Original Article

Social Media-Based Cognitive Restructuring for Stress Reduction among Nursing Assistants at a Hospital in Chonburi Province: A Quasi-Experimental Study

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Abstract

OBJECTIVES: This secondary analysis examines the effects of social media-based cognitive restructuring for stress reduction (SM-CS) among nursing assistants.

MATERIALS AND METHODS: Research was conducted at a tertiary care hospital in Chonburi Province between September 2023 and March 2024. The SM-CS program composed of three modules: 1) mental health education on stress and cognitive behavioral therapy; 2) self-formulation; and 3) cognitive restructuring, with a 4-week program participation period. Quality assessment revealed that the SM-CS program had content validity with Index of Item-Objective Congruence (IOC) values above 0.5. Subsequently, the program was tested using a single-group pre-post experimental design with 12 nursing assistants. Data was collected by personal information questionnaire, the stress component of the Depression Anxiety Stress Scales-21 (DASS-21), and satisfaction assessment. Data was statistically analyzed by Wilcoxon matched-pairs signed-rank testing.

RESULTS: From 12 participants who completed the program showed that after program participation, mean stress level scores decreased by a statistically significant degree ($p < 0.05$).

CONCLUSION: The SM-CS program can reduce stress level among nursing assistants.

Keywords: Stress reduction, Cognitive restructuring, Social media intervention, Nursing assistants

Nursing assistants are part of the healthcare team responsible for assisting patients with their basic daily needs, monitoring symptoms, taking vital signs, and assisting doctors and nurses with examinations and providing initial medical treatment.1 According to a 2022 survey by the New Brunswick Nurses Union (NBNU) of Canada, nursing assistants experienced increased stress following the COVID-19 pandemic. 72.8% of nursing assistants reported experiencing work-related stress. The causes of this stress were overtime work and the need to be alert, continuous work hours, and insufficient breaks between shifts (54.6%, 46.0%, and 84.3%, respectively). 57% of nursing assistants believed that working without breaks was a direct cause of stress.[2]

Electronic psychosocial intervention (e-psychosocial intervention) using Cognitive Behavioral Therapy (CBT) is recommended by the World Health Organization (WHO) for employers to manage employee stress. Although the evidence base is low, the effectiveness of e-psychosocial interventions is moderate.[3] Factors affecting the number of users and the effectiveness of e-psychosocial intervention include platform owner support, social integration, and sharing of experiences among service recipients.[4-6] Furthermore, different platform standards, installation issues, and application instability pose barriers to adoption,[7,8] and lack of adaptability across diverse contexts, such as cultural adaptation in different countries[9,10] are factors that impact the uptake of e-psychosocial interventions by users.

According to statistics in 2025, 98.9% of Thai people own smartphones and use the internet on their mobile phones for 5 hours per day. The three most commonly used smartphone applications are Facebook, YouTube, and Line, respectively.[11] This study examined whether a Social Media-Based Cognitive Restructuring for Stress Reduction (SM-CS) intervention, delivered via LINE and YouTube, could reduce stress among nursing assistants facing stress. It investigated this through a secondary analysis of data from nursing assistants with elevated stress levels. This study examined the effects of SM-CS among nursing assistants.

Materials and Methods

The SM-CS program application was a quasi-experimental study using The One group pretest-posttest design. This was a secondary analysis of a published intervention study.[12]

Population was nursing assistants working at a central hospital in Chonburi Province. In this secondary analysis, participants were screened using the depression, anxiety, and stress scale (DASS-21)[13,14] and included if their stress subscale scores were 8 or above. Due to the small population size, all eligible nursing assistants were invited to participate based on the following inclusion criteria: being Thai nationals, aged between 20-60 years, being physically fit, not having a psychiatric illness diagnosed by a doctor, and not taking psychiatric medications prescribed by a doctor or psychiatrist. More than 1 year of working experience, never having received cognitive behavioral therapy or other programs related to mental health. The sample group for the research was 12 people. Data collection was conducted in March 2024.

Research Instruments

The intervention was adapted from Kuribayashi's Internet-based Cognitive Behavioral Therapy model[15]. Our previous study[12] demonstrated its effectiveness in 4 weeks. This study examined its effects on stress reduction among nursing assistants. The program consists of three modules:

Module 1 is held in the first week of the program.
Module 2 is held in the second week of the program.
Module 3 is held in the third and fourth weeks of the program.

Activity Format: The researcher will create an open chat Line group and invite the sample group to join anonymously. The researcher will then send video links according to the topics in each module on Mondays of weeks 1, 2, and 3.

The sample group will access the videos via the YouTube application at their convenience. The study period will be 5 days from the date the researcher sends the video links. During this time, there will be an exchange with those who have studied the content via the videos, stimulating learning, answering questions and doubts, and correcting errors if technical problems are encountered. After that, the researcher will then send links to practical experience journals for each module on Sundays 1, 2, and 4 to apply what they have learned in daily life, as shown in Table 1.

Measurement Instruments

1. Personal information developed by the researcher includes gender, age, education level, marital status, medical condition, job description, income, shift time (number of shifts per month), and length of employment.
2. The DASS-21 assessment consists of 21 questions used for screening mental health. Stress assessment is based on 7 questions in the test: questions 1, 6, 8, 11, 12, 14, and 18. Each question uses a rating scale divided into 4 levels. The scores of all 7 questions are then combined. A score between 0-7 is considered normal, a score of 8-9 is considered mild, a score of 10-12 is considered moderate, a score of 13-16 is considered severe, and a score of ≥17 is considered extremely severe.
3. The satisfaction assessment after participating in the SM-CS program was an open-ended questionnaire with 18 questions.

For the design of the SM-CS program and related instruments, the program content validity was considered by experts consisting of 1 physician, 1 psychiatric nurse, and 1 psychotherapist. It was found that the instruments had an IOC value of more than 0.5 for every questionnaire.[16]

Ethical Considerations

The research and development was conducted from September 2023 to March 2024 and was approved by the Research Ethics Review Committee of a regional hospital in Chonburi Province.

Data collection

Data collection is divided into 2 parts:

1. Before starting the program, personal data will be collected and the DASS-21 assessment for stress, consisting of 7 items, will be collected in the sample group.
2. After the activity, data will be collected using the DASS-21 assessment for the last time and satisfaction will be assessed after the activity (week 4) as shown in Figure 1.

Table 1: SM-CS program details.

Module	Duration	Subject	Activity
1	Week 1	• Providing mental health education • Stress • Behavioral therapy	• Write a journal about daily stress.
2	Week 2	• Self-formulation	• Write a journal about self-understanding
3	Week 3-4	• Cognitive restructuring	• Write a journal about cognitive restructuring

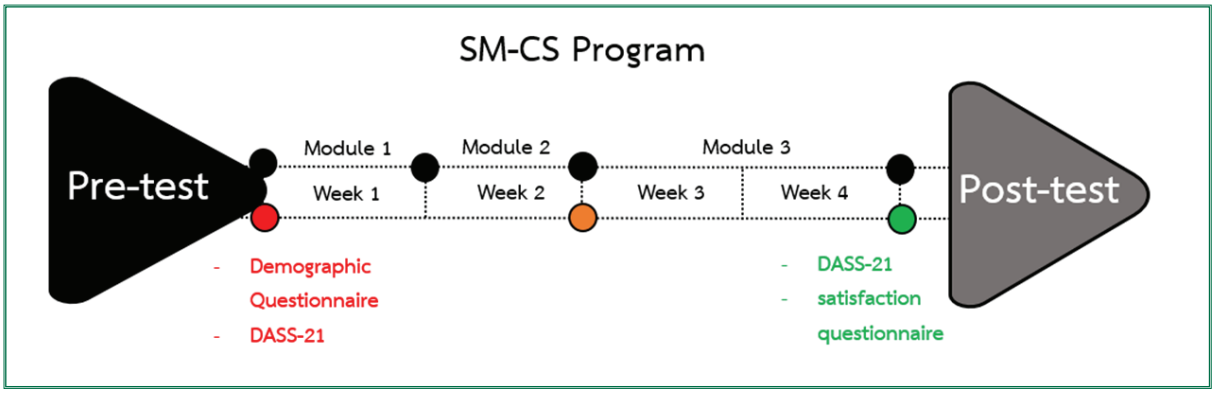


Figure 1: Shows details of data collection during SM-CS program execution.

Data analysis

Descriptive statistics including numbers, percentages, means and standard deviations were used to describe the characteristics of personal data, stress levels and satisfaction levels after participating in the program and to compare the mean stress scores before and after participating in the program using inferential statistics including Wilcoxon matched-pairs signed-rank test.

Results

From the sample group of 12 people, it was found that all were female (100.0%), most were between 21-30 years old (50.0 %), most had completed high school (58.3%), most were single (75.0%) and had insufficient daily income (75.0%). The nature of work was mostly shift-shifting (91.7%) and the proportion of shifts was between 11-20 and 21-30 equally (41.7%). The working characteristics of the sample group found that most had a working experience of less than 10 years (66.7%), followed by a working experience of between 21 and 30 years (6.7%).

Comparing results before and after joining the program, when considering the severity of stress levels, it was found that before participating in SM-CS, most of the sample had moderate stress levels (41.7%), followed by low levels (33.3%), the most severe levels (16.7%), and finally, severe levels (8.3%), with a median of 11 (interquartile range 8.75 to 12.5). Four weeks after the end of the program, 91.7% had normal levels, 8.3% had low levels, and no severe or very severe levels (0.0%), with a median of 3 (interquartile range 3.0 to 3.5). The mean stress level was significantly reduced at the 0.05 level (p-value = 0.0005), as shown in Table 2.

The satisfaction level of the sample group after participating in the SM-CS program found that most were highly satisfied with the trainers. 75.0% of the participants were satisfied with the trainers' preparation, 66.7% with the trainers' delivery, 66.7% with clear and to-the-point explanations, and 66.7% with appropriate and easy-to-understand language. Meanwhile, the program format was moderately satisfied with the appropriate training channels, 66.7% with satisfaction, and 66.7% with the program duration. Regarding the appropriateness of the media, 58.4% of the videos used were highly appropriate, while 66.7% of the training recordings were moderately appropriate. Most program content was highly satisfied, including stress content and mindset training content, with satisfaction scores of 66.7%. Regarding application, most participants were highly satisfied with the ability to apply the knowledge gained to benefit daily life, and were aware of and able to manage stress, with satisfaction scores of 58.4%.

Discussion

A study of the SM-CS program among 12 nursing assistants with elevated stress levels found that after 4 weeks of participation, 11 participants' stress levels decreased to normal levels, while one participant improved from extremely severe to mild stress. Overall, the median stress score before the program was 11 (IQR 8.75-12.5) and decreased to 3 (IQR 3.0-3.5) post-intervention. Therefore, the SM-CS program is effective in reducing stress in those at risk of stress, consistent with the WHO's e-psychosocial recommendations[3] and meta-analysis findings that support the effectiveness of social media–based interventions in reducing psychological stress[6], and research that uses YouTube to reduce stress levels as well.[17]

Table 2: Comparison of the median scores of the sample group before and after participating in the weekly program (n = 12).

Stress level (n = 12)	Before using the program	End of program	p-value
Median (IQR)	11 (8.75 to 12.5)	3 (3.0 to 3.5)	
Minimum – Maximum	8 - 18	0 - 8	0.0005*

* Wilcoxon signed-rank test, $p < 0.05$

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Factors contributing to the effectiveness of the e-psychosocial program, consistent with previous meta-analyses, include female gender, receiving researcher-led instruction rather than self-administered instruction, and the use of social integration. This study indicated that intervention programs exhibited superior effectiveness when a higher proportion of female participants (70%) than male participants in the study population. This is due to females being more likely to demonstrate social support and participate in online interaction-based activities. Furthermore, according to the tend-and-befriend theory, females emphasize collaboration and mutual support.[18-20] Receiving researcher-led instruction was found to be significantly more effective compared to having participants study and use the program entirely on their own. This is consistent with the SM-CS program using the open chat Line platform as a communication space between researchers and participants, with ongoing information exchange and sharing of program usage methods,[21,22] and with social integration through exchanges between researchers and participants. Social integration between participants enhances motivation, reduces premature program dropout rates, and develops a therapeutic relationship that promotes counseling effectiveness.[23]

Satisfaction assessment revealed that the SM-CS program, namely, facilitators, received high scores in preparation, clear explanation, and easy-to-understand language (as high as 66.7–75.0). When considered together with the effectiveness of the program, it is consistent with academic evidence that confirms that having a qualified facilitator actually enhances the effectiveness of e-psychosocial programs. Furthermore, the content on stress and cognitive change training were highly rated, indicating that the program design meets the needs of at-risk groups and can be applied to daily life and manage stress to a high degree. This is consistent with the quantitative results that found a significant reduction in mean stress.

From these two points, it can be concluded that the difference between the SM-CS program and other application programs is that users do not need to learn new applications or tools; they can adapt familiar and frequently used applications such as Line and YouTube to help manage stress. This reduces barriers to access due to unfamiliarity, installation issues, application instability, and complex usage. This is consistent with other studies that indicate that having support and continuous learning stimulation through two-way communication allows participants to follow the program to its completion and effectively apply the knowledge to their daily lives. This is different from some application platforms where users may have to start learning new applications and try to complete the program on their own.

One issue that should be improved in the program format is the training record which results in a moderate satisfaction assessment score. This may be due to its complexity or being user-unfriendly. It should be further modified to be appropriate for the context of the sample group.

Limitation

The single-group design limits causal inference. Stress reduction may reflect Hawthorne effects rather than intervention effects. The small sample constrains generalizability and statistical power.

Conclusion

This quasi-experimental study suggests that social media-based cognitive restructuring may reduce stress levels among nursing assistants with elevated stress. Significant reductions were observed from baseline to post-intervention (4 weeks) and maintained at follow-up. However, given the single-group design and small sample size (n = 12), findings should be interpreted cautiously. Randomized controlled trials with adequate sample size and control groups are needed to establish causal efficacy and inform stress-specific interventions for nursing populations.

Recommendations

Future research should include adequate sample size with control groups to control for Hawthorne effects, and conduct in-depth interviews with nursing assistants to design interventions addressing actual workplace stressors.

Conflict of Interest

The authors declare no **conflict of interest** related to this study.

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