

Experimental Research

Effects of online-guided group self-help program on female nursing students' attempts to cope with their emotional eating and uncontrolled eating behaviors: A quasi-experimental study

 **Gülsüm Zekiye Tuncer**,  **Zekiye Çetinkaya Duman**

Department of Psychiatric Nursing, Dokuz Eylül University Faculty of Nursing, İzmir, Türkiye

Abstract

Objectives: Short-term internet-based and online group cognitive behavioral therapy practices affect young people's and women's attempts to cope with their emotional eating (EE) and uncontrolled eating (UE) behaviors in the long term. The aim of this study was to determine the effect of an online-guided self-help group program (GSH) on healthy female nursing students' EE and UE behaviors.

Methods: This quasi-experimental study without a control group which has the pre-test, post-test, and 6-month follow-up design was carried out with 24 3rd- and 4th-year young female nursing students studying at a Faculty of Nursing between March 2021 and June 2021. The data were collected using three-factor eating questionnaire (TFEQ) and an emotional eater questionnaire (EEQ). The online group GSH consists of six online group sessions.

Results: In the study, the mean scores the students obtained from the data collection tools in terms of such variables as thinking that they eat fast, weighing status, feeling negative about their weight, and being satisfied with their body image changed for the better significantly right after the online group GSH ($p < 0.05$). The mean scores the students obtained from sub-dimensions of the TFEQ ($\chi^2 = 15.205$, $p < 0.001$; $\chi^2 = 31.224$, $p < 0.001$) and from the EEQ ($\chi^2 = 21.622$, $p < 0.001$) decreased right after and 6 months after the online group GSH.

Conclusion: In this study, the online group GSH conducted with female nursing students affected their coping with EE and UE behaviors positively. This suggests that self-help interventions can be implemented to improve the eating behaviors of female.

Keywords: Emotional eating; female nursing students; guided self-help program; uncontrolled eating.

Eating behavior is an important requirement to ensure the survival of individuals. Eating behavior is a complex process in which not only psychological factors but also physiological factors play an important role.^[1,2] According to the results of several studies, many factors such as environment, body image, and mood affect individuals' eating behaviors.^[3] Eating behavior problems, which are affected by many

factors and have intrinsic, environmental, and social effects, are defined as overeating, undereating, and compensatory behaviors in general.^[4,5] Emotional eating (EE), resulting from an emotional stimulus within the scope of overeating behavior, constitutes an important dimension of ineffective coping and may cause the individual to be over-nourished.^[6] EE is a concept that describes the tendency to overeat secondary to

Address for correspondence: Gülsüm Zekiye Tuncer, Department of Psychiatric Nursing, Dokuz Eylül University Faculty of Nursing, İzmir, Türkiye

Phone: +90 232 412 47 94 **E-mail:** gulsumdamlarkaya@gmail.com **ORCID:** 0000-0001-8969-7139

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negative emotions.^[2,7] Emotional eaters use their eating behaviors as a coping method to get rid of negative emotions or stress, and as a result, this behavior becomes problematic.^[8] Another overeating behavior is uncontrolled eating (UE). UE is defined as the tendency to lose control over food intake when the person feels hungry and he or she is exposed to an external stimulus.^[9] In several studies, it has been demonstrated that impaired eating behaviors cause individuals to gain more weight and lead to problems such as low self-esteem, lack of emotion management, and eating disorders. Such overeating problems can be potential factors of obesity.^[10]

Among those who frequently experience eating problems are children, adolescents, women, and obese individuals.^[5,10] Eating problems are common not only in obese people but also in normal weight young women.^[11] Accordingly, if young women are to protect their health, they should maintain appropriate eating behaviors. Eating disorders can be seen as a result of the disordered eating behaviors of young women under stress.^[12] The review of the literature revealed that eating problems are also common in nursing students most of whom are young women, one of the aforementioned risk groups. In several studies, it has been determined that stressors to which students are exposed can affect their eating habits.^[12–14] Especially female nursing students, who are in this transitional period of their professional lives, may face academic, clinical, and psychosocial stressors from the first moments of their education life^[14,15] which causes changes in their emotions leading to problems in their eating behaviors.^[13] Stressors such as isolation, uncertainty, fear of illness, and the inadequacy of coping behaviors during the pandemic period greatly affect eating behaviors.^[16] In two studies conducted in our country during the COVID-19 period, the relationship between eating problems and stress and anxiety levels of male and female nursing students was examined. In these studies, it is seen that female nursing students experience both stress and EE significantly higher than male students.^[15,17]

As reported in the literature, many therapeutic interventions are used to improve the EE behavior. In several studies, dialectical behavior therapy, acceptance and commitment therapy, mindfulness, and mindful eating interventions have been shown to improve binge eating and EE behaviors.^[18] Evidence suggests that structured cognitive behavioral therapy protocols improve most impaired eating behaviors, including binge eating.^[19,20]

One of the structured cognitive behavioral protocols for eating behaviors is the guided self-help program (GSHP). Fairburn and Carter who developed the GSHP for patients with the binge eating disorder applied it to various eating behaviors and finally created an intervention protocol.^[21] In studies in which the GSHP was applied to obese individuals, the authors found that those in the intervention group displayed the binge

What is presently known on this subject?

- In randomized controlled studies, internet-based and online group cognitive behavioral therapy and GSHP were determined to improve women's eating problems in the long term. However, this search for studies in which this evidence-based program was applied online to groups of women with emotional eating and uncontrolled eating behaviors revealed a gap in the literature.

What does this article add to the existing knowledge?

- It is stated that the online group GSHP implemented to regulate eating behaviors will provide guidance for applications that can protect both physical and mental health of female nursing students.

What are the implications for practice?

- The online group GSHP conducted with female nursing students improved their coping with emotional eating and uncontrolled eating behaviors, which suggests that self-help interventions can be implemented to improve the eating behaviors of female nursing students who are trying to cope with multiple stressors. It is recommended that the online group GSHP for the improvement of the emotional eating behavior should be investigated through randomized controlled studies.

eating behavior < did those in the control group after the GSHP.^[22,23] In randomized controlled studies, internet-based and online group cognitive behavioral therapy and GSHP were determined to improve women's eating disorders (binge eating and eating disorders) in the long term.^[24–27] Young women constitute a risk group for impaired eating behaviors. Nursing students are in a risky group in terms of eating behaviors, especially due to their occupational stressors.^[15,17] When we look at the structuring of GSHP sessions, it is thought that it may be effective for impaired eating behaviors at normal weight.

GSHP is the first choice for eating disorders such as bulimia and binge eating disorder. Disordered eating behaviors, which are the precursors of bulimia and binge eating disorder, consist of restrictive eating, UE, and EE behaviors.^[28–30] The content of this program aims to combat these impaired eating behaviors. The original value of this study is that this program has implemented for the 1st time the disordered eating behaviors of EE and UE behaviors. Besides, our search for studies in which this evidence-based program was applied online to groups of women with EE and UE behaviors revealed a gap in the literature. It is thought that both the physical and mental health of female nursing students can be protected with the online group GSHP aimed at regulating their EE and UE behaviors.^[22] Therefore, it is stated that the online group GSHP implemented to regulate eating behaviors will provide guidance for applications that can protect both the physical and mental health of female nursing students.^[31] Thus, in the present study, it was aimed to determine the effect of Online Group GSHP on EE and UE behaviors in healthy female nursing students. The hypothesis of the present study is as follows:

H1: There are differences between the mean scores young female nursing students participating in the Online Group GSHP obtained from the three-factor eating questionnaire (TFEQ) and emotional eater questionnaire (EEQ) before, right after, and 6 months after the program.

Materials and Method

Research Design

The present study is a quasi-experimental study without a control group which has the pre-test, post-test, and 6-month follow-up design. It was carried out with the 3rd- and 4th-year young female nursing students studying at a Faculty of Nursing between March 2021 and June 2021. In the Spring Semester of 2020–2021 academic years, the education was given to the students online due to the COVID-19 pandemic. The study was planned as an Online Group intervention before the pandemic to facilitate student participation. In this study, 3rd- and 4th-grade students were selected by purposive sampling method. In the education program of the faculty where the research was conducted, there is a nutrition course in the second semester of the 2nd year. To ensure that students have similar knowledge about eating and nutrition, it is planned to create a sample of students who have taken the basic nutrition course.

Participants and Sample

In the 2020–2021 academic years, 334 female nursing students aged between 20 and 28 years who attended the 3rd and 4th grades of the faculty of nursing comprised the population of the present study. Of the female students of the nursing faculty where the study was conducted, 163 were 4th-grade students and 171 were 3rd-grade students. Pyrori power analysis was performed before starting the study. As a result of the analysis, 28 participants were determined for the single-group quasi-experimental design according to the Wilcoxon rank analysis with 0.5 suffix size and 0.80 power of Cohen d table. In the power analysis made with the pre-test measurement, a power level of 0.74 with an effect size of 0.5 was reached with 24 participants. Of the students in the study population, 24 who volunteered to participate in the study were included in the sample of the study. In this sample, 10 women from 3rd-grade students; from 4th-Grade 14 women student to work joined.

This study including being made criteria “Students to work to join voluntarily to be,” “EE Scale cutting score 11 and above to be,” “Displayed to talk convenient computer access to be.”

Instruments

The personal information form, TFEQ, and EEQ were used as data collection tools.

Personal information form

The form developed by the researchers based on the pertinent literature⁽¹¹⁾ was used to question young female nursing students’ characteristics related to their age, body mass index (BMI), the number of meals they have, and behaviors related to the regular diet, regular physical activity, and previous dieting.

TFEQ

The TFEQ first developed to measure the behavioral and cognitive components of eating consists of 21 items. The 21-item TFEQ was adapted to Turkish in 2016 by Karakuş et al.⁽⁹⁾ The responses given to the items of the TFEQ are rated on a 4-point Likert scale. The TFEQ has three sub-dimensions to measure eating behaviors: Cognitive restraint (CR), UE, and EE. The UE which refers to the tendency to lose control over food intake when the person feels hungry or he or she is exposed to an external stimulus consists of nine items. CR which refers to the tendency to control food intake to maintain body weight and body shape consists of six items. EE which measures the relationship between overeating and negative moods, such as a feeling of loneliness, anxiety, or low morale includes six items. The higher the total score obtained from a sub-dimension of the scale is the higher the level of the feature assessed by that sub-dimension is. The Cronbach’s α coefficient values were 0.80, 0.87, and 0.78 for the CR, EE, and UE sub-dimensions, respectively.⁽⁹⁾

EEQ

Akın et al.⁽³²⁾ carried out the validity and reliability study of the Turkish version of the EEQ with healthy individuals in 2016. Responses given to the items of the EEQ are rated on a 4-point Likert-type scale ranging from “0” (Never) to “3” (Always). There is no negatively keyed item in the scale. The cutoff score of the EEQ showing that the person displays the EE behavior is ≥ 11 . The EEQ consists of 10 items, and three sub-dimensions: Disinhibition, type of food, and guilt. Of these three sub-dimensions, disinhibition includes six items, types of food include two items, and guilt includes two items. Internal consistency reliability coefficients of the scale were 0.87, 0.67, and 0.59 for the disinhibition, types of food and guilt sub-dimensions, respectively, and .88 for the overall scale.

Online Guided Group Self-Help Program

The program consists of six modules and six sessions. The modules are as follows: Starting self-monitoring, eating regularly; applying the “mindful eating” rule and creating alternatives to the EE behavior; developing problem-solving skills; coping with urges to have a strict diet, body image anxiety; and termination. Each module has session targets. The goal in the first module is to gain students awareness of their own eating patterns and to enable them to monitor their own eating patterns. After the researchers discussed the participants’ current eating patterns with them, they gave the participants homework to monitor their own eating patterns. The aim in the second module is to help students develop a regular eating behavior. After the emotional records of the participants are analyzed with them, they are given an assignment on regular eating based on reality testing. The goal in the third module is the learning behaviors that can be an alternative

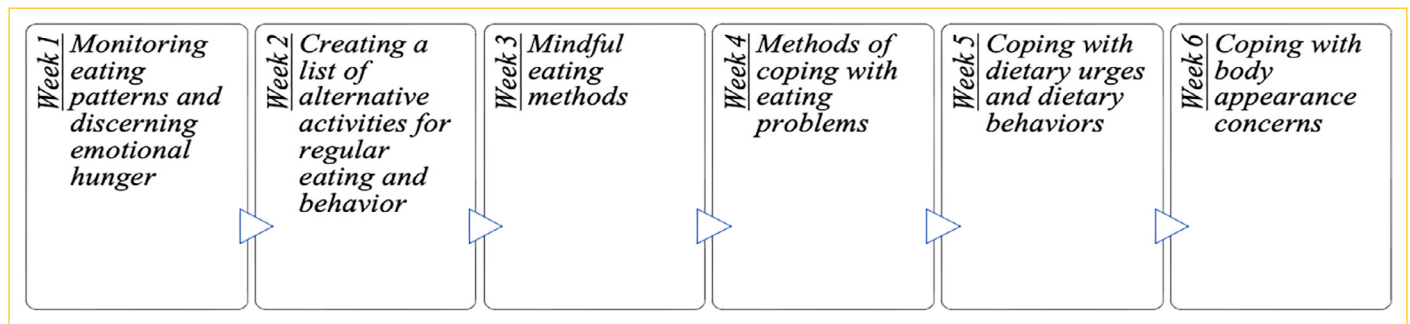


Figure 1. Online group-guided self-help program sessions.

to eating behaviors and the learning of eating with awareness. After the researchers and the participants perform the profit and loss analysis for regular eating behavior, the participants are given the task of determining alternative emotional behaviors. They are also asked to perform role-playing for mindful eating and then given an exposure assignment. The aim in the fourth module is the development of individual's problem-solving skills in students. After the problem-solving process is discussed with the participants by identifying the problems related to emotions, they are given an assignment on problem solving. The objectives in the last two modules are learning how to cope with strict dietary practices and reducing anxiety about body image. The participants' anxieties about their body image are determined together with them, and the reality of thought is questioned through evidence-based questioning. Then they are given exposure assignments on eating and body image (Fig. 1).

Process

The poster to announce that students could participate in the online GSHP on a voluntary basis was shared twice on the Faculty Official page. The poster was also sent to the students through their e-mail addresses 3 times. Study announcement done later to volunteers EEQ has been applied. EEQ 11 and above cutting to your score owner to students pre-test was applied. The personal information form, TFEQ, and EEQ were sent to the .edu e-mail addresses of the students who volunteered to participate in the study through the Google Questionnaire application, and the pre-test data were collected (Fig. 2). A project course was created from the Distance Education Center Sakai Platform for the Online GSHP. Volunteer students were registered in the system with their .edu e-mail addresses.

The researchers formed the intervention groups of the students with the coin toss method. The students were divided into three online groups of eight people on average. The program was carried out once a week online between March 2021 and June 2021. The program was completed in 6 weeks with each group. Each session is structured within the scope of the Online Group GSHP.

Group rules were created in the online group process. The group rule has been established to ensure that what is spoken during the group will remain within the group and that no registration will be made in the online group. In each session, the researchers discussed the session objectives with the students. At the beginning of each session, the exercise of the previous week was evaluated. At the end of each session, the exercises to be applied until the next session were planned. After each session, the researchers evaluated the content of the group program and its implementation in the online group and organized the next session. The average duration of the sessions was 85.1 min.

The GSHP group was established on WhatsApp with participating female nursing students. When the participants had any questions, they were able to contact the researchers on this group. Information about the group process was continued through this group. This communication between researchers and participants was maintained through this WhatsApp group until the end of the research. The follow-up in the 6th month continued with the correspondence on WhatsApp.

The first researcher participated in the online group GSHP sessions as a coordinator, and the second researcher as a consultant observer. After each session, the researcher and advisor discussed the group process, the conduct of the session, the exercises, and the assignments. Arrangements have been made for the next session. This study was carried out by two female psychiatric nursing researchers. The first female researcher, who led the research and the sessions, completed her CBT theoretical training and has training certificates on eating disorders. The second female researcher, a consultant psychiatric nurse, completed her CBT theoretical and supervision training. The consultant took part in the study as both an executive and a supervisor. Guidance was taken from GSHP program developers for the study.

Data Analysis

The SPSS 22.0 was used to analyze the data. In the study, numbers, percentages, and arithmetic mean were used in the analysis of the descriptive data. The comparison of the results of the TFEQ, EEQ, and BMI obtained before, right after, and 6

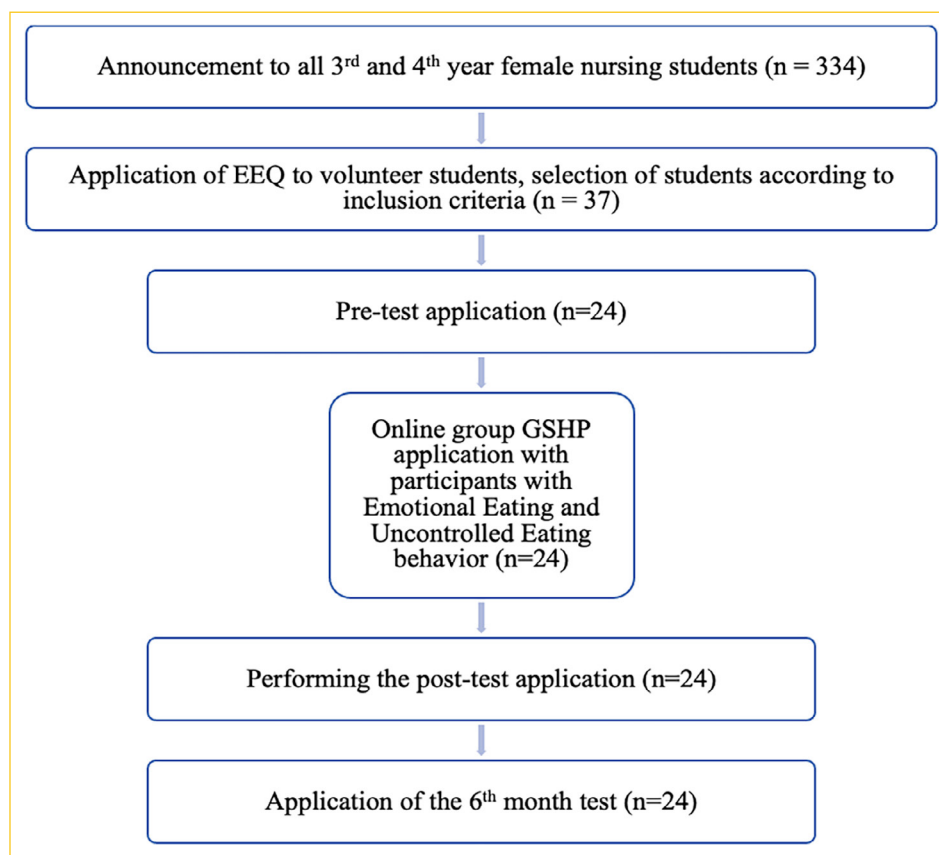


Figure 2. Quasi-experimental research process.

EEQ: Emotional eater questionnaire; GSHP: Guided self-help program.

months after the program was performed using the non-parametric friedman test. In case of difference, Wilcoxon rank analysis was used in the further analysis of the difference. Fisher's exact test and Yates Adjusted Chi-Square analysis were used to compare the participants' sociodemographic characteristics over time. $p < 0.05$ were considered statistically significant.

Ethical Considerations

To carry out the study, institutional permission was obtained from the Faculty of Nursing of a university (decision date: May 27, 2020, decision number: 153) and ethics committee approval was obtained from the relevant university's Non-Interventional Ethics Committee (decision number: 2020/17-33, decision date: August 04, 2020, 5552). This study was conducted in accordance with the Declaration of Helsinki. To administer the TFEQ and EEQ in the study, permissions were obtained from the authors who performed the validity and reliability studies of the Turkish versions of the scales. In addition, from the participants, informed consent indicating that they volunteered to participate in the study was obtained. Written permission was obtained from the university Distance Education Center Sakai Platform unit and the Faculty of Nursing for the implementation of the online program.

Results

In Table 1, the sociodemographic characteristics of female nursing students and their comparison over time were given. The mean age of the students was 22.0 ± 1.84 years. Before the GSHP, of the students, 50% did physical activity sometimes, 66.7% skipped meals, 45.8% sometimes had the desire to eat when they were full, 54.2% thought that they overate, 41.7% thought that they ate fast, and 62.5% eat at night sometimes. While 33.3% of them never weighed themselves, 62.5% had negative feelings about their weight, and 70.8% stated that they were satisfied with their body image to a certain extent.

According to the comparison of the measurements performed before and right after the GSHP, there were significant differences between the two measurements in terms of the variables such as doing regular physical activity, thinking that they eat fast, weighing themselves, feeling negative about weight and being satisfied with the body image ($p < 0.05$); however, the differences between the two measurements were not statistically significant in terms of the variables such as thinking that they overeat and having night eating behaviors ($p > 0.05$). According to the comparison of the measurements performed before and 6 months after the GSHP, there were significant differences between the two measurements

Table 1. Comparison of sociodemographic characteristics of young female nursing students over time (n=24)

Variables	Pre-test		Post-test		6 months after the post-test		Pre-test post-test		Pre-test-6 months after the post-test	
	n	%	n	%	n	%	χ^2	p	χ^2	p
	Age, mean \pm SD	22.0 \pm 1.84								
Doing physical activity regularly										
No	7	29.2	5	20.8	6	25.0	8.436^b	0.004	2.905 ^b	0.088
Sometimes	12	50.0	12	50.0	14	58.3				
Yes	5	20.8	7	29.2	4	16.7				
Thinking that she overeats										
No	2	8.3	8	33.3	7	29.2	1.769 ^b	0.182	5.579^a	0.018
Sometimes	9	37.5	14	58.3	13	54.2				
Yes	13	54.2	2	8.3	4	16.7				
Thinking that she eats fast										
No	5	20.8	10	41.7	9	37.5	5.868^a	0.015	8.309^a	0.004
Sometimes	9	37.5	11	45.8	8	33.3				
Yes	10	41.7	3	12.5	7	29.2				
Eating late at night										
No	8	33.3	19	79.2	17	70.8	0.178 ^a	0.673	8.314^a	0.004
Sometimes	15	62.5	3	12.5	6	25.0				
Yes	1	4.2	2	8.3	1	4.2				
Weighing herself										
Never	8	33.3	6	25.0	5	20.8	24.025^a	0.004	23.939^a	0.004
Once a week	8	33.3	11	45.8	14	58.3				
2–4 times a week	6	25.0	6	25.0	3	12.5				
Every day	2	8.3	1	4.2	2	8.3				
Having negative feelings about her weight										
No	0	0	4	16.7	10	41.7	4.229^a	0.040	1.994 ^a	0.369
Sometimes	9	37.5	16	66.7	12	50.0				
Yes	15	62.5	4	16.7	2	8.3				
Being satisfied with her body image										
Satisfied	0	0	2	8.3	6	25.0	8.235^b	0.004	1.141 ^b	0.353
A little satisfied	17	70.8	19	79.2	15	62.5				
Dissatisfied	4	16.7	3	12.5	3	12.5				
Hates her appearance	3	12.5	0	0	0	0				

^a: Fisher's exact Chi-square test; ^b: Yates adjusted Chi-square test. SD: Standard deviation.

in terms of the variables such as thinking that they eat fast, thinking that they eat fast, having night eating behaviors and weighing themselves ($p < 0.05$); however, the differences between the two measurements were not statistically significant in terms of the variables such as doing physical activity regularly, having negative feelings about weight and being satisfied with body image ($p > 0.05$).

In Table 2, the comparison of the female nursing students' EEQ, TFEQ scores, and BMI values over time is given. The students' average BMI was 23.75 \pm 4.30 (MR: 2.56) before the GSHP and was 23.16 \pm 4.00 (MR: 1.71) right after the GSHP and

23.27 \pm 3.80 (MR: 1.73) 6 months after the GSHP. There were statistically significant differences between the three BMI measurements over time (χ^2 Friedman =12.156, $p=0.002$). The difference stemmed from the difference between the pre-test and the post-test measurements ($p=0.001$).

The mean scores the students obtained from the EE sub-dimension of the TFEQ before, right after, and 6 months after the GSHP were 53.70 \pm 27.15, 37.73 \pm 20.19 and 34.25 \pm 22.08 (MR: 2.60, 1.71, 1.69), respectively. There were statistically significant differences between the mean scores the students obtained from this sub-dimension over time (χ^2 Friedman

Table 2. Comparison of the mean scores of the participants obtained from the TFEQ and EEQ over time (n=24)

	Pre-test			Post-test			6 months after the post-test			Inter-group differences (b)
	Mean±SD	Mean rank	p	Mean±SD	Mean rank	p	Mean±SD	Mean rank	p	
BMI	23.75±4.30	2.56		23.16±4.00	1.71		23.27±3.80	1.73	12.156	0.002*
TFEQ										
Emotional eating	53.70±27.15	2.60		37.73±20.19	1.71		34.25±22.08	1.69	15.205	0.000*
Uncontrolled eating	57.40±19.62	2.88		30.70±17.69	1.60		28.24±16.37	1.52	31.224	0.000*
Cognitive restraint	53.00±25.37	1.92		57.87±16.37	2.19		54.39±23.22	1.90	1.435	0.488
EEQ	15.91±4.16	2.75		8.75±4.82	1.65		8.91±4.15	1.60	21.622	0.000*

a: Friedman variance analysis; b: Wilcoxon test, *: p<0.05. TFEQ: Three-factor eating questionnaire; EEQ: Emotional eating questionnaire; SD: Standard deviation; BMI: Body mass index.

=15.205, $p<0.001$). According to the Wilcoxon rank advanced analysis performed to determine from which measurements the difference stemmed, there were significant differences between the measurements made at the pre-test and right after the post-test ($p=0.005$) and between the measurements made at the pre-test and 6 months after the post-test ($p=0.002$). The mean scores the students obtained from the UE sub-dimension of the TFEQ before, right after, and 6 months after the GSHP were 57.40 ± 19.62 , 30.70 ± 17.69 and 28.24 ± 16.37 (MR: 2.88, 1.60, 1.52), respectively. There were statistically significant differences between the mean scores the students obtained from this sub-dimension over time (χ^2 Friedman =31.224, $p<0.001$). According to the advanced analysis performed to determine from which measurements the difference stemmed, there were significant differences between the measurements made at the pre-test and right after the post-test ($p<0.001$) and between the measurements made at the pre-test and 6 months after the post-test ($p<0.001$). The mean scores the students obtained from the CR sub-dimension of the TFEQ before, right after, and 6 months after the GSHP were 53.00 ± 25.37 , 57.87 ± 16.37 and 54.39 ± 23.22 (MR: 1.92, 2.19, 1.90), respectively. According to the comparison of the mean scores the students obtained from the CR sub-dimension, the differences between the mean scores over time were not statistically significant (χ^2 Friedman =1.435, $p>0.05$).

The mean scores the students obtained from the EEQ before, right after, and 6 months after the GSHP were 15.91 ± 4.16 , 8.75 ± 4.82 , and 8.91 ± 4.15 (MR: 2.75, 1.65, 1.60), respectively. According to the advanced analysis performed to determine from which measurements the difference stemmed, there were significant differences between the measurements made at the pre-test and right after the post-test ($p<0.001$) and between the measurements made at the pre-test and 6 months after the post-test ($p<0.001$).

Discussion

The present study is the first online group GSHP conducted for normal-weight female nursing students who had EE and UE behaviors. According to the results of the present study, implementation of the online group GSHP affected the participating students' ability to cope with the EE and UE behaviors. There were improvements in variables such as weighing themselves, having negative feelings about weight, and being satisfied with body image right after the GSHP; however, 6 months after the GSHP, the only improvement was observed in

the weighing themselves variable (Table 1). Similarly, in a randomized controlled study, female university students at risk for eating problems were assigned into the following two groups: Online guided self-help group and an online self-help group. At the end of the 8-week application, weight- and body image-related anxiety levels decreased more in the students who participated in the online-guided self-help group.^[33] In a study, perceptions of body idealization and body dissatisfaction changed for the better in young female university students with maladaptive eating behaviors at the end of 4 sessions of counseling, and a 1-year follow-up on body acceptance.^[34] In a study conducted with individuals who suffered weight stigma and avoided weighing themselves, the participants were psychologically relieved regarding their weight-related thoughts at the end of the guided self-help application.^[35] Unlike the present study, in an online guided group self-help study conducted with individuals with the binge eating disorder, perception of body dissatisfaction and the desire to lose weight improved in the experimental group after the intervention and at the 6-month follow-up.^[23] However, in the present study, the participants' negative perceptions of weight 6 months after the GSHP were similar to those before the GSHP. This was probably because the GSHP was short and included less cognitive intervention. It is known that long-term cognitive behavioral interventions are recommended to reduce weight- and body image-related anxieties.^[36]

In the present study, the students' regular physical activity levels before and 6 months after the GSHP were similar. Our search for studies conducted to investigate the physical activity status of female nursing students during the GSHP demonstrated a gap in the literature. However, in a study conducted with obese individuals with binge eating disorder who underwent cognitive behavioral therapy, the regular physical activity status of the participants in the experimental group improved after the intervention.^[37] This was probably because Fossati et al.^[37] carried out the physical activity and nutrition program and the GSHP simultaneously. In the present study, the students' night eating behavior right after the GSHP was similar to that before the GSHP, but they displayed this behavior less in the long term. In the literature, we could not find any intervention studies conducted on the effect of GSHP on night eating behavior. However, we found a study in which the participating adults displayed night eating behavior less after they had a 10-session cognitive behavioral therapy.^[38]

In the present study, while the participating students displayed fast eating behavior less right after and 6 months after the GSHP, they displayed the overeating behavior less only 6 months after the GSHP. Although fast eating behavior is considered as a problem in the literature, no special intervention has been implemented to solve the problem.^[39] However, in a randomized controlled study with at-risk young women with disordered

eating behavior, they displayed disordered eating behaviors including fast and overeating behaviors less after a 9-module online guided help program and 1-year follow-up.^[40] In addition, in systematic reviews, it is stated that the GSHP improves binge eating behavior, including fast eating.^[41,42] In a study conducted with individuals with the binge eating disorder, binge-eating episodes in the experimental group improved after an online group-guided self-help intervention and a 6-month follow-up.^[23]

In the present study, the mean BMI values of normal-weight female nursing students decreased right after the GSHP. However, 6 months after the GSHP, their mean BMI value was similar to that measured before the GSHP (Table 2). Similarly, in a randomized controlled study in which an 8-week guided self-help intervention was applied, the BMI values of normal-weight university students were similar to their BMI values measured before the intervention.^[33] In a study, the BMI values of normal-weight young female university students with maladaptive eating behaviors measured at the end of four sessions of the body acceptance program and 1-year follow-up were similar to those measured before the intervention.^[34] However, in another study conducted with obese individuals, their mean BMI value decreased after the guided self-help application.^[43] In a study in which group intervention for the eating behaviors of obese individuals was compared with the telephone-based intervention, the change in the BMI value was higher in the group intervention group, after the intervention and at the 6-month follow-up after the intervention.^[44] The changes observed in these studies were probably due to the fact that the samples of the studies included obese individuals. It is known that the change in BMI values of obese individuals occurs more rapidly at the end of the interventions.^[44] In the present study, the participating female nursing students BMI values were within normal limits at the beginning of the program and they maintained their BMI values at the same level throughout the GSHP.

In the present study, the mean score the participating students obtained from the UE sub-dimension of the TFEQ decreased right after and 6 months after the GSHP (Table 2). In the literature, there is a gap related to studies conducted on the UE behavior with healthy female nursing students who participated in a program similar to our online group GSHP. Differently, in studies including individuals with binge eating behavior assigned to the self-help and guided self-help groups, the participants' UE scores decreased in both groups after the intervention.^[45] In another study including obese women with binge eating disorder, according to the comparison of the UE scores of the participants who participated in a 12-session program and were assigned to face-to-face and online group guided self-help groups, their UE scores decreased in both groups after the intervention.^[46] However, in an internet-based GSHP study conducted with obese individuals, the participants' pre-program UE sub-dimension scores

did not change after the program and during the 6-month follow-up.^[47] Several authors state that online and group-guided self-help practices can yield more positive results in negative eating behaviors than individual interventions can do.^[48]

In the present study, the mean scores the participants obtained from the EEQ, and EE sub-dimension of the TFEQ decreased right after and 6 months after the GSHP. In the literature, there is a gap related to studies conducted on the EE behavior with healthy female nursing students who participated in a program similar to our online group GSHP. Unlike the present study, in another study including obese women with binge eating disorder, according to the comparison of the EE scores of the participants who were assigned to face-to-face and online groups, a decrease was observed in their EE scores in both groups after the intervention.^[46] In another study, individuals with the EE behavior who participated in the internet-based guided self-help intervention program aimed at improving their EE behavior displayed the EE behavior less at the 6- and 12-month follow-ups after the program.^[49] However, the emotional hunger status of the participants determined after the individual-guided self-help application with obese individuals was similar to that determined before the intervention.^[43] In another study, no significant change was observed in the participants' EE scores after an 8-week individual phone and mail-based guided self-help applications.^[35] In the individual internet-based GSHP study conducted with obese individuals, the pre-program emotional hunger score decreased right after the program but remained the same after the 6-month follow-up.^[47] In a pilot study, in which online guided self-help intervention was performed individually with individuals with bulimia, the participants' post-program UE and EE scores were similar to their scores at the baseline.^[50] Although group work has been reported to lead to improvement in eating behaviors by creating peer support in individuals,^[48,51] these different results do not show that GSHP is more effective than individual programs in improving eating behaviors.^[48] It is thought that stressors such as isolation, uncertainty, and fear of disease experienced during the pandemic period may affect EE. However, despite all the stressors, the study with young people with eating disorders shows that online intervention regulates their eating behaviors.^[16]

In the present study, the mean score the participants obtained from the CR sub-dimension of the TFEQ before the GSHP remained the same right after and 6 months after the GSHP. Our search for studies conducted to investigate the CR status of female nursing students during the Online Group GSHP demonstrated a gap in the literature. Differently, in studies including individuals with binge eating behavior assigned to the self-help and guided self-help groups, the participants' CR scores did not change in both group at the 6th and 12th months after the intervention.^[45] In another study, no changes were observed in the CR scores of the women with bulimia

after 18 weeks of cognitive behavioral intervention.^[52] In another study, according to the comparison of the CR scores of the obese women with the binge eating disorder assigned to face-to-face and online groups, the pre- and post-intervention scores were similar in both groups.^[46] However, after the implementation of a GSHP conducted with obese individuals, a decrease was observed in their desire to control food intake cognitively.^[43] In another study conducted with obese individuals in which the internet-based GSHP was implemented, the mean scores the participants obtained from the CR sub-dimension before the GSHP decreased after the GSHP and at the 6-month follow-up after the GSHP.^[47] It is known that intuitive eating and mindful eating interventions, in which long-term work is recommended and the aim is to interfere with body image anxiety, are effective in reducing CR.^[53-55]

Limitations

Our study has some limitations. The first one is that using the EEQ both as an inclusion criterion and as a measurement criterion may have caused the participants to recall the items of the instrument, which may have affected the scores obtained from this scale. The second one is that the unavailability of interventional studies conducted with normal weight and healthy female nursing students using the TFEQ and EEQ in the literature prevented the comparison of the results of the present study with the results of other studies. The third one is the characteristics of the sample. Because the nursing students had online education during the study, they were invited to participate in this program through an online announcement, which may have prevented us to reach the actual risk groups with more eating problems. The last one is that the study was conducted during the COVID-19 pandemic during which the students had their education at home online. The variety and excess of stressors that students were exposed to during the COVID-19 pandemic caused them to have difficulty in doing their homework. In addition, the solution to these difficulties was discussed in the sessions is thought to increase the duration of the sessions.

Conclusion

In the present study, the online group GSHP conducted with female nursing students improved their coping with EE and UE behaviors, which suggests that self-help interventions can be implemented to improve the eating behaviors of female nursing students who are trying to cope with multiple stressors. In the present study, the participants displayed UE behaviors less right after the GSHP and during the 6-month follow-up period after the GSHP. We also recommend that these group applications be made face-to-face. In the present study, the participants displayed EE behaviors less right after the GSHP and during the 6-month follow-up period after the GSHP. We recommend

that the online group GSHP for the improvement of the EE behavior should be investigated through randomized controlled studies. In the present study, no changes were observed in the participants' behaviors to restrain their eating cognitively, and in their negative judgments regarding weight and body image, especially during the 6-month follow-up period after the GSHP. Given this result, we recommend that in coping with eating and body image-related anxieties, longer-term cognitive-behavioral interventions should be implemented and their effects should be investigated. Guides psychiatric nurses to add to their online operating care plans when creating interventions for eating problems for young women. We also recommend that studies in which healthy but at-risk groups are followed up more frequently with supplementary sessions such as monthly support sessions should be conducted.

Ethics Committee Approval: The study was approved by the Dokuz Eylül University Non-Interventional Research Ethics Committee (No: 2020/17–33, Date: 04/08/2020).

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