

FEATURE ARTICLE

Relaxation training methods for nurse managers in Hong Kong: a controlled study

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ABSTRACT: Nurse managers are under increased stress because of excessive workloads and hospitals' restructuring which is affecting their work tasks. High levels of stress could affect their mental health. Yet, few stress management training programmes are provided for this population. The purpose of this study was to apply stretch-release relaxation and cognitive relaxation training to enhance the mental health for nurse managers. A total of 65 nurse managers in Hong Kong were randomly assigned to stretch-release relaxation (n = 17), cognitive relaxation (n = 18), and a test control group (n = 35). Mental health status was assessed using the Chinese version of State-Trait Anxiety Inventory and the Chinese version of the General Health Questionnaire. Participants were assessed at the pretreatment session, the fourth posttreatment session, and at the 1-month follow-up session. The results revealed both the stretch-release and cognitive relaxation training enhanced mental health in nurse managers in Hong Kong. The application of relaxation training in enhancing mental health status for nurses and health professionals is discussed.

KEY WORDS: cognitive relaxation, mental health status, nurse managers, stretch release relaxation.

INTRODUCTION

Worldwide, many health care systems have undergone significant changes within the past decade. With the increasing workload, nurse specialization, and structural changes in hospitals, workplace stress becomes an important factor affecting the mental health of being in the nursing profession. A survey conducted in Australia, suggested that excessive workload was a predictor of workplace stress for nurses (Bryant *et al.* 2000). In Tasmania, Australia, nurses working in medical, psychiatric and surgical wards reported significant emotional ill-health because of a stressful working environment (Farrell 1998). In the Province of Ontario, Canada, the restructuring of hospitals may make 10 000 nursing staff

redundant (Doyle-Driedger 1997). Such restructuring means both an increased workload for nursing staff with jobs and feelings of job insecurity. Other studies revealed that mental health nurses suffered a high degree of burnout because of stress, sometimes leading to leaving their jobs (Barling 2001; Edward & Burnard 2003). In Hong Kong, since the establishment of the Hospital Authority, many of the duties of nurse officers have been shifted from the professional to the management areas (Chung 1994; Wong & Wah 1998). Many of the managerial responsibilities for health care delivery are now shouldered by unit nurse managers as a result of this decentralization of power from headquarters to hospital level. The reform has produced a stressful situation that adversely affects nurse managers.

Studies have shown that the reported mental health symptoms of distress for nurse managers and nurse executives are greater than the published norm and high job demands affected self-rated health (e.g. Cohen 1990; Lindholm *et al.* 2003) and resulted in emotional exhaustion (Bennett & Lando 1999).

Studies assessing interventions that aim to provide stress management techniques to improve the physical

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Accepted August 2004.

and mental health for nurses are few when compared with studies assessing nurses' stress symptoms and their coping methods (e.g. Burke & Greenglass 2000). Of those studies that examined how nurses coped with their distress, the coping strategies were mainly drawn from within the individual's own context such as the support of family and friends or from self-enhancement of their physical health and interpersonal skills (Boey 1999; Callaghan *et al.* 2000). Others seek emotional and psychological support from their colleagues (Callaghan *et al.* 2000). Agencies seldom provide any formal stress management programmes for nurses and nurse managers to enhance their mental health status through learning coping mechanisms. One reason is the belief that such intervention programmes usually require manpower and resources that could be better spent on patient care than on staff care. Another reason is that the senior management presumes that formal stress management programmes are time consuming and that health workers in hospital settings could hardly spare their time to practise these skills. However, given the high stress levels reported among nurses in many countries including Hong Kong, these reasons are not sufficient enough to ignore the well-being of the health professionals (Boey 1999; Keltner & Leung 1995; Lau *et al.* 1995; Supe 2000).

Relaxation exercises such as progressive relaxation, stretch relaxation, cognitive relaxation, autogenic training, and biofeedback have become popular amongst psychologists and other health professionals during the last 30 years. They have been adopted for the reduction of anxiety, pain, other stress symptoms and enhancing mental health (Carlson & Curran 1994; Dodd & Wellman 2000). There are many advantages to using relaxation training for stress reduction and enhancing psychological well-being. First, individuals can practise the relaxation exercise by themselves after a period of supervised training. This is cost-effective. Second, individuals can practise the exercise anytime and anywhere they feel the need to control tension. Considering these advantages and the needs of health care professionals, it seems appropriate to implement relaxation training as a stress-reduction method.

Previous evidence showed that relaxation can be attained either through the relaxation of the musculo-skeletal system by muscle stretching or the reduction of arousal of the sympathetic nervous system as in cognitive imagery (Benson 1975; Carlson & Curran 1994). The aim of the present study is to test the effects of two relaxation methods, namely stretch-release relaxation and cognitive relaxation methods and apply them to the nurse managers in Hong Kong in order to reduce their stress levels.

METHOD

Sample

Following ethics approval from the University, a convenience sample of 65 administrative nursing staff attending the postgraduate management courses at The Hong Kong Polytechnic University were recruited. The administrative nursing staff came from different sectors, including the Hospital Authority, Government Medical and Health Departments, private hospitals and clinics.

Of the 65 participants, 35 were randomly assigned to the experimental condition and the remaining 30 were put to the control condition. Subsequently, the 35 subjects assigned to the experimental condition were randomly allocated to the stretch-release relaxation ($n = 17$) and cognitive relaxation ($n = 18$) groups.

Table 1 presents the personal demographic characteristics of the sample ($n = 65$). The χ^2 test was used to test if there were any significant differences in the demographic variables among the three groups. The results showed that there were no significant differences in age ($P = 0.46$), marital status ($P = 0.33$), years of service ($P = 0.09$), nurses' ranking ($P = 0.82$), number of staffs supervised ($n = 0.41$), and size of hospital beds ($P = 0.87$) among the three groups. The only significant difference was there were gender differences with the control group having some males ($P = 0.03$). Gender was considered to be a less influential variable in stress perception as compared to years of service (Humpel & Caputi 2001) ranking, hospital size and staff supervised which bear stronger influences on stress and mental health.

Experimental setting

The Behavioural Science Laboratory of the School of Nursing was used for the study. Mattresses and pillows were provided for those participating in the relaxation treatments. The room was carpeted, the ceiling light was set at a dim level, and the temperature was kept constant. Participants wore loose-fitting clothes and all phones were turned off during treatment sessions.

Measures

The mental health status of the participants were assessed by the Chinese Version of State-Trait Anxiety Inventory (C-STAI) and the Chinese version of General Health Questionnaire (C-GHQ).

Chinese Version of State-Trait Anxiety Inventory Anxiety was one of the most common psychological symptom reported by nurses under stress (e.g. Michie *et al.* 1996). Anxiety was assessed by C-STAI. The State-Trait Anxiety Inventory (STAI), developed by Spielberger *et al.* (1970), measures both state and trait anxiety. The STAI consists of 40 statements, 20 on State-Anxiety (A-State) and 20 on

TABLE 1: Characteristics of the study groups

Demographic	Groups								χ^2 χ^2 test	P
	Total (n = 65)		SR (n = 17)		COG (n = 18)		TC (n = 30)			
	n	(%)	n	(%)	n	(%)	n	(%)		
Age (years)										
35 or below	23	(35.4)	6	(35.3)	4	(22.2)	13	(43.3)	3.607	P = 0.462
36-40	23	(35.4)	7	(41.2)	6	(33.3)	10	(33.3)		
41 or above	19	(29.2)	4	(23.5)	8	(44.4)	7	(23.3)		
Gender										
Female	61	(93.8)	17	(100.0)	18	(100.0)	26	(86.7)	4.973	P = 0.039
Male	4	(6.2)	0	(0.0)	0	(0.0)	4	(13.3)		
Marital status										
Single	23	(35.4)	6	(35.3)	4	(22.2)	13	(43.3)	2.193	P = 0.334
Married	42	(64.6)	11	(64.7)	14	(77.8)	17	(56.7)		
Years of service										
15 or below	27	(41.5)	8	(47.1)	4	(22.2)	15	(50.0)	7.846	P = 0.097
16-20	21	(32.3)	6	(35.3)	5	(27.8)	10	(33.3)		
21 or above	17	(26.2)	3	(17.6)	9	(50.0)	5	(16.7)		
Ranking										
Below manger	50	(76.9)	13	(76.5)	13	(72.2)	24	(80.0)	0.386	P = 0.824
Manager or above	15	(23.1)	4	(23.5)	5	(27.8)	6	(20.0)		
No. staffs supervisory										
10 or less than	13	(20.0)	3	(17.6)	2	(11.1)	8	(26.7)	1.781	P = 0.410
11 or more than	52	(80.)	14	(82.4)	16	(88.9)	22	(73.3)		
Sizes of the hospital (beds)										
500 or below	22	(33.8)	5	(29.4)	6	(33.3)	11	(36.7)	0.258	P = 0.879
501 or above	43	(66.2)	12	(70.6)	12	(66.7)	19	(63.3)		

COG, cognitive relaxation group; SR, Stretch release relaxation group; TC, test control group.

Trait-Anxiety (A-Trait). The A-State asks participants to indicate 'how they feel at that moment' on a 4-point scale of increasing intensity from 'not at all' to 'very much so'. The A-Trait requests participants to indicate how they generally feel on a 4-point scale from 'almost never' to 'almost always'. Tsoi *et al.* (1986) translated the C-STAI. Internal consistency for the C-STAI is 0.90 and 0.81 for A-State and A-Trait, respectively (Shek 1988). The C-STAI significantly correlates with other measures of psychological well-being, such as the General Health Questionnaire (GHQ) and, thus, possesses concurrent validity (Shek 1993). The STAI has been used to assess stress and anxiety levels reported by nurses (Tselebis *et al.* 2001).

Chinese version of General Health Questionnaire The GHQ is a self-reported questionnaire developed by Goldberg (Goldberg & Blackwell 1970; Goldberg 1972) to assess mental health problems among respondents in community settings. The questionnaire has been widely used to assess mental health status and perceived stress levels among nurses (Boey 1999) The C-GHQ version was translated by Chan (Chan & Chan 1983; Chan 1985) and was found to be reliable and internally consistent and can be used to assess general mental health in the Chinese community (Shek 1987). The anxiety subscale of the

C-GHQ correlated significantly with other measures of psychopathology and was most predictive of A-State and A-Trait scores of the C-STAI (Shek 1993). The C-GHQ was shown to be reliable and internally consistent (Shek 1987). For the purpose of the present study, the conventional 0-1-2-3 Likert score method of the GHQ was chosen.

Relaxation training

Stretch-release relaxation The stretch-release relaxation (SR) was guided by the model of Stretch Relaxation developed by Carlson and Collins (1990) which focused on the stretching and relaxation of muscle groups. Unlike the popular progressive relaxation exercise which involves the tensing and relaxing of muscle groups, stretch-release relaxation is less strenuous. Muscle relaxation exercise, based upon the stretching of muscle groups, incorporates the beneficial effects of muscle sensation contrast with accompanied reductions in muscle activity from the stretch procedure resulting in relaxation (Anderson 1983). Previous studies using stretch-based relaxation has shown significant reductions in muscle tensions, blood pressure and subjective feelings of tensions (Yung *et al.* 1995; Yung & Keltner 1996).

An example of SR instruction is:

When I say begin, I would like you to stretch the muscles of your jaws by placing the fingertips of each hand on the joints of each lower jaw. Ready, apply the pressure upwards as you move your hand towards the temple area to stretch the jaw muscles. When you reach the cheekbones, hold the stretch until you are instructed to release it. Hold (15 s). Now, release the stretch and return your hands to a resting position (60 s).

When I say begin, I would like you to stretch the muscles in your chest by taking a breath in while raising the chest. Ready, begin by taking a breath in, allowing the chest to rise, and holding the breath, hold. (5 s). Now, release your breath and rest for a while (60 s).

Cognitive relaxation Cognitive relaxation (COG) is a form of relaxation using mental imagery. This method involves instructing the individual with mental images of peaceful scenes which ultimately promote the relaxation response. Visual imagery as a means of relaxation can create a state of parasympathetic nervous system overdrive and a reduction in the activity of the sympathetic nervous system (Crotty *et al.* 1999). COG has been applied successfully in the reduction of anxiety and stress in previous studies (Girdano *et al.* 2001). In the present study, participants given cognitive relaxation exercise are asked to imagine the relaxation of different muscle groups. Instructions for both relaxation procedures were given in the Cantonese dialect of Chinese as spoken by nurse managers in Hong Kong.

An example of COG instruction is:

When I say begin, I would like you to imagine that the muscles of your forehead are becoming more and more relaxed, more and more relaxed (60 s).

When I say begin, I would like you to imagine that your eyes are becoming more and more relaxed, more and more relaxed (60 s).

Procedure

The selected participants were assigned to one of three groups: SR, COG and Test Control (TC) groups.

Treatment sessions

Participants in both the SR and COG groups received four relaxation treatment sessions, one per week. As far as possible, participants were scheduled for treatment on the same day of the week throughout the treatment programme. All sessions for both procedures were of 20 min duration. Measurements were obtained from the participants prior to the first relaxation treatment session and after the fourth treatment session. The time spent in measuring the participants in the TC group was equivalent to the time the treatment group participants spent in their relaxation treatment sessions.

Follow-up session

After the fourth relaxation treatment session, subjects in the SR and COG groups were provided with relaxation tapes. They were instructed to practise their respective relaxation procedures for 1 month and to keep a record of their practice sessions. TC participants received no such instructions. All participants including the TC group were assessed again in a follow-up session after 1 month. No participants received any information about any assessment results during the study period. No participants engaged in any other relaxation treatments during the entire period of the study.

RESULTS

Normality test (Kolmogorov–Smirnov test) by instrument and by group was performed to examine its normality. The results of each outcome were normal. Thus, parametric tests were used for further analysis.

A one-way ANOVA was used to determine if there was any significant difference in A-State, A-Trait and C-GHQ between the three groups at each time slots: the pretreatment, posttreatment and follow-up occasion (see Table 2). There was a significant difference in C-STAI-S ($F = 10.45$, $P < 0.001$) between the three groups at the follow-up occasion. A post-hoc test, Tukey-HSD, revealed that the TC group (mean, 40.81) had a significantly higher A-State mean score than the two other groups that received relaxation treatments (SR, mean = 33.77, $P < 0.05$; COG, mean = 32.07, $P < 0.05$). There was also a significant difference in C-GHQ between the three groups at the follow-up occasion ($F = 5.97$, $P = 0.004$), while the COG group (mean, 20.47) had the greatest reduction in C-GHQ when compared with the two groups (SR, mean = 27.57, $P < 0.05$; TC, mean = 27.57, $P < 0.05$).

The general linear model (GLM) repeated measures was used to tests for the between subjects (SR vs. COG vs. TC), within subjects (pre vs. post vs. follow up), and the interaction effects. The results are shown in Table 2. Results revealed that there was a significant reduction in A-State level in the SR group ($F = 4.34$, $P = 0.033$). A post-hoc test, Tukey-HSD showed that SR participants had a significantly higher reduction in A-State level from the pretreatment (mean, 40.82) to the follow-up occasion (mean, 33.77; $P = 0.011$). For participants that practised COG relaxation, they also obtained a significant reduction in A-State level from the pretreatment (mean, 40.22) to the follow-up occasion (mean, 32.07; $P = 0.033$) and from the posttreatment (mean, 36.89) to the follow-up occasion (mean, 32.07, $P = 0.011$). However, there were no significant reductions in A-State for TC subjects in the three tests ($F = 2.31$, $P = 0.118$).

included, such an interpretation of the results should be viewed with the caution.

These observations encourage the belief that relaxation training can be an effective stress-management method to reduce psychological distress for nurse managers in Hong Kong. Furthermore, as shown in the present study, individuals can practise the procedure by themselves after suitable training and obtain more significant improvement in their mental health status. These strategies can, thus, be applied to nurse managers as a method for stress management. It is recommended that given the feasibility of using the work setting, future studies evaluating the effectiveness of relaxation programmes for health professionals should include a longer term follow up, and the implementation of different relaxation methods that cater to presenting stress symptoms and the problems of the individual. Given these preliminary positive results, it suggests these relaxation methods can be applied to enhance mental health not only for nurses in Hong Kong, but for nurses in other places and possibly for workers in other types of stressful employment. At least as shown in this study, such relaxation methods may provide human resource managers with the basis for cost-effective stress reduction programmes.

Study limitations

There are certain limitations in the present study. The sample selected from this study was recruited from nurse graduates attending the university courses in the Hong Kong setting. Caution must be drawn regarding the generalization of the study findings. A quasi-experimental design was used in this study because it was not possible to control all extraneous variables in this research. Those variables that may have an effect on the associated findings will need to be addressed in future studies. A lengthy follow up of relaxation practice will be worthwhile to test whether these exercises can enhance the psychological well-being of the nurse managers in the long run.

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