t = 4·56, $p < 0{\cdot}001$) were demonstrated in the experimental group, while no statistical difference (t = 0·34, p = 0·46) was shown in the control group.

Analysis of covariate (ANCOVAR) was used to analyse the effectiveness of MLEP. Age and the pre-test scores for PGCBS were entered as covariance. The assumption of homogeneity of regression slope ($F_{(1·54)}$ = 2·61, p = 0·36) was not violated for ANCOVAR. Excluding the influences of age and baseline PGCBS, perceived PGCBS in the two groups revealed a significant difference ($F_{(1·54)}$ = 8·06, p = 0·05, η = 0·23).

Discussion

Patients' burn knowledge is an important factor in enhancing disease knowledge and improving attitudes and compliance towards burns management (Doupi & van der Lei 2005). Jung *et al.* (2003), in a survey of 23 adult burn patients on discharge from hospital, reported that the participants expressed a need for more extensive burn wound management and self-care information. In this study, the results clearly demonstrate that the MLEP intervention significantly improved knowledge levels amongst the burn patients in the study and that this knowledge seemed to be linked to lower anxiety levels and increased self-care activity.

These findings are consistent with those of Malic *et al.* (2007) who used a multimedia and web-based information

package to increase treatment compliance and functional recovery and also similar to results of Oermann *et al.* (2003) who used videotape instruction for patients in clinic waiting rooms that resulted in significant gains in knowledge and increased satisfaction with their care. Our study reinforces this evidence base and demonstrates that the MLEP can play an important role in interventions designed to improve knowledge levels with burn patients in the rehabilitation stage.

Fear and anxiety are frequently present in patients with burn injuries (Taal & Faber 1997, Van Loey & Van Son 2003). Chang *et al.* (2002) in a survey of 96 adult patients suffering from a burn injury found significant levels of anxiety on discharge from hospital. Our study demonstrates that patients in the MLEP group had significantly decreased anxiety compared with the control group, further demonstrating the potential efficacy of MLEP interventions for anxiety management in burn injury patients. The findings of our study are also consistent with the work of Stergiopoulou *et al.* (2007) who used a multimedia CD to provide patients with pre-operative information prior to laparoscopy and found that the CD reduced patient anxiety pre- and post-operatively.

Hypertrophic scarring is a serious complication of burn injury that results from a decrease in the normal functions of the skin, causing contractures and body image disturbance (Chang *et al.* 1995, Anzarut *et al.* 2008). However, Lo *et al.*(2002), in a survey of 43 adult patients suffering from a burn injury, reported that 39% of participants demonstrated poor compliance with pressure garment therapy. Our study presents an important new finding in that the MLEP approach to patient care is effective in improving compliance with burn-related care, especially pressure garment compliance. The findings of our study also compliments the work of So *et al.*(2003) who used a multimedia patient education programme to improve compliance with silicone gel sheeting in burns patients. Thus, multimedia burn-education programmes can provide a very useful contribution to the care of patients with burn injury – particularly achieving better pressure garment compliance, improving knowledge and reducing anxiety.

Limitations of the study

Based on the results of this study, the limitations and recommendations for future research include the following: (1) Subjects in the study were only followed up for two weeks. Given that hypertrophic scar formation can also be influenced by ongoing rehabilitation, extending the length of follow-up time to at least one year would be useful. (2) In this study, data collection and nursing instruction for subjects were conducted by the same researcher; a different researcher to implement data collection and nursing instruction may be more objective.

Conclusion

In conclusion, the results of our study showed that multimedia learning education programmes can effectively improve burn injury patients' knowledge, anxiety and pressure garment compliance behaviour and provides a research-based intervention model for health care providers caring for burn injury patients. The application of these finding might also have important implications for burn patients in the longer term rehabilitation stage and also patients with other types of injuries and wounds not related to burns.

Relevance to clinical practice

Burn injury patients undergoing rehabilitation are likely to benefit from multimedia learning education intervention programmes. More comprehensive health economic evaluation needs to be undertaken. Further studies exploring a longer term follow-up are also required.

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Contributions

Study design: SFL; data collection and analysis: SFL, SEL, SIL and manuscript preparation: SFL, MH.

Conflict of interest

None.

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