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EXTENDED ABSTRACT

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ARTIFICIAL INTELLIGENCE AND OBESITY: EXPLORING THE EFFICACY OF NEXGEN PROMPT GENERATOR AND AI CHATBOT IN PROMOTING WEIGHT LOSS IN HEALTHY OBESE ADULTS

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I. INTRODUCTION

Obesity management demands scalable and personalized approaches. This study evaluates a novel AI-driven framework, NEXGEN-ChatGPT, integrating dietary and exercise guidance for obese adults. By analyzing pre-post outcomes and adherence patterns over three months, this research addresses gaps in cost-effective, scalable, and personalized interventions compared to traditional methods. [1,2].

II. METHODS

A one-group pre-post pilot design assessed NEXGEN-ChatGPT feasibility in weight management. 44 obese adults (BMI: 27.5–32.4 kg·m⁻²) [3] from Universiti Teknologi MARA, Malaysia, participated. Dietary adherence was tracked via chat-logged food records analyzed with Nutritionist Pro™, while exercise adherence used metabolic equivalents from accelerometers. Eligibility ensured no severe medical conditions or recent weight loss. Adherence data were scored weekly for analysis.

III. RESULTS AND DISCUSSION

A. Body Composition Changes

After three months, participants achieved significant reductions in body composition metrics. Mean weight decreased by 4.8 kg ($p < 0.001$), BMI reduced by 1.7 kg·m⁻² ($p < 0.001$), and waist circumference declined by 4.4 cm ($p < 0.001$). These clinically meaningful improvements support the effectiveness of the NEXGEN-ChatGPT framework in promoting weight management, aligning with evidence on personalized interventions enhancing health outcomes.

B. Physical Activity and Dietary Adherence Level

Dietary adherence peaked early but declined over 12 weeks, with significant drops in adherence in Weeks 5 and 8 ($p < 0.001$). Physical activity adherence followed a similar pattern, starting at 92% but dropping to 61% by Week 12. Strong negative correlations were found between adherence and weight change (dietary: $r = -0.68$, exercise: $r = -0.62$, $p < 0.001$; Table 1), confirming adherence as key to effective weight loss outcomes.

TABLE I

The Outcome of Adherence Level Analysis.

Weeks	Dietary Adherence Level	Physical Adherence Level
1	35 ± 4.2	92% ± 2.3%
2	36 ± 5.2	95% ± 2.7%
3	33 ± 4.2	87% ± 2.6%
4	33 ± 4.3	86% ± 3.1%
5	28 ± 7.1	76% ± 6.1%
6	31 ± 4.1	83% ± 4.1%
7	35 ± 4.4	88% ± 4.2%
8	28 ± 4.3	75% ± 3.7%
9	25 ± 3.9	73% ± 3.6%
10	22 ± 3.8	71% ± 3.8%
11	22 ± 4.1	66% ± 3.7%
12	23 ± 4.2	61% ± 3.5%

IV. CONCLUSIONS

The NEXGEN-ChatGPT framework significantly improved weight, BMI, and waist circumference in obese adults over three months. Adherence to dietary and exercise plans strongly correlated with greater weight loss, emphasizing the framework's potential as a scalable, effective tool for weight management. Future studies should explore long-term impacts and broader population applications.

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