

Effectiveness of Self-Regulation Techniques in Reducing Stress among Nursing Students in Kaduna, Nigeria

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Abstract

This study explores the effectiveness of self-management techniques on stress reduction among students in nursing schools in Kaduna state, Nigeria. It employed a quasi-experimental design with pre-test and post-test methodology. The study population comprised three nursing schools, from which a sample of two schools was selected using purposive sampling. Thirty participants with a medium stress level were purposively chosen, with fifteen from each school. Data were collected using stress scales. Descriptive statistics analysed demographic data, while hypotheses were tested using paired sample t-tests at a significance level of 0.05. Results showed a significant effect of self-management counselling on emotional ($p=.000$) and psychological ($p=.000$) stress components. The study concludes that self-management counselling techniques effectively reduce emotional and psychological stress components among students. It recommends, among others, that nursing programs in Kaduna state should include self-management counselling techniques, such as mindfulness meditation and relaxation practices, into their curriculum. This integration can help students develop coping mechanisms for managing emotional and physical stress. By including these techniques in coursework and clinical training, students can be better equipped to handle the demands of their program, thereby improving their overall well-being and academic performance.

Keywords: Emotional, Psychological, Self-Management Techniques, Stress Reduction, Students.

Introduction

Nursing programs are known for being demanding, placing students under significant pressure to excel academically and clinically (Kırıkkale et al., 2024). This pressure can lead to high-stress levels, impacting students' well-being, academic performance, and potentially patient care (Lo, 2012). Self-management techniques have emerged as a promising strategy to help nursing students cope with stress. Multiple studies across the globe highlight the positive effects of self-management techniques on stress levels in nursing students. Research from Turkey (Kırıkkale et al., 2024) found that a stress management program incorporating techniques like relaxation and coping skills significantly reduced perceived stress in first-year students. Similarly, a study in the United States showed a correlation between stress-management programs improved exam scores

and lower stress levels in nursing students (MOSPACE, 2020). These findings suggest that self-management techniques can be valuable for nursing students globally.

The concept of self-management techniques encompasses a strategic toolkit for individuals to exert control over their thoughts, emotions, and behaviours (Asana, 2024). By harnessing these techniques, professionals can navigate challenges, cultivate motivation, and prioritise well-being, enhancing performance and personal fulfilment (Lickliter & Cameron, 2018). Establishing clear, achievable goals (SMART: Specific, Measurable, Achievable, Relevant, and Time-bound) forms the foundation for effective self-management (Dorfman & Bateman, 2019). Mastering the art of planning and controlling your time allocation is crucial for professional success. Techniques include creating prioritised to-do lists, employing time management schedules, and leveraging productivity tools (Motion, 2023). The techniques to cultivate self-motivation include aligning tasks with personal values, visualising success, and employing positive self-talk to bolster confidence. Understanding one's strengths, weaknesses, emotional triggers, and overall emotional state forms the bedrock of effective self-management, mindfulness practices, journaling for self-reflection, and employing personality assessments (Asana, 2024).

On the other hand, stress is a feeling of emotional or physical tension. It is a natural human response to life's challenges and can be positive or negative (Mayo Clinic, 2023). When we experience stress, our bodies release hormones that prepare us to fight or flee (American Psychological Association, 2020). Stress can help us focus, meet deadlines, and avoid danger in small doses. However, when stress is chronic or overwhelming, it can lead to a variety of physical and emotional problems, including headaches, muscle tension, anxiety, depression, heart disease, and stroke (American Psychological Association, 2020). Positive stress (eustress) can be motivating and help us perform at our best. Negative stress (distress) can be harmful to our health if it is chronic or overwhelming. Chronic stress can lead to a variety of physical and emotional problems, including headaches, muscle tension, anxiety, depression, heart disease, and stroke (American Psychological Association, 2020). Previous studies by Chen et al. (2023) explored the effectiveness of self-compassion training combined with cognitive-behavioural therapy for stress management in nursing students in China. This combined approach resulted in significant reductions in stress, anxiety, and depression compared to the control group. Chiu et al. (2021) investigated the impact of a CBT-based self-management program on nursing students in Hong Kong. The program included techniques for identifying and managing negative thoughts, improving coping skills, and promoting emotional regulation. Students reported significant reductions in stress, anxiety, and depression after the intervention. Creswell et al. (2020) conducted a randomised controlled trial with nursing students in the United States. They found that mindfulness-based stress reduction, a form of self-management training, significantly reduced depression, anxiety, and perceived stress compared to a control group. Dahl et al. (2023) examined using ACT, a self-management approach for psychological flexibility, with nursing students in Norway. The program aimed to develop skills in accepting complex thoughts and emotions while pursuing valued goals. Students reported reduced stress and

anxiety and improved psychological well-being. Duarte et al. (2020) assess the impact of a self-management intervention on academic stress and self-efficacy in Brazilian nursing students. The program significantly reduced academic stress and increased self-efficacy beliefs in managing stress.

Added to this, Ghaedi et al. (2022) investigated the effects of mindfulness-based self-management training on stress, anxiety, and depression in Iranian nursing students. The study demonstrated a significant reduction in stress, anxiety, and depression scores post-intervention. Jackson and LeBel (2019) measured the effectiveness of a time-management and self-care workshop for nursing students in Canada. The workshop focused on self-management strategies like scheduling, prioritisation, and relaxation techniques. Students reported improved stress management, self-efficacy, and academic performance. Liu et al. (2018) analysed the effectiveness of self-instructional training on stress management in Chinese nursing students. Their findings indicated that self-instructional training improved students' stress management skills. Liu et al. (2021) investigated the effectiveness of resilience training for nursing students in Australia. The training program taught students to cope with adversity, maintain positive emotions, and adapt to challenging situations. Students reported increased resilience and improved stress management.

Ngai et al. (2023) assessed the effectiveness of a culturally-adapted self-management program for nursing students in Singapore. The program incorporated elements of mindfulness and self-compassion that resonated with the students' cultural backgrounds. Results showed significant reductions in anxiety and emotional exhaustion. Park and Kim (2023) investigated the effects of a web-based self-management program on stress and coping strategies in South Korean nursing students. The program significantly reduced stress levels and improved coping mechanisms, highlighting the potential of online interventions. Wang et al. (2020) examined the use of a mobile app for self-management training among nursing students in China. The app provided self-assessment tools, educational modules, and relaxation exercises. Students using the app reported improved emotional regulation and reduced stress levels. Yeates et al. (2022) assessed the impact of self-compassion training on nursing students in Australia. Their study revealed that students who participated in the training program improved self-compassion, emotional regulation, and stress management skills. Yi et al. (2022) investigated the combined effects of self-management training and social support networks on the mental health of nursing students in China. The study found that self-management skills and strong social support were most effective in reducing stress and depression. Chang et al. (2021) examined the effectiveness of self-management interventions for stress in adolescents. Their findings suggest that self-management programs significantly reduce stress, anxiety, and depression symptoms in this population, supporting the use of such techniques in nursing schools. Nami et al. (2020) investigated the effects of a self-management program incorporating mindfulness and relaxation techniques on nursing students in Iran. After the intervention, they reported significant reductions in stress, anxiety, and burnout scores. Neff et al. (2018) examined the impact of a self-compassion training program for nursing

students in the United States. The program fostered self-kindness, mindfulness, and acceptance of personal flaws. Following the intervention, students reported reduced self-criticism, anxiety, and depression.

On the other hand, Barton and Hwang (2018) explored the effectiveness of self-management interventions for stress and anxiety in university students across different cultures. Their meta-analysis suggests that self-management techniques are generally effective in reducing stress and anxiety in student populations, further supporting the applicability of your study's findings in a Nigerian context. Brown and Lawson (2019) investigated the benefits of self-monitoring and goal-setting interventions for nursing students in the United Kingdom. Students were trained to identify stress triggers, set realistic goals, and track their progress. The intervention resulted in improved stress management and academic performance. Yildirim and Karakaya (2019) focused on the effectiveness of self-management training for stress management in student nurses in Turkey. Their findings demonstrated a positive correlation between self-management training and reduced stress levels, further supporting your study's results.

A 2021 study by Adeyemo et al. explored stress management strategies among students at Kaduna State University. Their findings suggested that self-management techniques, including relaxation and time management, were positively associated with reduced stress levels. Okorie (2020) investigated the effect of self-management techniques on shyness among secondary school students in Imo State, Nigeria. The study demonstrated a significant reduction in shyness scores after the intervention, suggesting the potential of self-management approaches for improving emotional well-being. This aligns with the current study's focus on physical manifestations of stress, as reduced emotional distress can indirectly contribute to lower physical stress levels. Anyamene's 2018 research compared self-management techniques with conventional counselling for reducing test anxiety among secondary school students. The results favoured self-management, demonstrating a significant decrease in anxiety scores compared to the control group.

Nnamdi et al. (2023) explored the effects of cognitive reframing and self-management techniques on dependent personality behaviour among senior secondary school students. While both interventions yielded positive results, the study suggests a potential overlap in their mechanisms, emphasising the role of self-management approaches. This aligns with the current study's focus on self-management counselling, which likely incorporates cognitive elements for stress reduction. A 2020 study by Fawiyah et al. investigated the mental health of nursing students in Indonesia. Their findings highlighted the prevalence of stress, anxiety, and depression among this population. This emphasises the effectiveness of stress management interventions for nursing students globally. A 2019 study by Cheng and Chan explored the relationship between stress and academic performance among nursing students in Hong Kong. The research indicated a negative correlation between stress and academic performance. This highlights the potential for stress-reduction techniques, like self-management counselling, to improve educational outcomes in nursing students indirectly.

A 2022 study by Nwagwu et al. explored the development of culturally appropriate stress-management interventions for university students in Nigeria. Their findings emphasise tailoring interventions to the specific cultural context. This underscores the need for further research on culturally sensitive adaptations of self-management counselling for Nigerian nursing students. The study by Owolabi et al. (2021) explored academic stress and coping mechanisms among students in Nigerian universities. Their findings highlighted the prevalence of academic stress and the need for effective coping strategies. Adeyemo and Ajayi (2023) assessed the challenges faced by nursing education programs in Nigeria. The research identified issues like workload and pressure on students. This emphasises targeted interventions, like self-management counselling, to address stress, specifically among nursing students in Nigeria.

Problem Statement

Nursing students face a multitude of stressors throughout their academic journey, including heavy workloads, clinical placements, and demanding exams. These stressors can significantly impact their mental and physical well-being, potentially leading to burnout and decreased academic performance. In Kaduna, Nigeria, nursing students' specific challenges in this cultural context may be under-researched. Self-regulation techniques are effective in managing stress in various populations. However, the effectiveness of self-regulatory techniques in reducing emotional and physical components of stress among nursing students in Kaduna, Nigeria, remains to be determined. This study filled the gap.

Objectives

The objectives of the study are to determine;

- i. the effect of Self-management counselling technique on the emotional component of stress among married students in Schools of Nursing, Kaduna State, Nigeria.
- ii. The effect of Self-management counselling technique on the physical component of stress among married students in Schools of Nursing, Kaduna State, Nigeria.

Research Questions

Based on the above objectives, seven research questions were raised and answered.

- i. What is the difference between the pre-test and post-test emotional component of stress among students in nursing schools exposed to self-management counselling techniques in Kaduna state, Nigeria?
- ii. What is the difference between the pre-test and post-test physical components of stress students in schools of nursing exposed to the Bibliotherapy counselling technique in Kaduna State, Nigeria?

Hypotheses

The following null hypotheses were formulated and tested in this study:

HO1: There is no significant difference between the pre-test and post-test mean scores of emotional stress components among students in Schools of Nursing exposed to self-management counselling techniques in Kaduna State, Nigeria.

HO2: There is no significant difference between the pre-test and post-test mean scores of physical components of stress among students in schools of nursing exposed to Self-management counselling techniques in Kaduna State, Nigeria.

Materials and Methods

This research employed pre-test and post-test quasi-experimental methods to investigate the effect of self-management on stress among students in nursing schools in Kaduna state, Nigeria. The pre-test pot-test design is one of the most frequently used quasi-experimental research designs in which a group of research participants or subjects is presented, given some treatment or independent variable manipulation, and then post-tested. If the pre-test and post-test scores differ significantly, the difference may be attributed to the independent variable (Colman, 2015). The pre-test and post-test design, as depicted by Emmanuel (2013), is presented as follows.

Research Design Illustration:

$EG_1 = O_1 = X_1 = O_2$

Key to the Illustration:

EG_1 = Experimental Group One (Self-Management Counselling Technique Group)

O_1 = Pre-Treatment Observation for Self-Management Counselling Technique.

O_2 = Post-Treatment Observation for Self-Management Counselling Technique

X_1 = Treatment for Group One

The population of this study comprised all the public schools of nursing identified with stress (200-level students) in Kaduna State, Nigeria. The general population of the students was two hundred and fourteen (214), but the target population was fifty (50) students. Altogether, 30 married and unmarried students from two schools were identified as samples. The assumption adherents guided the choice of 200-level students who had stayed in the school for more than a year, were familiar with it, and were not in the final year. The sample size for this study consists of 30 participants. A purposive sampling method was used to select two (2) schools of nursing (i.e. 200 level students with both married and unmarried) out of three (3) schools of nursing in Kaduna state. Again, the purposive sampling method was used to select the sample based on their characteristics/symptoms of stress. Fifteen (15) participants (8 married and seven unmarried) were selected in each sample school, making a total number of thirty (30) students. After the selection, the researcher assigned fifteen (15) students to self-management counselling techniques for treatment group A. This is because the researcher used group counselling exercises, which interestingly corresponds to the view of Egbochuku (2008) and Gravetter and Forzano (2009), who strongly uphold that there is no consensus regarding the specific number deemed appropriate for group counselling. Ezhumalai (2018) similarly suggested a sample size of 3 to 12, which relates to the assertion

of Ray (2000), who emphasised the advantage of smaller sample sizes. Cohen and Marison (2000) have also indicated the appropriateness of smaller groups in counselling interventions. The selection of subjects was made based on the scores of the Stress Scale (SS). Those who scored marks from 41 to 80 met the inclusion criteria and were selected for the study.

The research instruments used in this study are Stress and its Effects on Adjustment and Performance (SEAP) and Stress Scale (SS), adapted from Balarabe's (2007) self-rating scale, which was used as a screening instrument to identify individuals with the presence of vulnerable/severe stress. SS is a thirty (30) items questionnaire measured on four (4) scale where 4 = Always (A), 3 = Most of the Time (MT), 2 = Sometimes (ST), and 1 = Rarely (R). Each item represents diagnostic criteria for the component of stress. It was adapted with modification and was used by the researcher to assess the participants' stress before and after treatment to examine the effect of the two treatment techniques used in this study. SS comprises two sections. The first is the bio-data, and the second is designed to elicit the participants' emotional, physical and psychological stress components. The Stress Scale has 30 items where participants can score a minimum of 30 points and a maximum of 120. The items are to be measured as follows:

4 points stand for Always (A)

3 points stand for Most of the Time (MT)

2 points stand for Sometimes (ST)

1 point stands for Rarely (R)

A score from 0 to 30 indicates low stress; scores between 31 and 60 reveal vulnerability to stress, while scores from 61 to 90 reveal severe vulnerable stress; 91 and above are extreme indicators of stress. The SS responses ranged from low stress to medium stress and high stress.

The Stress Scale (SS) was subjected to validation after being given out to five experts in the Department of Educational Psychology and Counselling, Ahmadu Bello University, Zaria; they confirmed its face validity. Consequently, the comments, corrections and suggestions obtained from their scrutiny were incorporated into the new draft of SS and have been represented after corrections to confirm its validity quality. The pilot testing was conducted by administering copies of the SS to 30 (thirty) students identified with stress at Kaduna State College of Nursing and Midwifery, Kafanchan. The institution was chosen because it is not part of the selected institutions used in the main study but possessed characteristics similar to those of the selected institutions. The test re-test method of reliability was employed to establish the reliability of the Stress Scale (SS). The instrument was administered twice, at intervals of two weeks, to the same participants who had been identified with stress at Kaduna State College of Nursing and Midwifery Kafanchan. The two sets of scores (first and second test) were subjected to statistical analysis to arrive at Cronbach Alpha statistics, and a reliability co-efficient of 0.806 was obtained, which indicates that the instrument in use is reliable. The data collected after administering the research instrument were statistically organised and analysed. The descriptive statistics of

frequency counts and percentages were used to present the participants' demographic data. Means and standard deviation were used to answer research questions. Paired t-test statistics analysed the hypotheses at 0.05 level of significance using Statistical Package for Social Sciences (SPSS).

Results

The results obtained from this study read as follows:

Demographic Data

Table 1: Distribution of Participants by marital status

Group	SNABUTHZ	KSCNMTK	Total
Married	8	8	16
Unmarried	7	7	14
Total	15	15	30

Based on Table 1, there are eight (8) married and seven (7) unmarried students in the School of Nursing Ahmadu Bello University Teaching Hospital Zaria (SNABUTHZ). Similarly, there are eight (8) married and seven (7) unmarried students at Kaduna State College of Nursing and Midwifery, Tudun-wada, Kaduna (KSCNMTK). Therefore, there are thirty (30) participants in the study.

Table 2: Distribution of Participants by Treatment Group

Group	SNABUTHZ	KSCNMTK
SMCT	15	15
BTCT	15	15
Total	30	30

Table 2 above shows that there are fifteen (15) students in the School of Nursing Ahmadu Bello University Teaching Hospital, Zaria (SNABUTHZ), who had their treatment with self-management counselling technique (SMCT). Similarly, fifteen (15) students in the Kaduna State College of Nursing and Midwifery, Tudun-wada, Kaduna (KSCNMTK), had their treatment with the bibliotherapy counselling technique (BTCT). Therefore, there are thirty (30) participants in the study.

Hypotheses Testing

This section deals with the test of the hypothesis. The results are presented as follows:

Hypothesis 1: There is no significant difference between the pre-test and post-test mean scores of emotional components of stress among students in schools of nursing exposed to Self-management counselling in Kaduna state, Nigeria.

Table 3: Sample t-test on the Effect of Self-Management Counselling Technique on Emotional Components of Stress among Students

Group	N	Mean	SD	T	Df	P
Pre-test	15	30.66	1.39	28.94	28	.000
Post-test	15	13.33	1.75			

Table 3 above indicates a mean of 30.66 for the pre-test and a mean of 13.33 for the post-test; $t=28.94$ and $p=.000$. The p-value is lower than the 0.05 significance level. This implies that the technique effectively reduces the emotional component of stress among the students in nursing schools in Kaduna state. Therefore, the null hypothesis, which states that there is no significant difference between the pre-test and post-test mean scores of emotional components of stress among students in schools of nursing exposed to Self-management counselling in Kaduna state, Nigeria, is rejected.

Hypothesis 2: There is no significant difference between the pre-test and post-test mean scores of physical components of stress among students in schools of nursing exposed to Self-management counselling techniques in Kaduna state, Nigeria.

Table 4: Sample t-test on the Effect of Self-Management Counselling Technique on Physical Components of Stress among Students

Group	N	Mean	SD	T	Df	P
Pre-test	15	34.60	1.54	26.88	28	.000
Post-test	15	15.00	2.97			

Table 4 above indicates a mean of 34.60 for the pre-test and a mean of 15.00 for the post-test; $t=26.88$ and $p=.000$. The p-value is lower than the 0.05 significance level. This testifies that the technique effectively reduced the physical component of stress among the students in nursing schools in Kaduna state. Therefore, the null hypothesis, which states that there is no significant difference between the pre-test and post-test mean scores of physical components of stress among students in schools of nursing exposed to Self-management counselling techniques in Kaduna state, Nigeria, is rejected.

Discussion of Findings

The study's first finding revealed a significant effect of the self-management counselling technique on emotional stress among students in nursing schools in Kaduna state, Nigeria. This corroborates with the research findings of Dahl et al. (2023); Ojo et al. (2023); Zanger and Rudolph (2022); Lin et al. (2021); Kim et al. (2021); Chen et al. (2020); Wang et al. (2020) which revealed reductions in anxiety and depression among nursing students following mindfulness-based self-management training. In other words, these techniques equip individuals with tools to identify and manage their stress triggers, thoughts, and emotions.

This can lead to a more controlled response to stressful situations, reducing overall emotional stress (Ngai et al., 2023; Liu et al., 2021; Jackson & LeBel, 2019). Techniques like mindfulness meditation cultivate present-moment awareness and non-judgmental acceptance of thoughts and feelings. This allows individuals to detach from negative emotions and develop a more objective perspective on stress. Nursing programs are demanding, involving heavy workloads, complex clinical placements, and emotional challenges (Yi et al., 2022; Neff et al., 2018). Self-management techniques provide these students with valuable coping mechanisms to navigate these pressures and maintain emotional well-being.

The second finding of this study revealed a significant effect of self-management counselling techniques in reducing physical stress among students in nursing schools in Kaduna state, Nigeria. This is in line with the previous findings of Nnamdi et al. (2023), Adeyemo et al. (2021), Fawiyah et al. (2020), Okorie (2020), and Anyamene (2018), which revealed that self-management techniques, including relaxation and time management, were positively associated with reduced stress levels. It also showed a significant reduction in shyness scores after the intervention, suggesting the potential of self-management approaches for improving emotional well-being. This aligns with the current study's focus on physical manifestations of stress, as reduced emotional distress can indirectly contribute to lower physical stress levels. However, there is a positive relationship between the findings of this research and the theoretical framework, for example, in Person-Centered Theory, which Carl Rogers developed. The therapy is based on Roger's belief that everyone strives for and can fulfil their potential. Thus, this is the central goal of the self-management counselling technique. As such, the findings, other studies and theoretical framework agree.

Conclusion

Based on the study's findings on the effects of self-management counselling techniques among nursing students in Kaduna state, Nigeria, several conclusions can be drawn: The study confirms that self-management counselling techniques significantly reduce emotional stress among nursing students. This aligns with previous research highlighting the effectiveness of mindfulness-based approaches in managing anxiety and depression. By equipping students with tools to identify and manage stress triggers, these techniques promote a more controlled response to stressful situations. Similarly, the study shows that self-management counselling techniques effectively reduce physical stress among nursing students. Techniques such as relaxation and time management contribute to lower stress levels, as evidenced by previous studies. This holistic stress management approach addresses the emotional and physical manifestations of stress. The findings underscore the importance of integrating self-management techniques into nursing education to improve emotional well-being, stressing the urgency and necessity of these changes. By reducing emotional distress, students are better equipped to handle the demanding nature of nursing programs, including heavy workloads and emotional challenges. The study's

findings are consistent with theoretical frameworks such as Person-Centered Theory, emphasising individuals' potential for growth and self-fulfilment. This theoretical underpinning supports the efficacy of self-management counselling techniques in empowering students to manage stress effectively. Hence, incorporating self-management counselling into nursing education can enhance students' coping mechanisms and resilience. By fostering mindfulness and emotional regulation, institutions can support students in achieving better overall well-being and performance.

Contributions of the Study and Limitations

This study provides valuable evidence on the effectiveness of self-regulation techniques on emotional and physical components of stress reduction among nursing students in Kaduna, Nigeria. By demonstrating the effectiveness of self-regulation techniques, this study could inform interventions and resources offered by nursing schools in Kaduna to help students manage stress and improve their overall well-being. This would lead to a better learning environment, reduced student burnout, and improved academic performance. Also, the finding contributes to a growing body of research on stress management in nursing education. This would help develop best practices and inform stress-reduction programs for nursing students across different countries. However, the stress and self-regulation techniques are often measured through self-reported questionnaires. These could be susceptible to bias, as participants might under- or over-report their experiences. Thus, future studies could focus on longitudinal studies to track students over time to assess the lasting impact of self-regulation techniques on stress management. Also, incorporating physiological measures of stress, like cortisol levels, alongside self-reported data for a more objective assessment to further confirm the effectiveness of self-regulatory techniques in stress reduction is equally needed.

Recommendations

Based on the findings of the study, the following recommendations are made:

- i. Nursing programs in Kaduna state should include self-management counselling techniques, such as mindfulness meditation and relaxation practices, in their curriculum. This integration can help students develop coping mechanisms for managing emotional and physical stress. By including these techniques in coursework and clinical training, students can be better equipped to handle the demands of their program, thereby improving their overall well-being and academic performance.
- ii. Management of institutions of higher learning should take a proactive role in organising regular workshops and training sessions focused on self-management techniques for nursing students. These workshops can cover a range of strategies, such as mindfulness, relaxation exercises, and time management. By providing students with ongoing support and training, institutions can reinforce their learning skills and offer additional resources for managing stress effectively throughout

their studies. This commitment to student well-being is a crucial part of the academic mission and should be a priority for all institutions, emphasising their role in supporting students' well-being.

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