

Effectiveness of a mindful eating intervention on eating habits of gen-z college students

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Abstract

Background. Generation Z students are vulnerable to academic stress, body dissatisfaction, and maladaptive eating behaviors such as emotional eating. Mindful eating is considered a promising intervention to improve eating patterns through greater self-awareness. **Objective.** This study aimed to evaluate the effectiveness of psychoeducational mindful eating on eating behaviors among Gen-Z college students. **Methods.** A quasi-experimental design was conducted in intervention and control groups. Of 74 recruited participants, 69 students (34 control; 35 intervention) were included in the final analysis. The two-week intervention combined nutrition education, mindful eating practice, and stress management. Eating behavior was assessed using the Eating Attitudes Test (EAT) and analyzed with independent t-tests. **Results.** Most participants were female (91.18%) and aged 20–22 years. In the intervention group, 97.14% reported normal eating behavior, while 14.71% of the control group still demonstrated abnormal eating patterns. Independent t-test results indicated no statistically significant difference between groups ($p = 0.2792$), though the intervention group had a lower mean score ($M = 6.74$) compared to the control group ($M = 7.94$), reflecting a positive trend toward healthier eating behaviors. **Conclusion.** Although the psychoeducational mindful eating program did not yield statistically significant improvements, it showed a favorable direction in reducing abnormal eating behaviors. Further research with stronger methodology, extended duration, and structured home practice is recommended to enhance effectiveness.

Keywords: mindful eating; psychoeducation; eating behavior; college students; Gen-Z

1. Introduction

Generation Z (Gen-Z) has grown up in an era of rapid technological and digital information advancement (Talmon, 2019). Easy access to social media, communication technology, and information has shaped their lifestyle, including eating patterns, body image perception, and stress levels. Approximately 48% of college students experience mild stress (Ramadhan, 2017), while 68% report moderate levels of academic stress (Karos et al., 2021). Gen-Z students often face pressure from multiple sources, such as academic demands, beauty standards portrayed on social media, and a fast-paced lifestyle with little attention to food quality (Dane & Bhatia, 2023). Academic stress has also been found to be positively correlated with smartphone dependency (Anggrezola, 2021).

These pressures contribute to body dissatisfaction and negative body perception among students. Research indicates that 56% of college students experience body dissatisfaction (Serly et al., 2015), largely influenced by unrealistic beauty standards frequently presented on social media (Aparicio-Martinez et al., 2019). Consequently, stress levels increase, and many students adopt unhealthy eating habits as a coping mechanism (Kim & Kim, 2022). Nearly half of students (49%) are classified as food addicts (Dewi, 2015), and 54% engage in emotional eating, either undereating or overeating (Wijayanti et al., 2019). These behaviors are linked to mindless eating, which occurs when individuals eat without full awareness—such as while using electronic devices or under time pressure—resulting in neglect of bodily cues like hunger and satiety. Such practices contribute to the development of unhealthy eating patterns (Watson, 2023).

The long-term consequences of unhealthy eating habits combined with high stress levels include an increased risk of degenerative diseases such as obesity, coronary heart disease, hypertension, diabetes

mellitus, stroke, and even mental health disorders (Choi, 2020). Although nutritional information is widely available, many students still lack a comprehensive understanding of the importance of nutrition education in the context of both physical and mental well-being (Pushpa et al., 2024). Integrating nutrition education with psychological approaches, such as mindful eating, has not yet been widely implemented. To address unhealthy eating behaviors and foster a more positive body image, mindful eating is considered a promising intervention (Eaton et al., 2024).

Mindful eating emphasizes awareness during eating by paying attention to taste, texture, smell, and the overall process of consuming food without distractions. This technique also encourages individuals to recognize bodily cues such as hunger and satiety, thereby promoting more balanced and need-based eating patterns (Nelson, 2017). This study aims to explore how nutrition psychoeducation integrated with mindful eating can improve eating behaviors, reduce stress related to eating, and enhance body image perception among Gen-Z college students.

2. Method

This study employed a quasi-experimental design conducted in two groups: an intervention group that received nutrition psychoeducation through mindful eating dan stress management, and a control group that only receive stress management intervention. The research was conducted over several months in order to examine the effects of the intervention on eating behavior among Gen-Z college students. A total of 69 participants were recruited using purposive sampling from Universitas ‘Aisyiyah Yogyakarta. Inclusion criteria required participants to be between 18 and 24 years old, to have completed at least their second year of study, and to be willing to participate in the entire intervention program. The participants were then equally divided into intervention (35 participants) and control groups (34 participants).

The research was carried out in several stages. First, baseline data were collected from both groups regarding eating behavior and the instruments used in the study were validated. Following this, intervention materials were developed in the form of a module that combined balanced nutrition education, mindful eating practices, and stress management strategies. The intervention itself was implemented over a two-week period, with the intervention group attending weekly sessions of 30–45 minutes, while the control group did not receive any treatment. Each session in the intervention group consisted of three main components: nutrition education, which provided knowledge on balanced dietary intake and its impact on physical and mental health; mindful eating practice, which trained participants to eat slowly and attentively while recognizing hunger and satiety cues; and stress management, which introduced relaxation techniques that could be applied in daily life.

After the two-week program, post-test data were collected from both groups to assess changes in eating behavior. Eating behavior was measured using the *Eating Attitudes Test (EAT)*. The collected data were analyzed using quantitative approaches. Descriptive statistics were applied to describe the demographic profile of participants and the distribution of pre-test and post-test scores. To test the effectiveness of the intervention, independent *t-tests* were used to compare outcomes between the intervention and control groups.

3. Results and Discussion

3.1. Respondent Characteristics

A total of 74 respondents, all belonging to Generation Z university students, participated in this study and were allocated into intervention and control groups, with 37 respondents in each group. However, six participants did not complete the post-test data and were therefore excluded from the final analysis. Consequently, the study included 69 respondents, comprising 34 in the control group and 35 in the intervention group, with comparable baseline characteristics between groups.

Table 1. Respondent Characteristics by Intervention and Control Groups

Variabel	Intervention (n)	(%)	Control (n)	(%)
Gender				
Male	3	8,82	3	8,82
Female	32	91,18	31	91,18
Total	35	100	34	100

Variabel	Intervention (n)	(%)	Control (n)	(%)
Semester				
2	2	5,88	2	5,88
4	1	2,94	4	11,76
6	8	23,53	6	17,65
8	24	67,65	22	64,71
Total	35	100	34	100
Age				
19	3	8,57	3	8,82
20	5	14,29	3	8,82
21	11	31,43	12	35,29
22	13	37,14	14	41,18
23	2	5,71	2	5,88
24	1	2,86	0	0,0
Total	35	100	34	100

The distribution of respondent characteristics in this study indicates that the majority of participants in both the intervention and control groups were female (91.18%). This proportion was relatively consistent across groups, suggesting that gender did not introduce significant differences in baseline characteristics. These findings are consistent with prior research showing that women are more frequently represented in studies on mindful eating and stress management interventions, as they tend to be more receptive to psychosocial programs and more likely to report eating-related difficulties compared to men (Moreira et al., 2024; Morillo-Sarto et al., 2023).

With respect to academic level, most respondents were in advanced semesters (6th and 8th), comprising 91.18% in the intervention group and 82.36% in the control group. Final-year students are generally exposed to greater academic and psychosocial demands, including the completion of final projects or theses, field practice, and the transition to professional careers (Handara & Irafahmi, 2022). Such pressures are closely associated with heightened stress levels, which may trigger maladaptive coping strategies such as emotional eating (Konttinen, 2020). Therefore, providing psychoeducational interventions that integrate mindful eating with stress management may yield greater benefits than stress management education alone, as mindful eating specifically targets bodily awareness and emotional regulation in eating contexts (Dogan & Tengilimoglu-Metin, 2023).

Regarding age, the majority of respondents were between 20 and 22 years old (approximately 70% of the total sample). This age range corresponds to early adulthood, a developmental phase characterized by heightened vulnerability to academic, social, and emotional pressures. Previous studies have reported that university students aged 18–24 years demonstrate the highest prevalence of emotional eating behaviors and mild-to-moderate risk of eating disorders (de Carvalho et al., 2023). These findings strengthen the rationale for implementing mindful eating and stress management interventions within this population, as such approaches not only provide stress regulation strategies but also cultivate self-awareness skills to manage maladaptive eating impulses (Peitz et al., 2021).

3.2. Eating Behavior Distribution

Table 2. Distribution of eating behavior by intervention and control groups

Variable	Intervention (n)	(%)	Control (n)	(%)
Eating Behavior				
Abnormal	1	2,86	5	14,71
Normal	34	97,14	29	85,29
Total	35	100	34	100

The findings revealed that 97.14% of respondents in the intervention group demonstrated normal eating behavior, while only 2.86% reported abnormal eating behavior. In contrast, the control group showed a higher prevalence of abnormal eating behavior, with five respondents (14.71%) categorized as abnormal and 29 respondents (85.29%) as normal. These results suggest that the psychoeducational mindful eating intervention contributed to a reduction in abnormal eating behaviors compared with the control group, which did not receive the intervention.

Eating behavior in this study was assessed using the Eating Attitudes Test (EAT), a validated instrument widely applied to identify tendencies toward disordered eating (Janahi et al., 2024). The questionnaire items assess key characteristics of disordered eating, including self-induced vomiting, avoidance of meals despite hunger, skipping breakfast, and feelings of guilt after eating. Such abnormal eating patterns are often linked to psychological stress and other underlying factors. Consequently, a psychoeducational intervention focusing on stress management alongside mindful eating practice was employed to promote healthier eating behaviors.

The application of the EAT instrument was relevant in this context, as it enabled the detection of maladaptive eating patterns associated with eating disorder risk. Mindful eating, when integrated with stress management strategies, is expected to improve self-regulation, reduce rigid dietary restraint, and lower susceptibility to emotional eating, thereby decreasing EAT scores. Similar evidence has been reported in previous research, where mindful eating interventions successfully reduced emotional eating behaviors among individuals with overweight (Morillo-Sarto et al., 2023). Moreover, a recent meta-analysis provided further support for the effectiveness of mindful eating in reducing maladaptive eating behaviors across diverse populations (Smith et al., 2023).

Taken together, these results reinforce the potential of psychoeducational mindful eating interventions as a promising approach for reducing the risk of abnormal eating patterns. Nevertheless, while EAT is appropriate for capturing disordered eating tendencies, future studies may benefit from incorporating complementary instruments such as the Mindful Eating Questionnaire (MEQ) (Peitz et al., 2021) or the Dutch Eating Behavior Questionnaire (DEBQ) (de Carvalho et al., 2022) to provide a more comprehensive assessment of eating behavior outcomes.

3.3. Analysis of the Effectiveness of Psychoeducational Mindful Eating Interventions on Eating Behavior

Table 3. Analysis of the effectiveness of psychoeducational mindful eating interventions on eating behavior

Group	N	Mean	SD	t-statistic	df	Sign. (2-tailed)
Intervention	35	6,74	9,905	0,5868	67	0,2797
Control	34	7,94	6,818			

Table 3 presents the comparison of eating behavior scores between the intervention and control groups. The independent t-test yielded a p-value of 0.2792 ($p > 0.05$), indicating no statistically significant difference in the mean scores. This suggests that, within the study period, the psychoeducational mindful eating program did not produce a measurable effect strong enough to reach statistical significance. Nevertheless, the intervention group exhibited a lower mean score ($M = 6.74$, $SD = 9.91$) compared to the control group ($M = 7.94$, $SD = 6.82$). Since lower scores reflect more favorable eating behaviors, this trend may signal a positive though modest influence of the intervention. These findings highlight the complexity of modifying eating behaviors and suggest that the intervention, as delivered, may not have been sufficient in duration or intensity to elicit significant changes. Prior research employing randomized controlled trials has demonstrated that mindful eating, especially when integrated with psychoeducation, can reduce maladaptive eating patterns in the short term, with greater effectiveness observed when stress management techniques and structured home practice are incorporated (Moreira et al., 2024). Neuropsychological studies further support the role of mindfulness-based stress management in regulating stress-related eating responses, both behaviorally and neurologically (Torske et al., 2024). Similarly, recent reviews emphasize that interventions combining mindful eating with stress regulation strategies can improve specific aspects of eating behavior, particularly emotional eating (Kao et al., 2025).

4. Conclusion

The present study found no statistically significant difference in mean eating behavior scores between the intervention and control groups ($p = 0.2792$). Although the psychoeducation-based mindful eating intervention did not produce a significant effect, the intervention group demonstrated a lower mean score compared to the control group, suggesting a potential trend toward improved eating behaviors. These findings align with previous randomized controlled trials indicating that mindful

eating interventions, particularly when combined with psychoeducation, stress management, and structured home practice, may reduce maladaptive eating patterns in the short term. Neuropsychological evidence further supports the role of mindfulness in modulating stress-related eating behaviors and their neural correlates, while recent reviews highlight the positive impact of mindful eating combined with stress management on emotional eating. Taken together, these results underscore the need for further large-scale and methodologically rigorous studies to evaluate the long-term effectiveness of integrated psychoeducation and mindful eating interventions in improving eating behaviors.

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