Effect of web-based assertion training for stress management of Japanese nurses

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Introduction

Job stress among hospital nurses is often high due to their quantitatively and qualitatively high workloads. Depression and sleep problems among hospital nurses and other occupation’s shift workers have been reported as occurring frequently (Kageyama et al. 2001, Drake et al. 2004). The rate of depression in Japan has been reported as higher than that in Europe and the USA, and a depression rate of about 40% has been reported by Japanese community surveys vs. 15–19% in the USA (Radloff 1977, Nakata et al. 2004, Watanabe et al. 2004).

Job stress and depression have been given as reasons for higher job turnover (Tao & Kubo 1996), and higher job turnover leads to declines in the quality of nursing care and higher costs of re-employment. Realistically speaking, nurse workloads are not being reduced, as shown by yearly increases in medical expenses. Thus, the ability to successfully cope with stress is important for stress management.

Reported stress management methods include improving communication skills, changing one’s way of thinking, redefining one’s role, time management, physical exercise and relaxation (Yokoyama & Iwanaga...
2003). Assertion is one type of communication skill, and has been defined with respect to Japanese society as: (1) self-expression for defending one’s human rights without violating the rights of others and (2) self-expression that respects the opinions and desires others (Hiraki 1993). Further, some researchers have reported that assertion training decreased job stress in cases when it was introduced for the purpose of stress management (Kaluza 2000, Shimizu et al. 2003).

Reported assertion training methods include lectures, videos, discussions, role-playing and counselling, with training times varying from 1 hour to weekly training over the course of 1 year (Kaluza 2000, Brenner et al. 2003, Nota & Soresi 2003, Shimizu et al. 2003). Few researches have reported the effects of assertion training on nurses, although Shimizu et al. (2003) reported the improvement of burnout among Japanese hospital nurses after 4 days of assertion training.

In addition, recently, web-based training methods have been introduced to staff training programmes. Web-based training is comparatively low cost and accessible when compared with traditional classroom training. Moreover, such methods are more effective because learners can practice at their own pace (Taylor & Luce 2003).

Therefore, in this study, for the purpose of examining the effect of a web-based assertion training programme on nurses, changes in assertion skills and levels of job stress were examined among Japanese hospital nurses.

Method

Thirty-two shift nurses were recruited from an urban hospital in west Japan. Participants were given a questionnaire at three separate points during the study (pretraining, post-training and 1 month after the training) in addition to a 70-minute web-based assertion training programme from February to April 2005.

The training programme was entitled Internet Navigeware: Assertion in the Workplace and produced by Fujitsu Software Technologies Limited. It included content related to the definition of assertion, types of self-expression and methods for improving one’s assertion ability. Learning styles covered by the programme included text-based learning, checklists for self-expression and the selection of suitable behaviours depending on the situation.

Participants were volunteers from 14 wards. After an explanation from the nurse manager, participants offered to participate in the study. Participants were requested to receive the training by PC at their workplace or home over a period of 3 weeks.

The questionnaires included items on the demographic characteristics of the participants, assertion knowledge, assertive attitudes and behaviours, job stress and depression. Assertion knowledge items (10 items) were made by the authors, corresponding to the training contents in order to check the understanding and memorization of the contents. Assertive attitudes were measured by the Assertive Mind Scale (AMS, 20 items; Ito 1998), and assertive behaviours were measured by the Assertion Check List (ACL, 20 items; Hiraki 1993). Job stress was measured by the Job Stress Brief Questionnaire (20 items; Nishikido et al. 2000) and depression was measured by a part of the Brief Job Stress Questionnaire (18 items; Shimomitsu et al. 1998).

There were four subscales of the AMS, and their definitions are the following: (1) self-expression, or respecting and expressing one’s own feelings and opinions, (2) respect for others, or respecting the self-expression of others, (3) rational belief, or rational beliefs related to assertion and (4) frankness, or convincing frank self-expression. Regarding the ACL, there were two subscales: voluntary behaviour and interpersonal behaviour.

As for job stress, there were six subscales. Higher scores indicated more stress in the three subscales of workload, mental workload and personal relationships, whereas lower scores indicated more stress in the three subscales of job control, reward from work and support from colleagues and superiors. Answering styles included selecting one correct answer from four answers regarding assertion knowledge, and four levels on a Likert scale for the other items.

The values for assertion knowledge reflect the number of correct answers (full score = 10). Answers for the four-level Likert scale items were converted to numerical scores of 1–4. Values for the AMS, ACL and job stress scales were averaged for each subscale (full score = 4), and the sums of the 18 items (full score = 72) were taken as the values for depression.

Approval with regard to ethical considerations was provided from the Committee of Research Ethics at Hiroshima University. Informed consent for participation in the research was obtained through both written and oral explanations from the nurse manager of each ward, after which participants signed the consent documents. The questionnaires were anonymous and submitted in closed envelopes.

In the statistical analyses, the changes of scores were tested both between pretraining and post-training and between pretraining and 1 month after the training. The Wilcoxon signed rank test was used because some
scores did not have normal distributions. Finally, changes in the participants' responses divided by the medians of each assertion subscale were tested.

### Results

Twenty-six of the 32 participants completed the training programme, and the results of the 25 participants who completed the final questionnaire (1 month later) were analysed. The average age was 32.7 (SD 7.1) and the average number of years of employment was 9.2 (SD 7.3).

The scores of assertion, job stress and depression at the pretraining, post-training and 1 month after the training are shown in Table 1. The scores of assertion knowledge for the pretraining questionnaire were 7.48. The scores of the subscales of the AMS and ACL ranged from 2.66 to 3.21, and the scores of job stress were similar to those of previously reported research (Kageyama et al. 2003).

The differences between the data of the 25 analysed participants and that of the seven dropped participants were not significant with respect to the pretraining scores of demographic characteristics, assertion, job stress and depression.

Assertion knowledge and voluntary behaviour of the ACL significantly increased at post-training (+1.32, $P < 0.001$; +0.14, $P = 0.011$), and remained significantly high 1 month later (+0.96, $P < 0.001$; +0.12, $P = 0.031$). In addition, the mental workload of job stress had declined after 1 month ($-0.20$, $P = 0.085$).

The changes of the participants' scores divided by the medians of each assertion subscale were tested because it would have been difficult for the high score group to improve their scores (Table 2). In each low score group, in addition to knowledge and voluntary behaviour, which also increased for all participants, three subscales of the AMS also increased. Respect for others at post-training and 1 month after the training (+0.33, $P = 0.011$; +0.25, $P = 0.026$) and rational belief at post-training increased significantly (+0.27, $P < 0.001$). Self-expression at 1 month later also showed a tendency to increase (+0.17, $P = 0.077$).

Regarding changes in job stress for the increased assertion subscales, low score groups were examined again (Table 3). For the three types of low score group (self-expression, respect for others and voluntary behaviour), the mental workload of job stress showed a tendency to increase (range: $-0.24$ to $-0.33$, $P < 0.1$). As for the two types of low score group (knowledge and rational belief), job stress did not improve, although the knowledge low score group showed a tendency for worsened stress with respect to support from colleagues and superiors at post-training ($-0.17$, $P = 0.064$).

### Discussion

The results of this research show the effects of web-based assertion training on assertion skills and stress management for Japanese hospital nurses. The participants received knowledge relating to assertion at post-training, and they maintained that knowledge 1 month

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**Table 1:** Scores and changes of assertion, job stress and depression

<table>
<thead>
<tr>
<th></th>
<th>Pre (SD)</th>
<th>Post (SD)</th>
<th>Month (SD)</th>
<th>ΔPost-pre (SD)</th>
<th>Z</th>
<th>P</th>
<th>ΔMonth-pre (SD)</th>
<th>Z</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td><strong>Assertion knowledge</strong></td>
<td>7.48 (1.47)</td>
<td>8.80 (0.87)</td>
<td>8.44 (1.16)</td>
<td>1.32 (1.38)</td>
<td>-3.6</td>
<td>0.000**</td>
<td>0.96 (1.09)</td>
<td>-3.5</td>
<td>0.000**</td>
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<tr>
<td><strong>Assertive Mind Scale</strong></td>
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<tr>
<td>Self-expression</td>
<td>2.78 (0.44)</td>
<td>2.80 (0.38)</td>
<td>2.78 (0.35)</td>
<td>0.02 (0.28)</td>
<td>-0.3</td>
<td>0.728</td>
<td>0.01 (0.32)</td>
<td>-0.2</td>
<td>0.809</td>
</tr>
<tr>
<td>Respect for others</td>
<td>3.21 (0.43)</td>
<td>3.32 (0.39)</td>
<td>3.31 (0.37)</td>
<td>0.11 (0.42)</td>
<td>-1.5</td>
<td>0.122</td>
<td>0.10 (0.41)</td>
<td>-1.4</td>
<td>0.160</td>
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<tr>
<td>Frankness</td>
<td>3.20 (0.37)</td>
<td>3.28 (0.46)</td>
<td>3.21 (0.42)</td>
<td>0.08 (0.48)</td>
<td>-0.7</td>
<td>0.481</td>
<td>0.01 (0.36)</td>
<td>-0.1</td>
<td>0.910</td>
</tr>
<tr>
<td>Rational belief</td>
<td>2.71 (0.44)</td>
<td>2.75 (0.41)</td>
<td>2.75 (0.44)</td>
<td>0.05 (0.46)</td>
<td>-0.5</td>
<td>0.646</td>
<td>0.04 (0.40)</td>
<td>-0.6</td>
<td>0.570</td>
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<tr>
<td><strong>Assertion Check List</strong></td>
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<tr>
<td>Voluntary behaviour</td>
<td>2.66 (0.31)</td>
<td>2.80 (0.26)</td>
<td>2.78 (0.34)</td>
<td>0.14 (0.23)</td>
<td>-2.5</td>
<td>0.011*</td>
<td>0.12 (0.25)</td>
<td>-2.2</td>
<td>0.031*</td>
</tr>
<tr>
<td>Interpersonal behaviour</td>
<td>2.82 (0.37)</td>
<td>2.88 (0.39)</td>
<td>2.84 (0.33)</td>
<td>0.06 (0.23)</td>
<td>-1.5</td>
<td>0.135</td>
<td>0.01 (0.23)</td>
<td>-0.7</td>
<td>0.509</td>
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<td><strong>Job stress</strong></td>
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<tr>
<td>Workload§</td>
<td>2.24 (0.80)</td>
<td>2.09 (0.78)</td>
<td>2.24 (0.77)</td>
<td>-0.15 (0.60)</td>
<td>-1.0</td>
<td>0.326</td>
<td>0.00 (0.65)</td>
<td>-0.1</td>
<td>0.910</td>
</tr>
<tr>
<td>Mental workload†</td>
<td>2.21 (0.73)</td>
<td>2.11 (0.72)</td>
<td>2.01 (0.77)</td>
<td>-0.11 (0.76)</td>
<td>-0.7</td>
<td>0.457</td>
<td>-0.20 (0.59)</td>
<td>-1.7</td>
<td>0.085†</td>
</tr>
<tr>
<td>Personal relationship‡</td>
<td>1.99 (0.60)</td>
<td>1.85 (0.60)</td>
<td>2.04 (0.85)</td>
<td>-0.13 (0.52)</td>
<td>-1.2</td>
<td>0.238</td>
<td>0.05 (0.90)</td>
<td>-0.2</td>
<td>0.844</td>
</tr>
<tr>
<td>Job control§</td>
<td>2.72 (0.49)</td>
<td>2.83 (0.64)</td>
<td>2.75 (0.63)</td>
<td>0.11 (0.48)</td>
<td>-1.1</td>
<td>0.290</td>
<td>0.03 (0.63)</td>
<td>-0.1</td>
<td>0.914</td>
</tr>
<tr>
<td>Reward from work§</td>
<td>2.72 (0.61)</td>
<td>2.77 (0.74)</td>
<td>2.73 (0.69)</td>
<td>0.05 (0.64)</td>
<td>-0.5</td>
<td>0.613</td>
<td>0.01 (0.44)</td>
<td>-0.1</td>
<td>0.887</td>
</tr>
<tr>
<td>Support from others§</td>
<td>2.87 (0.54)</td>
<td>2.81 (0.52)</td>
<td>2.92 (0.58)</td>
<td>-0.06 (0.31)</td>
<td>-1.0</td>
<td>0.297</td>
<td>0.05 (0.40)</td>
<td>-0.5</td>
<td>0.602</td>
</tr>
<tr>
<td>Depression</td>
<td>38.52 (9.31)</td>
<td>36.84 (8.81)</td>
<td>37.44 (10.74)</td>
<td>-1.68 (6.76)</td>
<td>-1.1</td>
<td>0.259</td>
<td>-1.08 (8.61)</td>
<td>-0.4</td>
<td>0.659</td>
</tr>
</tbody>
</table>

$n = 25$, **$P < 0.01$, *$P < 0.05$, †$P < 0.10$. High score is stressed.

§Low score is stressed.
In particular, participants with low initial assertive scores improved their assertive attitudes and behaviours, and job stress related to their mental workload decreased.

For all participants, the assertion knowledge and voluntary behaviour subscales of the ACL increased at post-training and remained high 1 month later. Voluntary behaviour would seem to be easier to improve than interpersonal behaviour. Interpersonal behaviour would seem to be more difficult to increase because such behaviour depends not only on oneself but also on others. With ACL-measured self-reported behaviour, the results would not be as verifiable as those from observed behaviour.

The AMS scale scores, i.e. those related to assertive attitudes, did not improve for all participants. The causes for this are not clear, but in assertion training, behaviours would seem to be easier to change than attitudes. In attitude and behaviour theory, attitudes do not always relate to behaviour, and therefore attitude does not necessarily change if behaviour changes (Gohner & Wänke 2002).

From the results of the low assertion participants with scores under the medians, the subscales of respect for others, rational belief and self-expression of the AMS also increased. These results indicated that this assertion training programme would be more effective in lower assertion participants.

Only the mental workload scores related to job stress were shown to decrease through the training, especially among low assertion participants. Shimizu et al. (2003) reported the improvement of burnout among Japanese hospital nurses after assertion training, and their items related to mental workload were used as some of the...
items of the current study’s burnout questionnaire. Burnout and mental workload would seem to be easily improved by assertion training.

The disadvantages of web-based training compared with classroom training were the lack of sensory-based information and synchronous observation and feedback (Clark et al. 2006). Role-playing in the classroom can provide sensory-based information including visual, hearing and touching information, as well as synchronous observation and feedback. Advanced assertion training would need to include classroom learning including role-play. But, as a 70-minute basic assertion training, web-base training can provide an effect equivalent to that of classroom training, at least in the short term.

With regard to study limitations, this research was not a randomized controlled trial, so the effects of the training might not all be attributable to the direct effects of the training. Participants were volunteers and so it might be easy to improve their assertion, because such volunteers would have a high interest level and be motivated for the assertion training. Also, the participants here were few in number and all from one hospital.

Rather, it suggested the good effects of a web-based assertion training programme on assertion skills and stress management for Japanese nurses. Just as the effects of coping with stress appears 12 weeks following training (Kagan et al. 1995, Lindquist & Cooper 1999), long-term follow-ups to the present study should also reveal the effects of this training programme.

References


