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EFFECTIVENESS OF A MULTIDISCIPLINARY WEIGHT MANAGEMENT PROGRAM AMONG OVERWEIGHT AND OBESE EMPLOYEES: A QUASI-EXPERIMENTAL STUDY

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KEYWORDS

Overweight, obesity, workplace health promotion, multidisciplinary intervention, dietary modification, physical activity, mindful eating, behavior change.

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ABSTRACT

Background: Overweight and obesity among working adults are significant public health concerns associated with unhealthy dietary habits, physical inactivity, and difficulties in maintaining healthy lifestyle behaviors. Workplace-based weight management programs offer an opportunity to promote healthier habits through integrated nutritional, physical, and psychological interventions. This study aimed to evaluate the effectiveness of a multidisciplinary workplace weight management program in improving dietary patterns, physical activity behaviors, mindful eating practices, and healthy eating behaviors among overweight and obese employees. **Methods:** A quasi-experimental intervention study was conducted among 60 overweight and obese employees recruited through random sampling. The intervention included dietary counseling delivered by a dietitian, supervised physical activity led by a physiotherapist, and psychological and behavioral support provided by a psychologist. The program incorporated dietary modification, mindful eating, healthy lifestyle education, and the four golden rules of weight management. Each session lasted approximately 1.5 hours. Validated questionnaires were administered before and after the intervention to assess lifestyle-related outcomes. Pre- and post-intervention data were analyzed using paired-samples t-tests, with statistical significance set at $p < 0.05$. Correlation analysis was also conducted to explore associations between changes in dietary practices and physical activity behaviors. **Results:** Of the 60 participants enrolled, 50 completed the full multidisciplinary intervention and follow-up assessment, while 10 opted for selected intervention components. Improvements in dietary patterns, physical activity behaviors, and healthy eating practices were reported among participants completing the full intervention. Statistically significant improvements were observed in selected outcome measures ($p < 0.05$). Correlation analysis was conducted to examine associations between changes in dietary practices and physical activity behaviors. The magnitude of the changes, correlation coefficients, confidence intervals, and exact p-values should be reported from the original dataset. **Conclusion:** The multidisciplinary workplace-based weight management program showed potential for improving dietary and physical activity behaviors among overweight and obese employees. Integrating nutritional counseling, supervised physical activity, and psychological behavior-change strategies may support healthier lifestyle choices in workplace settings. Further studies with larger samples, clearly defined comparison groups, and longer follow-up periods are needed to establish the effectiveness and sustainability of such interventions.

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Introduction

Overweight and obesity have become major public health challenges worldwide, affecting individuals across different age groups and occupational settings. Excess body weight is associated with an increased risk of noncommunicable diseases, including type 2 diabetes, cardiovascular disease, hypertension, and certain cancers. The increasing prevalence of overweight and obesity highlights the importance of developing effective strategies that promote healthy dietary practices, regular physical activity, and sustainable lifestyle changes.

Working adults may face several barriers to maintaining a healthy lifestyle. Long working hours, sedentary occupations, work-related stress, irregular meal schedules, limited opportunities for exercise, and easy access to energy-dense foods can contribute to unhealthy behaviors and weight gain. In addition, employees may have limited time to prioritize physical activity and meal planning because of professional and personal responsibilities. These challenges indicate a need for practical, accessible, and structured workplace health promotion programs.

Workplaces provide an important setting for health promotion because employees spend a substantial proportion of their daily lives at work. Workplace-based interventions can provide opportunities for nutrition education, physical activity, psychological support, and the development of healthier routines. By integrating health promotion into the working environment, employers may help employees improve their lifestyle behaviors and potentially reduce long-term health risks.

Traditional weight management approaches often emphasize dietary restriction or physical activity alone. However, sustainable weight management requires a broader approach that considers the interaction between nutritional intake, physical activity, psychological factors, motivation, and behavioral habits. A multidisciplinary intervention may address these factors more comprehensively by combining dietary counseling, supervised exercise, and psychological behavior-modification techniques.

Dietary counseling can help individuals understand portion control, food quality, balanced meals, and appropriate eating patterns. Physical activity interventions can support the development of regular movement and exercise habits, while psychological support can help participants recognize emotional eating, manage barriers to behavior change, and strengthen motivation. Mindful eating may further encourage individuals to pay attention to hunger, fullness, food choices, and eating experiences.

The integration of these approaches may be particularly valuable in workplace settings, where employees require realistic strategies that can be incorporated into their daily routines. Nevertheless, the effectiveness of multidisciplinary workplace interventions depends on program design, employee participation, adherence, and the consistency of follow-up support.

Therefore, the present study evaluated the effectiveness of a structured multidisciplinary weight management program among overweight and obese employees. The study focused on changes in dietary patterns, physical activity behaviors, mindful eating practices, and healthy eating behaviors following the intervention.

Objectives

The primary objective was to evaluate changes in lifestyle-related behaviors following participation in a multidisciplinary workplace weight management program.

The specific objectives were:

1. To assess changes in dietary patterns and food consumption behaviors before and after the intervention.
2. To evaluate changes in physical activity behaviors among participating employees.
3. To examine improvements in mindful eating and healthy eating practices.
4. To explore associations between changes in dietary practices and physical activity behaviors.
5. To describe participation in the comprehensive multidisciplinary intervention and identify observations that may inform future workplace health promotion programs.

Materials and Methods

Study Design

A quasi-experimental intervention study was conducted to assess changes in lifestyle-related behaviors before and after participation in a multidisciplinary workplace weight management program. Baseline assessments were compared with post-intervention assessments to evaluate changes in the selected outcomes.

The study used a pre-intervention and post-intervention assessment approach. As a control group was not described in the available study information, the findings should be interpreted as changes observed following participation rather than definitive evidence that the intervention alone caused those changes.

Study Population and Sample Size

The study included 60 overweight and obese employees recruited through random sampling. Participants were enrolled in a structured workplace-based weight management program designed to improve dietary practices, physical activity, and healthy lifestyle behaviors.

Of the 60 enrolled participants, 50 completed the full multidisciplinary intervention and follow-up assessment. The remaining 10 participants preferred selected components of the intervention rather than the comprehensive program.

The final manuscript should specify the study location, recruitment period, age range, eligibility criteria, method used to determine overweight or obesity, and the precise sampling procedure. These details are necessary to support reproducibility and assess the generalizability of the findings.

Intervention Description

The multidisciplinary program combined nutritional counseling, supervised physical activity, and psychological and behavioral support. The intervention was delivered by a team comprising a dietitian, physiotherapist, and psychologist. Each session lasted approximately 1.5 hours.

The intervention consisted of the following components.

Dietary Modification and Nutritional Counseling

A dietitian provided dietary counseling aimed at improving participants' food choices and eating patterns. The nutritional component focused on balanced meals, appropriate portion sizes, healthier food selection, and the development of sustainable dietary habits.

Participants received guidance on reducing unhealthy eating practices and incorporating nutritious foods into their daily routines. Dietary modification was intended to support healthier consumption patterns without relying exclusively on short-term restrictive diets.

The final manuscript should describe the dietary plan in greater detail, including its duration, individualization, recommended dietary targets, and methods used to monitor adherence.

Supervised Physical Activity

A physiotherapist led the physical activity component of the intervention. This component aimed to encourage regular movement, improve awareness of physical activity recommendations, and help participants develop exercise habits appropriate to their abilities and circumstances.

Supervised physical activity can provide structured opportunities for participation and guidance regarding safe exercise practices. The intervention also emphasized the importance of incorporating movement into daily routines and reducing sedentary behavior.

The exact exercises, intensity, frequency, progression, and duration of physical activity should be reported according to the original intervention protocol.

Psychological and Behavioral Support

Psychological support was incorporated to address behavioral factors that may influence eating patterns, motivation, and adherence to lifestyle recommendations. The psychologist supported the behavioral component of the program, which included healthy lifestyle education, mindful eating, and behavior-modification strategies.

Mindful eating encourages individuals to pay attention to their eating experiences, hunger and fullness cues, food choices, and responses to food. These practices may help participants become more aware of habitual eating behaviors and identify situations that influence their food consumption.

Behavioral support also aimed to encourage realistic goal setting, self-monitoring, and the development of sustainable lifestyle routines. Specific psychological techniques should be documented in the final manuscript to clarify how this component was delivered.

Education on the Four Golden Rules of Weight Management

The intervention incorporated education on the four golden rules of weight management as part of its healthy lifestyle component. This education was intended to reinforce the importance of consistent dietary practices, regular physical activity, mindful eating, and sustainable behavioral change.

For scientific reproducibility, the four rules should be explicitly listed in the final version according to the program's original educational materials. Their exact wording should not be inferred from the available abstract.

Data Collection

Validated questionnaires were administered before and after the intervention to assess dietary patterns, physical activity behaviors, and healthy eating practices. These assessments were used to compare participants' reported lifestyle behaviors at baseline and follow-up.

The final manuscript should identify the names and versions of the questionnaires, their scoring procedures, validity and reliability evidence, and the timing of the follow-up assessment. If mindful eating was measured separately, the relevant assessment instrument and scoring method should also be specified.

Participant demographic characteristics, including age and other relevant variables, should be reported where available.

Statistical Analysis

Pre- and post-intervention outcomes were compared using paired-samples t-tests. This test was selected to assess differences between baseline and follow-up measurements among participants with paired observations. Statistical significance was defined as $p < 0.05$.

Correlation analysis was conducted to examine associations between changes in dietary practices and physical activity behaviors.

The final statistical analysis should report the number of participants included in each analysis, baseline and follow-up means and standard deviations, mean differences, 95% confidence intervals, exact p-values, and correlation coefficients where applicable. The assumptions underlying the selected statistical tests should also be assessed.

Because 10 participants did not complete the comprehensive intervention, the analysis should clearly explain whether these participants were excluded from the primary analysis, analyzed separately, or included in another prespecified comparison. Missing data and intervention adherence should be addressed transparently.

Ethical Considerations

The available study description did not provide information about ethical approval, informed consent, or confidentiality procedures. The final manuscript should include the name of the approving ethics committee and approval reference, if applicable, and describe how informed consent was obtained and participant information was protected.

Methods

Study Design and Participants

A quasi-experimental intervention study was conducted among 60 overweight and obese employees recruited through random sampling. The study comprised three phases: baseline assessment, multidisciplinary therapeutic intervention, and follow-up reassessment after three months. The study aimed to assess participants' knowledge, attitudes, and practices regarding weight management and to explore their preferences for physiotherapy, nutritional counseling, and psychological and behavioral support.

Phase I: Baseline Assessment

The purpose of the study, research procedures, and ethical considerations were explained to potential participants before data collection. Written informed consent was obtained from individuals who agreed to participate. Participation was voluntary, and confidentiality and anonymity were maintained throughout the study.

Participants completed a demographic form and an indigenous questionnaire developed for the study. The demographic form collected information on age, gender, and previous history of weight loss. The questionnaire assessed previous weight-loss methods, understanding of weight management, perceived stress levels, body mass index (BMI), current weight, target weight, and preferences for weight-management support. Participants indicated their preferred approaches, including physiotherapy-based exercise, nutritional counseling, and psychological and behavioral strategies.

Phase II: Multidisciplinary Therapeutic Intervention

A structured multidisciplinary intervention lasting approximately 1.5 hours was delivered by a physiotherapist, dietitian, and psychologist. The session incorporated visual demonstrations, practical guidance, lifestyle education, and behavioral strategies for weight management.

Physiotherapy and physical activity: Approximately 30 minutes were devoted to physiotherapy education and practical demonstrations of basic exercises suitable for weight management. Participants received guidance on a four-week exercise plan and were encouraged to incorporate leisure walking, increase daily step counts, and adopt regular physical activity according to their abilities.

Nutritional counseling: The dietitian provided education on BMI, nutritional requirements for healthy weight management, dietary modification, and appropriate food portion sizes. Participants were instructed in portion counting and healthy eating practices to support gradual and sustainable weight loss.

Psychological and behavioral support: The psychologist discussed the four golden rules of weight management, motivation, and behavioral modification. Practical guidance included block scheduling (time-blocking) to support planning and the integration of healthy lifestyle behaviors into daily routines. Participants were also introduced to behavioral strategies for overcoming barriers to weight loss and maintaining motivation and adherence.

Phase III: Three-Month Follow-Up and Reassessment

Three months after the intervention, participants were reassessed using the indigenous questionnaire to evaluate their weight-management practices, understanding, and adoption of the recommended strategies. Follow-up assessment also identified which intervention modalities participants had used: physiotherapy-based exercise, nutritional strategies, psychological and behavioral techniques, or combinations of these approaches.

Of the 60 participants initially enrolled, 15 reportedly chose to use only one intervention modality, while others adopted two or more modalities. The selected approaches included physiotherapy-

based exercise, nutritional strategies, and psychological support. Participants' reported choices and practices were documented for subsequent analysis.

Statistical Analysis

Pre- and post-intervention outcomes were intended to be analyzed using paired-samples *t*-tests, with statistical significance set at $p < 0.05$. Correlation analysis was also planned to explore associations between changes in dietary practices and physical activity behaviors. The statistical analyses should specify the number of participants with complete paired data, the correlation method used, and the treatment of missing follow-up data. Descriptive statistics, mean differences, 95% confidence intervals, effect sizes, correlation coefficients, and exact *p*-values should be reported using the original dataset.

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Psychological support was incorporated to address behavioral factors that may influence eating patterns, motivation, and adherence to lifestyle recommendations. The psychologist supported the behavioral component of the program, which included healthy lifestyle education, mindful eating, and behavior-modification strategies.

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The final manuscript should identify the names and versions of the questionnaires, their scoring procedures, validity and reliability evidence, and the timing of the follow-up assessment. If mindful eating was measured separately, the relevant assessment instrument and scoring method should also be specified.

Participant demographic characteristics, including age and other relevant variables, should be reported where available.

Statistical Analysis

Pre- and post-intervention outcomes were compared using paired-samples t-tests. This test was selected to assess differences between baseline and follow-up measurements among participants with paired observations. Statistical significance was defined as $p < 0.05$.

Correlation analysis was conducted to examine associations between changes in dietary practices and physical activity behaviors.

The final statistical analysis should report the number of participants included in each analysis, baseline and follow-up means and standard deviations, mean differences, 95% confidence intervals, exact p-values, and correlation coefficients where applicable. The assumptions underlying the selected statistical tests should also be assessed.

Because 10 participants did not complete the comprehensive intervention, the analysis should clearly explain whether these participants were excluded from the primary analysis, analyzed separately, or included in another prespecified comparison. Missing data and intervention adherence should be addressed transparently.

Ethical Considerations

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Results

Participant Enrollment and Intervention Completion

A total of 60 overweight and obese employees enrolled in the study. Of these, 50 completed the full multidisciplinary intervention and follow-up assessment, while 10 preferred selected components of the program rather than the comprehensive intervention.

The completion rate for the full intervention was 83.3%, while 16.7% of enrolled participants did not complete the comprehensive program as described. These percentages refer to completion of the full intervention and should not automatically be interpreted as study withdrawal rates because the 10 participants preferred selected intervention components.

The reasons for selecting individual components, attendance patterns, and any differences between the two participation groups should be reported if these data were collected.

Changes in Dietary Patterns

Participants who completed the multidisciplinary intervention demonstrated improvements in dietary patterns compared with baseline. The findings suggest that structured nutritional counseling may have supported healthier food choices and greater awareness of dietary practices.

However, the available study information does not provide the specific questionnaire scores, individual dietary outcomes, or magnitude of change. Therefore, the extent of improvement in food consumption patterns cannot be quantified in this manuscript.

Table 1. Dietary outcomes before and after the intervention

Outcome	Baseline	Post-intervention	Statistical result
Dietary pattern score	Insert mean ± SD	Insert mean ± SD	Insert exact p-value
Healthy food consumption	Insert mean ± SD	Insert mean ± SD	Insert exact p-value
Mindful eating score, if measured	Insert mean ± SD	Insert mean ± SD	Insert exact p-value

Note: Populate the table using the original dataset and the scoring procedures of the relevant questionnaires.

Changes in Physical Activity Behaviors

Improvements in physical activity behaviors were reported among participants completing the comprehensive program. The supervised physical activity component, combined with behavioral education, was intended to encourage more active lifestyles and greater awareness of the importance of regular movement.

Selected outcome measures demonstrated statistically significant improvements, with reported p-values below 0.05. However, the specific physical activity measures and their corresponding statistical results were not provided in the available information.

Table 2. Physical activity outcomes before and after the intervention

Outcome	Baseline	Post-intervention	Statistical result
Physical activity score	Insert mean ± SD	Insert mean ± SD	Insert exact p-value
Other measured activity outcome	Insert mean ± SD	Insert mean ± SD	Insert exact p-value

The results should distinguish changes in questionnaire-based physical activity behaviors from objectively measured activity, if objective measurements were collected.

Changes in Healthy Eating and Lifestyle Behaviors

Participants demonstrated improvements in healthy eating practices following participation in the program. The integrated intervention combined dietary guidance with mindful eating and psychological behavior-modification strategies to support healthier daily habits.

The findings indicate potential benefits from addressing dietary and behavioral factors together. Nevertheless, the specific outcomes, effect sizes, and individual statistical comparisons should be included before drawing conclusions about the magnitude of improvement.

Associations Between Dietary Practices and Physical Activity

Correlation analysis was conducted to examine the relationship between changes in dietary practices and physical activity behaviors. The available study summary describes positive associations between improvements in healthy eating practices and physical activity behaviors.

These findings suggest that changes in different lifestyle behaviors may occur together. However, the correlation coefficient, confidence interval, exact p-value, and sample size for the analysis were not provided. The strength and statistical significance of the association therefore require verification from the original dataset.

Correlation does not establish causation and cannot determine whether changes in dietary behavior produced changes in physical activity or vice versa.

Age and Participation Preferences

Participants aged 35–45 years appeared more willing to adopt the comprehensive multidisciplinary intervention. This observation may be useful for generating hypotheses about employee engagement and intervention preferences.

However, without appropriate statistical comparisons across age groups, it cannot be concluded that employees aged 35–45 years were significantly more likely to complete the program. This observation should remain exploratory until supported by the relevant participant-level data.

Discussion

The present study evaluated a multidisciplinary workplace weight management program designed to improve dietary patterns, physical activity behaviors, mindful eating practices, and healthy eating behaviors among overweight and obese employees. The findings indicate that participants completing the comprehensive intervention experienced improvements in selected lifestyle-related outcomes, with statistically significant changes reported in some measures.

These findings support the potential value of integrated workplace health promotion strategies. Rather than focusing exclusively on dietary restriction or exercise, the intervention addressed several interconnected behavioral factors that influence lifestyle choices. The combination of nutritional counseling, supervised physical activity, and psychological support provided a structured approach to encouraging healthier habits.

Importance of Nutritional Counseling

Dietary modification is an important component of weight management because food choices, portion sizes, meal patterns, and overall dietary quality influence energy intake and nutritional status. Individualized counseling can help participants identify practical changes that fit their daily routines.

In workplace settings, employees may experience difficulties maintaining regular meals or selecting nutritious foods because of time constraints and the availability of convenient food options. Structured dietary education may help address these barriers by improving awareness of balanced nutrition and encouraging more consistent eating patterns.

The reported improvements in dietary behaviors are consistent with the intended objectives of the nutritional component. However, without detailed dietary scores or objective measures of food intake, the magnitude of the changes and their nutritional significance remain uncertain.

Role of Physical Activity

Regular physical activity is an essential component of healthy weight management and overall health. It contributes to energy expenditure, physical fitness, metabolic health, and psychological well-being. Supervised activity may also help participants develop confidence and establish routines that can be continued beyond the intervention period.

The improvements in physical activity behaviors reported in this study suggest that structured exercise guidance may have contributed to healthier lifestyle practices. The involvement of a physiotherapist offered an opportunity to provide professional guidance and support appropriate activity participation.

Future studies should assess physical activity using clearly defined measures, such as validated activity questionnaires or objective monitoring devices, where feasible. These measurements would provide a more precise understanding of changes in activity levels and their relationship with other outcomes.

Contribution of Psychological Support and Mindful Eating

Weight management is influenced by more than nutritional knowledge and exercise opportunities. Motivation, stress, emotional responses, habitual behaviors, and the ability to maintain changes over time can affect adherence to lifestyle recommendations.

The inclusion of psychological support and mindful eating distinguished the intervention from approaches focused solely on diet and exercise. Mindful eating may encourage individuals to become more attentive to hunger and fullness cues and to recognize habitual or emotionally influenced eating patterns.

Behavior-modification strategies can also help participants set realistic goals, monitor progress, and identify barriers to maintaining healthier routines. Integrating these approaches may provide employees with a broader set of strategies for managing lifestyle behaviors.

Nevertheless, the current findings do not establish which intervention component contributed most to the observed improvements. Because the program was delivered as a multidisciplinary package, the independent effects of dietary counseling, physical activity, and psychological support cannot be determined from the available results.

Relationship Between Dietary and Physical Activity Behaviors

The reported positive association between changes in healthy eating practices and physical activity behaviors highlights the importance of examining lifestyle behaviors collectively. Individuals who become more engaged in one health-promoting behavior may also become more motivated to adopt other beneficial practices.

This possibility supports the design of integrated workplace interventions that address several health behaviors simultaneously. However, correlation findings should be interpreted cautiously. The observed association may reflect shared influences, including motivation, health awareness, social support, or participation in the program, rather than a direct causal relationship.

Further research should use adequately powered analyses to determine the strength and consistency of associations between changes in dietary practices and physical activity.

Employee Engagement and Intervention Completion

Of the 60 participants enrolled, 50 completed the full intervention, while 10 preferred selected program components. This pattern highlights the importance of understanding employee preferences and practical barriers to participation.

A comprehensive intervention may require considerable time and commitment from employees with different schedules, responsibilities, and health needs. Flexible scheduling, individualized

support, and opportunities to choose appropriate activities may help improve engagement. At the same time, retaining core intervention components may be important when evaluating the effectiveness of a multidisciplinary approach.

The observation that participants aged 35–45 years appeared more willing to adopt the comprehensive program may help guide future research into employee engagement. Nevertheless, age-related differences should be confirmed through formal statistical analysis rather than assumed from descriptive observations.

Implications for Workplace Health Promotion

The findings have potential implications for employers, occupational health professionals, and workplace wellness program designers. Workplaces can provide a practical environment for delivering nutrition education, supervised physical activity, and behavioral support in a coordinated manner.

A multidisciplinary approach may help employees develop healthier habits by addressing nutritional knowledge, activity opportunities, and psychological barriers within one program. Such interventions may also support organizational efforts to promote employee well-being.

For successful implementation, programs should consider employee schedules, accessibility, individual needs, confidentiality, and long-term adherence. Regular follow-up may be useful for determining whether improvements are maintained after the structured intervention ends.

However, the current study does not establish whether the program reduced body weight, body mass index, waist circumference, absenteeism, or healthcare costs. These outcomes should be measured directly in future evaluations if they are intended to support broader claims about health or organizational benefits.

Strengths of the Study

An important strength of this study was its multidisciplinary design, which integrated dietary counseling, supervised physical activity, and psychological and behavioral support. This approach recognized that lifestyle-related behaviors are interconnected and may require coordinated strategies.

The use of baseline and follow-up assessments also enabled the researchers to examine changes over time. In addition, the study explored associations between dietary and physical activity behaviors, offering an opportunity to investigate how different lifestyle outcomes may relate to one another.

The workplace setting provides a potentially practical context for delivering health promotion interventions to working adults.

Limitations

Several limitations should be considered when interpreting the findings.

First, the study included 60 participants, of whom 50 completed the full intervention. The relatively small sample may limit the precision of statistical estimates and the generalizability of the findings.

Second, the study used a quasi-experimental pre-intervention and post-intervention design. In the absence of a clearly described control group, changes cannot be attributed exclusively to the intervention. Other influences, including changes in personal circumstances, external health advice, or increased awareness resulting from study participation, may have contributed to the observed outcomes.

Third, the 10 participants who preferred selected intervention components introduce an important participation distinction. Their outcomes and reasons for choosing partial participation should be described to clarify the potential effects of intervention adherence and participant preferences.

Fourth, the available information does not specify the exact intervention duration, questionnaire names, baseline characteristics, or detailed numerical results. This limits the ability to assess the magnitude, clinical importance, and reproducibility of the findings.

Fifth, the available abstract does not provide sufficient information to determine whether changes in body weight, body mass index, or other anthropometric outcomes were measured. Conclusions should therefore remain focused on the reported lifestyle-related behaviors.

Finally, the absence of detailed long-term follow-up information prevents conclusions about whether the observed improvements were sustained over time.

Conclusion

The multidisciplinary workplace-based weight management program showed potential for improving dietary patterns, physical activity behaviors, and healthy eating practices among overweight and obese employees. By combining nutritional counseling, supervised physical activity, mindful eating, and psychological behavior-modification strategies, the intervention addressed multiple lifestyle factors within a coordinated framework.

The reported improvements suggest that integrated workplace health promotion programs may provide a useful approach to supporting healthier lifestyle behaviors among working adults. The findings also highlight the importance of considering employee engagement and preferences when designing comprehensive interventions.

However, the results should be interpreted cautiously because of the quasi-experimental design, the number of participants completing the full intervention, and the limited availability of detailed statistical estimates. Larger controlled studies with clearly defined intervention protocols, objective outcome measures, and longer follow-up periods are needed to establish effectiveness, identify the contributions of individual intervention components, and determine whether improvements are sustained.

Recommendations

Based on the study findings and its limitations, the following recommendations are proposed:

1. **Expand workplace health promotion:** Employers should consider integrating nutrition education, physical activity opportunities, and behavioral support into workplace wellness initiatives.

2. **Provide individualized dietary guidance:** Nutritional counseling should account for employees' dietary preferences, health needs, work schedules, and available food choices.

3. **Encourage regular physical activity:** Workplace programs should provide accessible opportunities for movement and exercise, supported by appropriately qualified professionals.

4. **Integrate behavioral strategies:** Mindful eating, realistic goal setting, self-monitoring, and other evidence-informed behavior-change techniques may help employees develop sustainable habits.

5. **Improve intervention adherence:** Flexible scheduling, participant feedback, and follow-up support should be considered to understand and address barriers to comprehensive participation.

6. **Strengthen future research designs:** Future studies should include an appropriate comparison group where feasible, larger samples, clearly documented intervention protocols, and longer follow-up periods.

7. **Improve outcome measurement:** Researchers should report actual questionnaire scores, effect sizes, confidence intervals, exact p-values, and relevant anthropometric measures where collected.

8. **Evaluate long-term outcomes:** Further research should examine the sustainability of behavioral changes and, where measured, their relationship with weight status, health indicators, and workplace well-being.

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