UNIVERSITAS NAHDLATUL ULAMA SURABAYA
LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
Kampus A Wonokromo : Jl. SMEA No.57 Tlp. 031-8291920, 8284508 Fax. 031-8298582 – Surabaya 60243
Kampus B RSIJemursari : Jl. Jemursari NO.51-57 Tlp. 031-8479070 Fax. 031-8433670 – Surabaya 60237
Website : unusa.ac.id Email: info@unusa.ac.id

SURAT KETERANGAN

Nomor: 925/UNUSA-LPPM/Adm-I/V/2024

Lembaga Penelitian dan Pengabdian Kepada Masyarakat (LPPM) Universitas Nahdlatul Ulama Surabaya menerangkan telah selesai melakukan pemeriksaan duplikasi dengan membandingkan artikel-artikel lain menggunakan perangkat lunak **Turnitin** pada tanggal 06 Februari 2024.

Judul	: *Mindfulness eating based on spiritual interventions on diet compliance and blood sugar levels in type 2 DM patients*
Penulis	: Riska Rohmawati1* , Lono Wijayanti1 , Ratna Yunita Sari1 , Imamatul Faizah2 , Rahayu Anggraini3
No. Pemeriksaan	: 2024.05.06.411

Dengan Hasil sebagai Berikut:

Tingkat Kesamaan diseluruh artikel (*Similarity Index*) yaitu 14%

Demikian surat keterangan ini dibuat untuk digunakan sebagaimana mestinya

Surabaya, 06 Mei 2024
Ketua LPPM,

Achmad Syafiuddin, Ph.D.
NPP. 20071300

Mindfulness

by Ratna Yunita

Submission date: 06-Feb-2024 02:12PM (UTC+0700)
Submission ID: 2287742282
File name: 20.2023-JIN_Agustus_Balimed_Riska_Rohmawati-Author_Ratna_Q4.pdf (295.59K)
Word count: 4518
Character count: 24051

ORIGINAL ARTICLE

Bali Medical Journal (*Bali MedJ*) 2023, Volume 12, Number 2: 1948-1952
P-ISSN.2089-1180, E-ISSN: 2302-2914

Mindfulness eating based on spiritual interventions on diet compliance and blood sugar levels in type 2 DM patients

Riska Rohmawati[1*], Lono Wijayanti[1], Ratna Yunita Sari[1], Imamatul Faizah[2], Rahayu Anggraini[3]

[1]Department of Nursing, Faculty Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
[2]Department of Nursing Profession, Faculty Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
[3]Department of Nursing, Faculty Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia.

*Corresponding author:
Riska Rohmawati;
Department of Nursing, Faculty Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia;
riskarohmawati@unusa.ac.id

Received: 2023-04-06
Accepted: 2023-05-29
Published: 2023-06-21

ABSTRACT

Introduction: Diet is one component of diabetes mellitus (DM) self-management for controlling blood sugar levels. Several obstacles in the implementation of the diet program have the potential for non-compliance, so that blood sugar levels tend to increase. Mindfulness eating based on spiritual intervention is one of the interventions that is expected to form adaptive eating behavior control to achieve dietary compliance and controlled blood sugar levels. The purpose of this study was to analyze the effect of mindfulness eating based on spiritual intervention on dietary compliance and blood sugar levels in patients with type 2 diabetes.

Methods: The study quasi-experimental, untreated control group design included dependent pre- and post-test samples. The population used was all patients with type 2 diabetes. The sample was taken using a simple random sampling technique with determination according to inclusion and exclusion criteria. The independent variables in this study were mindfulness eating based on spiritual intervention, while the dependent variables were dietary compliance and blood sugar levels. A glucometer and the Personal Diabetes Questionnaire (PDQ) were the tools employed in this investigation. The t-test was used as the statistical test.

Results: There were a total of 50 samples that were divided between the control group and the intervention group. The results of the statistical test showed that mindfulness eating based on spiritual intervention had a statistically significant effect on dietary compliance ($p < 0.001$) and blood glucose levels ($p < 0.001$) compared to the control group.

Conclusion: The value of diet adherence is greatly increased by mindfulness eating practices based on spiritual intervention, and mean blood glucose levels are significantly reduced at the conclusion of the study. Exercises in mindfulness eating that are based on spiritual intervention can be popularized as a way to deal with dietary issues and blood sugar regulation.

Keywords: blood glucose, diabetes mellitus, diet, mindfulness eating.
Cite This Article: Rohmawati. R., Wijayanti, L., Sari, R.Y., Faizah, I., Anggraini, R. 2023. Mindfulness eating based on spiritual interventions on diet compliance and blood sugar levels in type 2 DM patients. *Bali Medical Journal* 12(2): 1948-1952. DOI: 10.15562/bmj.v12i2.4317

INTRODUCTION

Diabetes mellitus (DM) is an endocrine system disorder characterized by increased blood sugar levels caused by a lack of the hormone insulin in the body. DM patients are required to change their lifestyle and adhere to diet and medication. The therapeutic management of a type 2 diabetes diet plays an important role in efforts to normalize blood sugar levels in type 2 diabetes and prevent various complications that arise from the disease. In East Java Province, the prevalence of people with DM is higher (2.5%) than the national average.[1] Nearly 60% of people with type 2 diabetes worldwide have poor glycemic control, with the achievement of a glycemic target of less than 50% associated with adherence, which results in poor blood sugar control.[2,3]

Diet is one of the programs to stabilize blood sugar levels, but there are several obstacles to its implementation, such as inappropriate eating portions and a tendency toward certain types of food. Dietary restrictions may not be followed as intended if there are obstacles in the diet, which have an impact on unstable blood sugar levels. Diet patterns include quantity, proportion, menu variation, and frequency. Diet education and medication control have been given and understood by most DM clients, but the inability to control eating behavior and belief in the ability to control diet are still predicted to play a role in achieving glycemic control in DM clients. The ability to control eating behavior can contribute to daily calorie intake.

A mindfulness eating intervention involves paying attention to events and experiences as well as improving regulation and eating patterns that occur at this time.[4] Healthy eating behavior requires a complex interaction between individual perceptions of food and the control of eating behavior. DM sufferers need to emphasize the importance of regularity in terms of maintaining a meal schedule, type of food ingredients, and the amount of food they consume, or follow a healthy diet such as the diet by regulating a good diet, namely looking at the number of servings of food consumed, type of

food, and time or frequency of eating.[5] It is explained that among the rights of the body are to feed it when it is hungry, to rest when it is tired, to clean it when it is dirty, to protect it from everything that hurts it, to prevent it from disease, to treat it when it is sick, and not to burden it with something that it cannot carry. This is an obligatory right that should not be forgotten or ignored.

Mindfulness eating is an activity that focuses attention on eating activities involving a mechanism for stimulating self-awareness. Healthy eating behavior requires a complex interaction between individual perceptions of food and the control of eating behavior. Mindfulness exercises during eating activities increase the body's response to physiological cues when hungry or full and increase self-awareness through internal dialogue that contributes to the rearrangement of adaptive behavior patterns (re-patterning behavior). Regulating emotion, paying attention to thoughts, and accepting oneself are all tied to eating activities. This can lessen troublesome eating patterns so that DM clients can choose what, when, and how much food to eat on their own.

Mindfulness-based eating has been extensively researched on aspects of diet and obesity, but not on the spiritual aspect. In the case of DM, the effect of mindfulness-based spiritual intervention on dietary compliance and blood sugar levels has not been explained, therefore further research is needed about that. This study aims to analyze the effect of mindfulness eating based on spiritual intervention on dietary compliance and blood sugar levels in patients with type 2 diabetes.

MATERIALS AND METHODS

Study design

An untreated control group, dependent pre- and post-test samples, and a quasi-experimental research methodology are used in this study. The intervention group and the control group were the two subject groups participated in this investigation. The sample in this study was some patients with type 2 diabetes who underwent therapy at the Poli RSI A. Yani Surabaya. The sampling technique will be carried out using a simple random sampling technique, with the sample being determined according to the inclusion and exclusion criteria. The inclusion criteria are type 2 DM patients who are undergoing a treatment program with fasting blood sugar (GDP) >126 mg/dl and current blood sugar or postprandial blood sugar (GDPP) >200 mg/dl, DM patients are productively aged 18–65 years old, able to carry out independent activities, able to communicate verbally well, can read and write, and have suffered from DM for at least one year. Meanwhile, the exclusion criteria are type 2 DM patients who have physical and mental or cognitive limitations (blind, deaf, handicapped, mental), type 2 DM patients who have complications (chronic kidney failure, heart failure, visual disturbances); and patients who are undergoing complementary or herbal therapy. The independent variable in this study is mindfulness eating based on spiritual intervention with a health belief model approach. The dependent variables in this study were dietary compliance and blood sugar levels.

Materials

The instrument used in this study was mindfulness eating based on spiritual intervention using an instructional guide in the form of an mp3 audio recording with a project rate of 44100 Hz and 24-bit float. The audio recording is based on mindfulness eating SOP based on spiritual intervention. The instrument of dietary compliance was measured using the PDQ questionnaire compiled by Stetson et al. (2011) and has been modified.[6] and Blood sugar levels will be measured using a glucometer with the brand name easy touch, the dimensions of the meter are H x W x D (mm): 88 x 64 x 22, the sugar measurement range is 20-600 mg/dl (1.1-33.3 mmol/ L), the measurement time of 10 seconds, the type of battery 3 V (CR2032), the battery life ± 1000 x inspection, technology used is an electrode-based biosensor.

Data collection procedures

The intervention was carried out for one month. Each meeting is held for 30 minutes in the morning, two times a week for four weeks. The instructions for implementing mindfulness eating based on spiritual intervention use an mp3 device containing a 10-minute voice recording that is listened to by the respondent through a headset as a routine exercise when the client eats a meal. days given to each respondent. Observation and monitoring are done by evaluating blood glucose levels at the end of each weekly session.

Data analysis

A paired sample t-test and an independent sample t-test were used to analyze the data in this investigation. If p 0.05, the outcome is considered significant.

RESULTS

According to Table 1, respondents in both the treatment group and the control group were predominantly between the ages of 46 and 55 (56%). In both the treatment group and the control group, respondents had more female (77%) characteristics. About half of respondents in both the treatment group and the control group (63%), depending on their characteristics based on their level of education, have a secondary education. Based on the respondents' jobs, the majority of respondents in both the treatment group and the control group (54%) were jobless. Over half of the respondents (or 60%) had DM for 4-5 years based on the characteristics of respondents based on length of DM suffering in the treatment group and control group.

The average dietary adherence in the intervention group before the action was 44.68 (the level of adherence was sufficient), and the average after the action was 71.32 (the level of adherence was good). The average blood sugar level was 313.64 mg/dl before the procedure, and after the procedure, the average blood sugar level was 221.11 mg/dl with $p < 0.001$, which means that there is an increase in adherence and a significant decrease in blood sugar levels before and after the administration of a mindfulness eating intervention based on spiritual intervention. While in the control group, the average score of compliance before the action was 45.02 (sufficient level of compliance) and after the action was 44.54 (a sufficient level of compliance), with $p = 0.798$. Before to the treatment, blood sugar levels averaged 311.21 mg/dl, and following it, they averaged 304.87 mg/

Table 1. Characteristics of respondents in the control group and the intervention group

Characteristics of respondents	Group				N	%
	Intervention		Control			
	f	%	f	%		
Age (years)						
Early adulthood (26-35)	4	8	4	8	8	8
Late adulthood (36-45)	16	32	19	38	35	35
Early old age (46-55)	29	58	27	54	56	56
Late old age (56-65)	1	2	0	0	1	1
Gender						
Male	9	18	14	28	28	28
Female	41	82	36	72	77	72
Level of education						
Base	15	30	14	28	29	29
Medium	30	60	33	66	63	63
Higher	5	10	3	6	8	8
Occupation						
PNS	6	12	6	12	12	12
Entrepreneur	13	26	21	42	34	34
Doesn't work	31	62	23	46	54	54
Long suffering from DM						
1-3 years	13	18	7	14	20	20
4-5 years	29	38	31	62	60	60
>5 years	8	44	12	24	20	20

Table 2. Dietary Compliance and Pre- and Post-Blood Sugar Levels in the Intervention and Control Group

Variable	Group	Pre		Post		t	p-value
		Mean	SD	Mean	SD		
Dietary compliance	Intervention	44.68	4.36	71.32	9.66	16.67	<0.001
	Control	44.54	5.96	45.02	7.80	-0.269	0.789
Blood sugar levels	Intervention	313.64	48.84	221.11	31.79	11.43	<0.001
	Control	311.21	49.03	304.87	45.13	2.460	0.989

SD = standard deviation

Table 3. Difference Value of Diet Compliance and Pre- and Post-Blood Sugar Levels in the Intervention and Control Group

Variable	Group	Mean	SD	SE	p-value	
					Pre	Post
Diet compliance	Intervention	-26.6	11.14	1.57	0.34	<0.001
	Control	0.48	3.56	0.50		
Blood sugar levels	Intervention	89.6	60.26	8.52	0.05	<0.001
	Control	5.340	18.43	2.60		

SD = standard deviation; SE = standard error

dl with a p value of 0.989, indicating that there was no change in dietary compliance or rise in blood sugar levels in the control group (Table 2).

The result shows that, from the results of the data analysis, the $p < 0.001$ on dietary compliance and blood sugar levels means that there are differences in the level of compliance and blood sugar levels before and after mindfulness eating based on spiritual intervention (Table 3).

DISCUSSION

Mindfulness-based eating is often associated with hedonistic eating behavior, a lack of ability to control eating, food choices, craving eating, and emotional eating. DM clients are prone to eating disorders, both binge eating and eating disorders.[7] Diet management in DM clients can be measured from various subdomains, including dietary knowledge and abilities, decisions in diet selection, problems in eating behavior, and dietary barriers.[6] The increase in the score of dietary adherences in the treatment group respondents after the intervention was followed by an increase in the score in each of these subdomains. The client's knowledge and ability to follow a diet program increase due to the process of providing information and instructions about mindfulness-based eating exercises

Bali Medical Journal 2023; 12(2): 1948-1952 | doi: 10.15562/bmj.v12i2.4317

as a technique in DM disease management, especially in the aspect of a diet program for DM clients. This is similar with the study by Miller et al. (2014), which explored aspects of knowledge, self-efficacy, and outcome expectations in mindfulness eating interventions in the diabetes self-management education (DSME) program.[4]

Mindfulness-based eating includes techniques and basic information in the diet, where this information is a source of wisdom that comes from external source.[4] Inner wisdom that comes from external sources (outer wisdom) trains a person to make choices that are easier and more flexible in response to information related to nutrition and diet.[8] High levels of knowledge and information are correlated with better compliance behavior and are predicted to contribute to increasing and sustaining changes in compliance behavior in DM management.[9]

Instructions for mindfulness eating based on spiritual intervention according to the practice session were delivered at breakfast time through a process of direct discussion and interaction. The focus of attention when eating can be seen in the way respondents eat, who have a more regular eating rhythm with pauses between each bite of food. DM clients are asked to follow instructions via audio mp3, which focus on regulating the rhythm of eating and the sensations that arise from what is consumed. This provides an opportunity for DM clients to be able to assess the body's physiological cues, including hunger and satiety cues, based on the level of comfort felt after eating on a scale of 1-10. Adjustments to the rhythm of eating have an impact on intake or the number of servings of food consumed. Respondents reported adequacy in food portion consumption, comfortable satiety, and satisfaction in every eating activity using mindfulness eating exercises based on spiritual intervention and mindfulness eating.

Mindfulness eating based on spiritual intervention works through the main mechanism of focusing attention on eating activities, involving internal dialogue, and increasing sensitivity to the body's natural cues during eating activities so as to provide an opportunity for a person to provide an assessment and automatic adjustment of eating behavior.[10,11] This mechanism facilitates the process of regulation of both emotions and appetite and releases reactive eating habits.[12] Mindfulness eating practices based on spiritual intervention indirectly make it easier for respondents to apply the eating principles to their diet. Alertness and attention while eating is contained in mindfulness eating exercises based on spiritual intervention and internal control of eating behavior so that controlled eating behavior adjustments occur.

Some respondents think that focusing attention while eating increases the taste sensation of food that is repeated so that respondents can provide an assessment and decision to continue eating food or to end it. This is similar with study conducted by Kristeller et al. that indicates the tendency of individuals to overeat, both in terms of the amount eaten and in terms of changes in taste preferences, decreases and that individuals can feel satisfied with smaller portions than usual.[8] Increased appreciation of small portions of food and sensitivity to hunger cues were also described in the study by Warren et al.[13] Other studies also mention that mindfulness eating based on spiritual intervention can increase the enjoyment and satisfaction of consuming foods with strong flavors and foods with less strong flavors.[14]

Poor eating behavior can be an indicator of the lack of achievement of the DM client's level of compliance with dietary recommendations. The process of adaptation to eating habits according to dietary recommendations is not easily achieved by DM clients because of various difficulties such as perception, negative emotions related to the pleasure of eating, autonomous function, and freedom. Mindfulness eating exercises based on spiritual intervention indirectly shape diet patterns related to the correct amount and choice of food types through assessments that arise from adjustments to eating rhythms, concern for tactile sensations, and experiences gained in every daily eating activity.

The difference in the value of the dietary adherence category in the treatment group before and after the intervention was statistically significant, but not all respondents in the treatment group had an increased value for the dietary adherence category; some respondents actually had a fixed value for the dietary adherence category after the intervention. The value of dietary adherence increased in the post-test conditions but did not change the level of the category of dietary compliance. Compliance factors include sociodemographic conditions, dietary knowledge, medical conditions, and self-empowerment.[15] Demographically, most of these respondents fall into the age range of more than 46 years and have the potential to affect a person's cognitive function.

The most important changes in cognition and age factors are the decline in performance on cognitive tasks that require a person to process or change information quickly to make a decision, including steps in processing memory performance and the cognitive function of an action or executive action.[16] A mindfulness eating practice based on spiritual intervention contains information, knowledge, and instructions to build alertness and attention that require cognitive function.

During an overnight fast, according to research by Rizza (2010), the liver releases glucose into the bloodstream, which is then absorbed by insulin receptor networks in muscles and other organs. The liver releases glucose as a result of the breakdown of glycogen and the gluconeogenic pathway's production of fresh glucose. Whether glucose rises, declines, or stays the same depends on how quickly glucose enters and exits the bloodstream. Pre-meal endogenous glucose production is higher in type 2 diabetic patients than in non-diabetic patients, although post-meal suppression of endogenous glucose production is slower and requires at least 6 hours. This causes an excess amount of glucose in the blood and contributes to an increase in postprandial blood glucose levels.[17]

Food-derived glucose enters the portal vein following absorption from the intestine, travels via the liver, and is then released systemically into the circulation.[17] The body's physiological processes for controlling blood glucose levels are among the many factors that cause variations in

fasting and postprandial blood glucose levels. Mindfulness eating exercises based on spiritual intervention are carried out in every eating activity to help improve eating rates so that they have an impact on food and calorie intake. It is possible that this can help reduce exogenous glucose intake, thereby reducing the endogenous glucose load that has been produced in the blood.

All treatment respondents received instructions for mindfulness-based eating exercises to foster internal control of eating behavior. Respondents who followed instructions through mp3 media during eating activities could form adaptive eating behaviors and contribute to daily calorie intake. The eating behavior of the respondents in the treatment group can be seen from the rhythm of eating and the disclosure of comfortable satiety and satisfaction after eating, while the objective measurement can be seen from the calculation of food recall. Most of the respondents in the treatment group had an average daily caloric intake that did not exceed the standard calorie intake (total energy expenditure), which was calculated personally for each respondent compared to the control group. These results are in line with research by Arch et al. (2010), in which they confirm that brief mindfulness instructions on eating activities can improve the sensory experience of eating and affect calorie intake.[14] There is a limitation in this study, namely the size of the sample is still limited, so further study with a larger population is needed.

CONCLUSION

There is a significant effect of mindfulness eating based on spiritual intervention on dietary compliance in type 2 DM, namely there is an increase in the quality of the compliance category from the category of adherence to adherence both before the intervention. Besides that, there is also a significant effect of mindfulness eating based on spiritual intervention on blood glucose levels in type 2 DM, namely a decrease in blood glucose levels before the intervention. Nurses are expected to make mindfulness eating based on spiritual intervention as one of the independent and collaborative nursing interventions by involving mindfulness-based on eating exercises, especially in terms of overcoming dietary problems and blood glucose control in DM clients.

ACKNOWLEDGMENT

The researcher would like to thank the university for funding and motivating this research.

FUNDING

Funding provided by Universitas Nahdlatul Ulama Surabaya.

ETHICAL CONSIDERATIONS

The procedure for collecting data from this research can be carried out after being declared to have passed the ethical test from the Health Research Ethics Commission with the number 029. EC.KEP.RSIAY.06.22.

CONFLICT OF INTEREST

There are no conflict interests.

AUTHOR CONTRIBUTIONS

Research and writing of manuscripts are equally contributed to by all authors.

REFERENCES

1. Dwi A, Amatayakul A, Karuncharernpanit S. International Journal of Nursing Sciences Predictors of diabetes self-management among type 2 diabetics in Indonesia : Application theory of the health promotion model. Int J Nurs Sci. 2017;4(3):260–5. Available from: http://dx.doi.org/10.1016/j.ijnss.2017.06.010
2. Sleath B, Carpenter DM, Blalock SJ, Davis SA, Hickson RP, Lee C, et al. Development of a new diabetes medication self-efficacy scale and its association with both reported problems in using diabetes medications and self-reported adherence. Patient Prefer Adherence. 2016;10:1003–10. doi: 10.2147/PPA.S101349
3. García-Pérez L-E, Alvarez M, Dilla T, Gil-Guillén V, Orozco-Beltrán D. Adherence to therapies in patients with type 2 diabetes. Diabetes Ther Res Treat Educ diabetes Relat Disord. 2013;4(2):175–94. doi: 10.1007/s13300-013-0034-y
4. Miller CK, Kristeller JL, Headings A, Nagaraja H. Comparison of a mindful eating intervention to a diabetes self-management intervention among adults with type 2 diabetes: a randomized controlled trial. Heal Educ Behav Off Publ Soc Public Heal Educ. 2014;41(2):145–54. doi: 10.1177/1090198113493092
5. As-sayyid ABM. Pola Makan Rasulullah. Jakarta: Almahira; 2006.
6. Stetson B, Schlundt D, Rothschild C, Floyd JE, Rogers W, Mokshagundam SP. Development and validation of The Personal Diabetes Questionnaire (PDQ): a measure of diabetes self-care behaviors, perceptions and barriers. Diabetes Res Clin Pract. 2011;91(3):321–32. doi: 10.1016/j.diabres.2010.12.002
7. Goebel-Fabbri AE. Diabetes and eating disorders. J Diabetes Sci Technol. 2008;2(3):530–17. doi: 10.1177/193229680800200326
8. Kristeller JL, Wolever RQ. Mindfulness-based eating awareness training for treating binge eating disorder: the conceptual foundation. Eat Disord. 2011;19(1):49–61. doi: 5 1080/10640266.2011.533605
9. Chavan GM, Waghachavare VB, Gore AD, Chavan VM, Dhobale R V, Dhumale GB. Knowledge about diabetes and relationship between compliance to the management among the diabetic patients from Rural Area of Sangli District, Maharashtra, India. J Fam Med Prim care. 2015;4(3):439–43. doi: 10.4103/2249-6 63.161349
10. Dalen J, Smith BW, Shelley BM, Sloan AL, Leahigh L, Begay D. Pilot study: Mindful Eating and Living (MEAL): weight, eating behavior, and psychological outcomes associated with a mindfulness-based intervention for people with obesity. Complement Ther Med. 2010;18(6):260–4. doi: 10.1016/j. 7 m.2010.09.008
11. Tak SR, Hendrieckx C, Nefs G, Nyklíček I, Speight J, Pouwer F. The association between types of eating behaviour and dispositional mindfulness in adults with diabetes. Results from Diabetes MILES. The Netherlands. Appetite. 2015;87:288–95. doi: 10.1016/j. 3 pet.2015.01.006
12. Mason AE, Epel ES, Kristeller J, Moran PJ, Dallman M, Lustig RH, et al. Effects of a mindfulness-based intervention on mindful eating, sweets consumption, and fasting glucose levels in obese adults: data from the SHINE randomized controlled trial. J Behav Med. 2016;39(2):201–13. doi: 10.1007/s10865-10 9692-8
13. Warren JM, Smith N, Ashwell M. A structured literature review on the role of mindfulness, mindful eating and intuitive eating in changing eating behaviours: effectiveness and associated potential mechanisms. Nutr Res Rev. 2017;30(2):272–83. doi: 10.1017/ 9 S0954422417000154
14. Arch JJ, Brown KW, Goodman RJ, Della Porta MD, Kiken LG, Tillman S. Enjoying food without caloric cost: The impact of brief mindfulness on laboratory eating outcomes. Behav Res Ther. 2016;79:23–34. doi: 10.1016/j. 11 .2016.02.002
15. Cheng L, Leung DY-P, Sit JW-H, Li X-M, Wu Y-N, Yang M-Y, et al. Factors associated with diet barriers in patients with poorly controlled type 2 diabetes. Patient Prefer Adherence. 2016;10:37–44. doi: 10.2147/PPA.S94275
16. Murman DL. The Impact of Age on Cognition. Semin Hear. 2015;36(3):111–21. doi: 10.1055/s-0035-1555115
17. Rizza RA. Pathogenesis of fasting and postprandial hyperglycemia in type 2 diabetes: implications for therapy. Diabetes. 2010;59(11):2697–707. doi: 10.2337/db10-1032

Mindfulness

ORIGINALITY REPORT

14%	%	14%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Zahra Najafpour, Isa Mohammadi Zeidi, Rohollah Kalhor. "The effect of educational intervention on medication adherence behavior in patients with type 2 diabetes: application of social marketing model", Clinical Diabetology, 2021 Publication	1%
2	Deny Budiman, Kiki Lukman, Reno Rudiman, Bambang Am Am Setya Sulthana et al. "Intra-tumoral tumor infiltrating Lymphocyte-T CD8+ and chemotherapy response in colorectal cancer: A prospective observational study", Trends in Immunotherapy, 2024 Publication	1%
3	Phong Ching Lee, John B. Dixon. "Food for Thought: Reward Mechanisms and Hedonic Overeating in Obesity", Current Obesity Reports, 2017 Publication	1%
4	Abbas Ebadi, Davide Ausili, Ahmed N Albatineh, Shahin Salarvand, Reza Ghanei	1%

Ghashlagh. "

Psychometric Evaluation of the Farsi Version of the Self-Care of Diabetes Inventory in Iranian Patients with Diabetes

", Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, 2019
Publication

---

5 Haewon Byeon. "Factors Influencing the Utilization of Diabetes Complication Tests Under the COVID-19 Pandemic: Machine Learning Approach", Frontiers in Endocrinology, 2022
Publication

1 %

---

6 Jeffrey M. Rogers, Madeleine Ferrari, Kylie Mosely, Cathryne P. Lang, Leah Brennan. "Mindfulness-based interventions for adults who are overweight or obese: a meta-analysis of physical and psychological health outcomes", Obesity Reviews, 2017
Publication

1 %

---

7 Ashley Irwin, Daria Igudesman, Jamie Crandell, Jessica C. Kichler et al. " Mindfulness, disordered eating, and impulsivity in relation to glycemia among adolescents with type 1 diabetes and suboptimal glycemia from the Flexible

1 %

Lifestyles Empowering Change ( )
Intervention Trial ", Pediatric Diabetes, 2022
Publication

---

8 Ni Luh Putu Sekardiani, I Ketut Swarjana, Ni Luh Adi Satriani, Sri Dewi Megayanti. "Factors influence self-care behavior and diabetic management in patients with diabetes mellitus", MEDISAINS, 2023 — 1 %
Publication

---

9 Elizabeth A. Thomas, Jennifer L. Mijangos, Pamela A. Hansen, Shelley White et al. "Mindfulness-Oriented Recovery Enhancement Restructures Reward Processing and Promotes Interoceptive Awareness in Overweight Cancer Survivors: Mechanistic Results From a Stage 1 Randomized Controlled Trial", Integrative Cancer Therapies, 2019 — 1 %
Publication

---

10 Elham Hosseini, Achraf Ammar, Jessica K. Josephson, Deanna L. Gibson et al. "Fasting diets: what are the impacts on eating behaviors, sleep, mood, and well-being?", Frontiers in Nutrition, 2024 — 1 %
Publication

---

11 Leila Sabzmakan, Mohammad Asghari Jafarabadi, Akbar Nikpajoh, Tahereh Kamalikhah. "The factors associated with — 1 %

healthy eating behaviors among people with cardiovascular metabolic risk factors: a mixed method study", Research Square, 2019
Publication

---

12 Tracy Herrmann, Emily Preib, Madeline French, Julie Beckstrom et al. "Veterans' experiences with mindfulness-based eating: A mixed methods study on MB-SAVOR", Complementary Therapies in Clinical Practice, 2022 — 1 %
Publication

---

13 Qatrunnada Naqiyyah Khusmitha, Atik Farokah, Herdian Fitria Widyanto Putri. "Effectiveness of the Kundalini Method in Reducing Emesis Gravidarum in the 1st Trimester", Jurnal Aisyah : Jurnal Ilmu Kesehatan, 2023 — 1 %
Publication

---

14 R. A. Rizza. "Pathogenesis of Fasting and Postprandial Hyperglycemia in Type 2 Diabetes: Implications for Therapy", Diabetes, 2010 — 1 %
Publication

---

15 Mahnaz Davari, Hamed Rezakhani Moghaddam, Aghil Habibi Soola. "Identifying the Predictors of Self-Management Behaviors in Patients with Diabetes Based on Ecological — 1 %

Approach: A Systematic Review", Current Diabetes Reviews, 2021
Publication

16 Santy Deasy Siregar, Frans Judea Samosir, Victor Trismanjaya Hulu, Baby Tio Ivana Kumakauw, Refi Ikhtiari. "A Quasi-Experimental Study of Young Coconut Water in Reducing Fatigue on Construction Workers", IOP Conference Series: Earth and Environmental Science, 2022 — 1%
Publication

17 Susan Wnuk, Chau Du. "Chapter 17 Mindful Eating for Severe Obesity", Springer Science and Business Media LLC, 2017 — 1%
Publication

Exclude quotes	Off	Exclude matches	< 1%
Exclude bibliography	Off		