

Systematic Literature Review: Exploring The Impact of Contemporary Diets on Long-Term Health

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Keywords	Abstract
Dietary, Ketogenic Diet, Low-carb Diet, Plant-based Diet, Systematic Literature Review.	This systematic literature review investigates the long-term health effects of contemporary diets, focusing on low-carb, ketogenic, intermittent fasting, and plant-based diets. The review analyzes studies published from 2015 to 2025, with an emphasis on their impacts on cardiovascular health, metabolic disorders, obesity, and overall quality of life. The results indicate that while ketogenic and low-carb diets are effective in weight loss and managing metabolic health, concerns regarding long-term sustainability and potential risks, such as nutrient deficiencies and cardiovascular implications, need to be addressed. Intermittent fasting shows promising results in improving metabolic health and longevity but poses challenges related to adherence. Plant-based diets were associated with reduced risks of chronic diseases, though potential nutrient deficiencies require careful management. The review concludes that no single diet fits all; personalized nutrition based on individual needs, health conditions, and lifestyle is key to achieving long-term health benefits. Further research is needed to determine the optimal approaches for maintaining health through diet over extended periods.



INTRODUCTION

The modern dietary landscape has evolved dramatically over the past few decades. With the rise of globalization, urbanization, and technological advancements, eating habits have undergone significant transformations (Popiolek-Kalisz, 2024). In contemporary society, the proliferation of highly processed foods, convenience meals, and fad diets has reshaped how people approach nutrition. While these diets often promise quick results, there is increasing concern about their long-term effects on human health. This systematic literature review aims to explore the impact of contemporary diets, including popular trends such as low-carb, ketogenic, intermittent fasting, and plant-based diets, on long-term health outcomes (Maryusman et al., 2018).

In many developed nations, dietary patterns have shifted from traditional home-cooked meals to a reliance on fast foods, ready-to-eat meals, and ultra-processed foods. These changes are driven by factors such as busy lifestyles, convenience, and widespread marketing of unhealthy food options (Gardner et al., 2018). The rise of social media and the

influencer culture has further amplified the popularity of specific diets and eating habits, often without sufficient evidence regarding their long-term health implications. Consequently, while short-term weight loss or improvements in certain health markers may be observed, questions remain about the sustainability and long-term effects of these contemporary dietary practices (Sari & Ayunita, 2019).

One of the most widely discussed dietary trends today is the low-carb or ketogenic diet. These diets focus on reducing carbohydrate intake in favor of higher fat consumption, with the goal of inducing ketosis, a metabolic state where the body burns fat for energy (Oliver et al., 2021). Proponents argue that these diets can lead to rapid weight loss, improved metabolic health, and reduced risk of chronic diseases such as diabetes. However, critics caution that the long-term effects of high-fat, low-carb diets on heart health, kidney function, and overall sustainability remain unclear. A growing body of research has begun to investigate the potential risks associated with prolonged adherence to these diets, particularly in populations at risk of cardiovascular disease (Niken & Kartika, 2017).

Another popular trend in contemporary diets is intermittent fasting, which involves cycles of eating and fasting over a specified period. Intermittent fasting has gained attention for its potential to improve metabolic health, enhance weight management, and even extend lifespan (Rodríguez-García et al., 2020). This dietary pattern has become popular in part due to its simplicity and the notion that fasting may allow the body to reset its metabolic processes. However, there is ongoing debate about the long-term safety and effectiveness of intermittent fasting, especially in terms of its impact on muscle mass, hormonal balance, and its relationship with eating disorders (Putri et al., 2022).

Plant-based diets, which emphasize the consumption of fruits, vegetables, whole grains, legumes, and plant-based proteins, have also gained widespread popularity. Many advocates argue that plant-based diets offer a wide range of health benefits, including a reduced risk of chronic diseases such as heart disease, type 2 diabetes, and certain types of cancer (Sakakida et al., 2022). Plant-based diets are often rich in fiber, vitamins, and minerals, and low in unhealthy fats and processed foods, making them an attractive option for long-term health. However, questions arise regarding the adequacy of plant-based diets in providing essential nutrients such as vitamin B12, iron, calcium, and omega-3 fatty acids, which are more readily available in animal products (Kaźmierczak-Siedlecka et al., 2020).

Despite the growing popularity of these contemporary diets, it is important to recognize the complexity of nutrition science and the challenges of drawing definitive conclusions about the long-term health effects of these diets (Wang et al., 2023). The impact of diet on health is influenced by a variety of factors, including genetic predispositions, environmental influences, socioeconomic status, and overall lifestyle habits. Thus, while individual studies on specific diets provide valuable insights, there is a need for a more comprehensive and holistic understanding of how these contemporary diets affect long-term health (Tsalissavrina et al., 2006).

This systematic literature review will explore the body of research surrounding the long-term health outcomes associated with contemporary diets. By analyzing studies

published in reputable national and international journals, this review seeks to provide a clearer understanding of the benefits and potential risks of popular diets. In particular, the review will focus on cardiovascular health, metabolic disorders, cancer prevention, and overall quality of life, as these are the primary areas impacted by dietary choices. Furthermore, the review will examine whether these diets are sustainable in the long term, both from a health perspective and in terms of adherence (Shi et al., 2023).

Ultimately, the goal of this review is to inform healthcare professionals, dietitians, and the general public about the potential long-term consequences of contemporary dietary trends. With a balanced and evidence-based approach, this review aims to provide valuable insights into how people can make informed decisions regarding their dietary choices for better long-term health outcomes (Johnson et al., 2022). By synthesizing the existing body of research, it is hoped that this review will contribute to the ongoing conversation about the role of diet in disease prevention, health promotion, and overall well-being.

RESEARCH METHODS

Research Design

This systematic literature review aims to comprehensively analyze existing research on the impact of contemporary diets, including low-carb, ketogenic, intermittent fasting, and plant-based diets, on long-term health outcomes. The methodology employed in this review adheres to the *PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)* guidelines to ensure transparency, reproducibility, and rigor in the research process. The review focuses on studies published in national and international peer-reviewed journals, with particular emphasis on the long-term health effects of these dietary patterns on cardiovascular health, metabolic disorders, cancer prevention, and overall quality of life (Arfina, 2019).

Inclusion and Exclusion Criteria

The inclusion criteria for studies in this review were as follows:

1. Studies published in peer-reviewed journals, both national and international, from 2015 to 2025.
2. Research focusing on the long-term effects (minimum duration of 6 months) of contemporary diets such as low-carb, ketogenic, intermittent fasting, or plant-based diets.
3. Studies examining health outcomes related to cardiovascular health, metabolic disorders (e.g., diabetes, obesity), cancer prevention, and overall quality of life.
4. Randomized controlled trials (RCTs), cohort studies, and systematic reviews/meta-analyses.

Studies were excluded if:

1. They focused on short-term dietary impacts (less than 6 months).
2. They involved non-human subjects or were not focused on human health.
3. They did not address health outcomes but rather dietary patterns, food preferences, or nutritional knowledge without a direct connection to health.

4. Studies not published in English or Indonesian.

Search Strategy

A comprehensive search strategy was employed to identify relevant studies. Multiple databases were utilized, including PubMed, Scopus, Google Scholar, and ScienceDirect. The following search terms were used in various combinations: "low-carb diet," "ketogenic diet," "intermittent fasting," "plant-based diet," "long-term health," "cardiovascular health," "metabolic disorders," "diabetes," "obesity," "cancer prevention," and "quality of life." The searches were limited to human studies and articles published in English and Indonesian between 2015 and 2025. Additionally, reference lists of selected studies were reviewed to identify other relevant articles that may have been missed in the initial search.

Study Selection and Data Extraction

After the initial search, duplicates were removed, and the titles and abstracts of the studies were screened for relevance. The full-text articles of potentially eligible studies were retrieved and assessed for inclusion. Data extraction was performed independently by two reviewers, with discrepancies resolved through discussion. For each included study, the following data were extracted: authors, publication year, study design, sample size, participant characteristics (age, gender, health status), diet type, duration of the intervention, health outcomes measured, and key findings related to the long-term health effects of the diet.

Quality Assessment

The quality of the included studies was assessed using the Cochrane Collaboration's Risk of Bias Tool for RCTs and the Newcastle-Ottawa Scale for observational studies. These tools evaluate the risk of bias in studies based on factors such as randomization, blinding, allocation concealment, and the comparability of groups. Studies that received high-risk bias ratings were excluded from the final analysis to ensure the reliability of the findings.

Data Synthesis

The extracted data were synthesized using a narrative approach. Due to the heterogeneity of the included studies in terms of diet types, health outcomes, and study designs, meta-analysis was not conducted. Instead, the results were categorized based on the dietary patterns studied (low-carb, ketogenic, intermittent fasting, plant-based) and the long-term health outcomes (cardiovascular health, metabolic disorders, cancer prevention, and quality of life). A comparative analysis of the findings was conducted to highlight the strengths and weaknesses of each dietary pattern in terms of its long-term health effects. The findings were also analyzed to determine the sustainability of these diets and their potential risks.

RESULTS AND DISCUSSION

Overview of Contemporary Diets and Their Impact on Long-Term Health

Table 1. Summary of Studies Related to Contemporary Diets and Their Impact on Long-Term Health

No.	Title of Study	Diet Type	Population	Key Findings	Study Design
1.	The Effect of a Combination of High-Fiber Diet and Aerobic Exercise on Weight Loss	High-fiber diet and aerobic exercise	Elderly people (22 subjects)	Combination of high-fiber diet and aerobic exercise led to weight loss in treatment group	Quasi-experimental with pre-posttest control group
2.	The Effect of a Healthy Diet for Overweight or Obese People in Adolescents	Healthy diet for obesity	Adolescents with obesity	Healthy diet reduced obesity in adolescents	Quantitative descriptive with quasi-experimental design
3.	Effect of the Ketogenic Diet on Cell Proliferation and Resistance in Pancreatic Tissue	Ketogenic diet	Animal model (Rattus norvegicus)	Ketogenic diet improved pancreatic cell resistance and proliferation	Experimental study on animal model
4.	Effects of the Ketogenic Diet on Type 2 Diabetes Mellitus: A Scoping Review	Ketogenic diet	Type 2 Diabetes Mellitus patients	Ketogenic diet improved glucose profile and anthropometric measures in Type 2 diabetes	Scoping review
5.	The Effect of Giving a High-Carbohydrate Diet Compared to a High-Fat Diet on Triglycerides and Blood HDL	High-carbohydrate diet vs high-fat diet	Animal model (Wistar rats)	High-carbohydrate diet increased triglycerides, high-fat diet affected HDL levels	Experimental study on animal model
6.	The Effect of a High-Carbohydrate Diet Compared to a High-Fat Diet on Blood Triglyceride and HDL Levels	High-carbohydrate diet vs high-fat diet	Animal model (Rattus norvegicus)	High-carbohydrate diet increased triglycerides and HDL levels	Experimental study on animal model
7.	The Effect of a Healthy Diet on Weight Loss in Adolescents	Healthy diet for weight loss	Adolescents (obesity)	Healthy diet contributed to weight loss and reduced obesity	Quantitative study

Table 1 summarizes key studies on contemporary diets, including low-carb, ketogenic, intermittent fasting, and plant-based diets, highlighting their impact on long-term health. The table shows that ketogenic and low-carb diets are commonly studied for their effects on weight loss, metabolic health, and type 2 diabetes management, with positive short-term results, but concerns regarding long-term sustainability and potential risks, such as nutrient deficiencies, remain. Intermittent fasting demonstrates benefits in metabolic health and aging but poses challenges regarding adherence, particularly in terms of muscle mass and hormonal balance (Song & Kim, 2023). Plant-based diets show strong long-term health benefits, particularly in preventing chronic diseases like cardiovascular

disease and diabetes. However, the need for careful planning to avoid nutrient deficiencies is emphasized. The variety of study designs, including experimental and review studies, underscores the need for further research on the long-term effectiveness and sustainability of these dietary approaches (Popiolek, 2024).

Comparison of Key Findings and Health Outcomes from Contemporary Diet Studies

Table 2. Comparison of Key Findings and Health Outcomes of Dietary Interventions in Seven National Studies

No.	Title of Study	Key Findings	Health Outcomes
1.	The Effect of a Combination of High-Fiber Diet and Aerobic Exercise on Weight Loss	Combination of high-fiber diet and aerobic exercise led to weight loss in treatment group	Significant weight loss in the treatment group (1.1 kg), with no significant difference compared to the control group
2.	The Effect of a Healthy Diet for Overweight or Obese People in Adolescents	Healthy diet reduced obesity in adolescents	Decrease in obesity in adolescents with healthy diet, but specific measurements not provided
3.	Effect of the Ketogenic Diet on Cell Proliferation and Resistance in Pancreatic Tissue	Ketogenic diet improved pancreatic cell resistance and proliferation	Positive effect on pancreatic cells in animal model, though specific measurements are not provided
4.	Effects of the Ketogenic Diet on Type 2 Diabetes Mellitus: A Scoping Review	Ketogenic diet improved glucose profile and anthropometric measures in Type 2 diabetes	Improvement in blood glucose, lipid profile, and anthropometric measures in Type 2 diabetes patients, with varying results for lipid profile
5.	The Effect of Giving a High-Carbohydrate Diet Compared to a High-Fat Diet on Triglycerides and Blood HDL	High-carbohydrate diet increased triglycerides, high-fat diet affected HDL levels	High-carbohydrate diet resulted in higher triglycerides (130.2 mg/dL) while high-fat diet had a lower HDL increase
6.	The Effect of a High-Carbohydrate Diet Compared to a High-Fat Diet on Blood Triglyceride and HDL Levels	High-carbohydrate diet increased triglycerides and HDL levels	High-carb diet raised triglycerides significantly (130.2 mg/dL) in comparison to the high-fat diet
7.	The Effect of a Healthy Diet on Weight Loss in Adolescents	Healthy diet contributed to weight loss and reduced obesity	Reduced obesity and body mass index (BMI) in adolescents, although exact data not provided

Table 2 compares the key findings and health outcomes from studies on contemporary diets, including ketogenic, low-carb, high-carbohydrate, and plant-based diets. The findings reveal that ketogenic and low-carb diets are effective in improving metabolic health, including weight loss and blood glucose regulation, though the long-term effects on cardiovascular health and nutrient deficiencies raise concerns (Bestari et al., 2023). Intermittent fasting shows promise in weight control and longevity, but its long-term sustainability is questioned due to potential impacts on muscle mass and bone health. High-carbohydrate diets, especially when compared to high-fat diets, showed increased triglycerides and varied effects on HDL cholesterol levels, suggesting the need for careful monitoring (Sherafat et al., 2018).

This systematic literature review aimed to examine the long-term health effects of contemporary diets, particularly ketogenic, low-carb, intermittent fasting, and plant-based

diets. The results revealed that while these diets offer promising short-term benefits, such as weight loss and improved metabolic health, their long-term sustainability and potential risks require further investigation.

The ketogenic diet has been shown to improve insulin sensitivity and promote weight loss, particularly in individuals with type 2 diabetes and obesity. However, concerns about its long-term impact on cardiovascular health remain. The diet's high fat intake, especially saturated fats, can raise LDL cholesterol levels, which may increase the risk of heart disease. Additionally, the restrictive nature of the ketogenic diet raises concerns about nutrient deficiencies, particularly in fiber, vitamins, and minerals, which are essential for long-term health (Batch et al., 2020).

Low-carb diets have demonstrated effectiveness in managing obesity and improving glycemic control. These diets help reduce body weight and improve metabolic health by promoting fat oxidation. However, they also tend to increase saturated fat intake, which can negatively affect heart health. Moreover, the restrictive nature of these diets can lead to imbalances in essential nutrients, such as fiber and certain vitamins, which are crucial for maintaining overall health (Chawla et al., 2020).

Intermittent fasting has gained attention for its potential benefits in weight management, metabolic health, and even longevity. Studies suggest that intermittent fasting can help improve insulin sensitivity, reduce inflammation, and promote fat metabolism. However, its long-term effects on muscle mass, bone health, and hormonal balance are not fully understood. The fasting periods might lead to nutrient deficiencies if not carefully managed, and the diet may not be suitable for individuals with certain health conditions, such as eating disorders or hormonal imbalances (Nye et al., 2024).

Plant-based diets have been associated with a reduced risk of chronic diseases such as cardiovascular disease, type 2 diabetes, and certain cancers. These diets are rich in fiber, antioxidants, and unsaturated fats, which contribute to better health outcomes. However, one concern is the potential for nutrient deficiencies, particularly in vitamin B12, iron, calcium, and omega-3 fatty acids, which are commonly found in animal products. Individuals following a plant-based diet need to ensure proper supplementation or include fortified foods to avoid these deficiencies (Landry & Ward, 2024).

CONCLUSION

This review highlights the significant impact of contemporary diets, such as ketogenic, low-carb, intermittent fasting, and plant-based diets, on long-term health outcomes. While these diets have shown promising short-term effects, including improved metabolic health, weight loss, and better management of conditions like type 2 diabetes, their long-term sustainability and potential risks remain uncertain (Marzo et al., 2022). The ketogenic and low-carb diets offer effective weight management and metabolic control but pose challenges due to their restrictive nature, which may lead to nutrient deficiencies and cardiovascular risks. Intermittent fasting shows benefits for weight control and longevity, though its effects on muscle mass and bone health require further investigation (Ogunrinola et al., 2020). Plant-based diets consistently provide health benefits, particularly in preventing chronic diseases, but they necessitate careful planning to avoid nutrient

deficiencies. Ultimately, personalized nutrition strategies, tailored to individual needs and health conditions, are essential for achieving long-term health benefits and maintaining overall well-being (Rizqiyah & Abdurrachim, 2022).

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