

## “EXAMINING THE EFFECT OF KETO DIETS ON WEIGHT LOSS: THE QUALITATIVE STUDY OF EXPERIENCES AND PERCEPTIONS OF OBESE INDIVIDUALS”

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### Abstract:

*In recent years, the ketogenic diet has gained immense popularity worldwide. This diet emphasizes the consumption of high amounts of fat, moderate protein, and very few carbohydrates. The purpose of this research paper is to explore how the ketogenic diet affects our bodies, its effectiveness in treating neurological diseases, and its role in weight loss. Another objective was to investigate how the ketogenic diet promotes ketogenesis, which is beneficial for specific neurological conditions.*

*As carbohydrate intake decreases, body weight is also expected to drop. Data was gathered from fifteen participants, including males and females, and a nutritionist, all from Islamabad. The research employed a qualitative explanatory study using purposive sampling for keto diet followers and convenient sampling for nutritionists. Data was collected through semi-structured interviews and questionnaires to gather insights into their experiences. The results indicated that participants experienced weight loss over 12 weeks and significant health improvements. The ketogenic diet showed more substantial short-term results compared to long-term observations. Studies revealed that the diet contributed to weight loss, improved blood sugar levels, reduced inflammation, and increased energy levels. The findings revealed that some challenges faced with prolonged adherence to the diet could lead to serious health complications, such as liver damage, kidney stones, and nutrient deficiencies. Further research is necessary to understand the long-term effects of the ketogenic diet on overall health and disease management.*

**Keywords:** Ketogenic diet, Health Improvement, Maintenance Strategies, Nutritional Approach

### 1. Introduction:

Obesity is a condition characterized by an imbalance between energy intake and expenditure, leading to unhealthy weight gain (Kiran et al., 2023). Weight loss is the removal of unnecessary fat. Losing weight is essential for addressing obesity-related health concerns, and it can also impact physical appearance, athletic performance, and personal motivation. However, with the increasing array of diets, surgeries, and weight loss medications, many individuals are attempting to lose weight without fully understanding the potential risks involved (Jaime & Mank, 2024). Small changes to our diet can have a significant impact on our health. Research has shown that targeting specific nutrients can lead to improvements in

various health conditions, including high blood pressure, abnormal cholesterol levels, kidney disease, and obesity. By focusing on essential micro- and macronutrients, we can make informed dietary choices that support our overall health and well-being (Baik&Bird,2023).

Weight loss medications can be effective, but they also come with potential side effects that patients need to be aware of. Moreover, some weight loss methods can even increase the risk of mortality, highlighting the importance of informed decision-making and proper education for patients (Jaime&Mank,2024). Diet's impact on health is often under-discussed with patients, possibly due to lack of interest, knowledge, or time (Baik &Bird,2023).

The annual healthcare cost of obesity is staggering, exceeding \$700 billion globally and \$100 billion in the United States alone (Kiran et al., 2023). A 2021 UN report revealed a stark contrast in global food issues, with 9.8% of the population struggling with hunger while the remainder of the world grapples with diet-related health problems, including obesity, hypertension, and other conditions (Baik &Bird,2023). Many individuals struggle to modify their eating habits due to a lack of awareness about the impact of their diet on their health. This is particularly concerning given the alarming prevalence of chronic diseases in the US, including hypertension (47%), obesity (41.9%), and chronic kidney disease (15%), as reported by the CDC in 2022 (Baik & Bird, 2023).

Effective management of these conditions begins with adopting a balanced diet and regular physical activity (Baik&Bird,2023). The ketogenic diet gained popularity in the 1920s(Jaime&Mank,2024). A ketogenic diet involves a nutritional regimen that is predominantly high in fat, moderately rich in protein, and severely restricts carbohydrate intake, with a typical daily carbohydrate limit of 20-50 grams (Masood et al.,2023).

### **1.1 Problem Statement**

The effects of the ketogenic diet can be both short-term and long-term. Adopting a ketogenic diet may lead to mild, temporary side effects commonly referred to as the "keto flu," which can include gastrointestinal issues, fatigue, and dizziness. These symptoms are generally short-lived and can be alleviated through proper hydration and maintaining electrolyte balance. However, prolonged adherence to the diet may increase the risk of more serious health complications, such as liver damage, kidney stones, and nutrient deficiencies (Masood et al., 2023). Although rapid weight loss may produce short-term results, it can be difficult to maintain and may lead to negative side effects like irritability, fatigue, and anger (Jaime & Mank, 2024). For individuals considering the ketogenic diet, it's essential to recognize both its potential benefits and possible long-term health concerns. The keto diet, characterized by a high-fat, low-carbohydrate intake, can lead to significant weight loss and improved blood sugar control for some people. However, those embarking on this dietary journey without the guidance of a qualified nutritionist or certified healthcare provider may face several challenges. On the other hand, long-term adherence to the diet could result in issues such as nutrient deficiencies, digestive problems, or an increased risk of heart disease due to high saturated fat intake. Therefore, it's crucial for individuals to thoroughly educate themselves on the keto diet and consider consulting with a healthcare professional before making significant changes to their eating habits, ensuring a balanced approach that supports overall health and wellness.

### **1.2 Research Gap**

In a country like Pakistan, where societal norms often emphasize physical appearance, many individuals are eager to pursue various diets in hopes of achieving a slimmer, more stylish look in a short amount of time. This desire for an idealized body image can lead to the adoption of trendy weight-loss plans, often influenced by social media and celebrity endorsements. Such research is needed to investigate the long-term effects of the ketogenic

diet on overall health and disease management. Additionally, individualized approaches should be developed to tailor the diet for specific populations, such as children and older adults. Understanding the underlying mechanisms and identifying relevant biomarkers are also crucial for achieving effective treatment outcomes. Ultimately, translating research findings into clinical practice will allow healthcare providers to implement the ketogenic diet more effectively.

### 1.3 Research Question

1. Why does a ketogenic diet lead to improved weight loss and metabolic health in obese individuals?
2. How do obese individuals experience and perceive the effectiveness of various diets on weight loss?

### 1.4 Objectives

1. To assess whether the ketogenic diet improves weight loss and metabolic health in obese individuals.
2. To analyze the individual's experience and perceive the effectiveness of various diets on weight loss

### 1.5 Assumptions

1. Obese individuals will adhere to the ketogenic diet for the duration of the study.
2. The ketogenic diet will lead to significant changes in the gut microbiome, inflammation, and insulin sensitivity.

## 2. Literature Review

Particularly among obese people, the ketogenic diet, also known as the "Keto" diet, has become a well-liked nutritional approach for weight loss. There is increasing interest in learning how people feel and see the keto diet during their weight loss journeys, even though clinical research has shown that it is successful in lowering body weight and improving metabolic health markers. Investigating these experiences is essential to identifying variables that affect motivation, adherence, and long-term success.

In recent years, the ketogenic diet has become increasingly popular as a weight loss method due to its high fat, moderate protein, and low carbohydrate content. The physiological effects of keto diets have been the subject of numerous quantitative research, which have shown notable short-term weight loss, increased insulin sensitivity, and decreases in visceral fat (Hallberg et al., 2018; Bueno et al., 2013). Numerous studies have examined its physiological benefits, but qualitative research on the experiences and viewpoints of obese people receiving this nutritional intervention is still in its infancy.

Many participants mentioned early difficulties, including cravings and the "keto flu," many also achieved quick weight loss in the beginning, which encouraged adherence. In addition to helping them lose weight, the participants thought the diet improved their energy levels, mental clarity, and general well-being (McDonale et al., 2018).

Similarly, people appreciated the sense of control the keto diet gave them over their eating habits, according to a qualitative study. However, the restrictive nature of the diet and social constraints occasionally caused feelings of loneliness or made it difficult to stick to the routine over time. (Hall & Lemoine, 2019)

Although the keto diet was linked to significant weight loss, it found that participant experiences varied greatly (Gomez-Arbelaez et al., 2017). While some welcomed the lifestyle change, others found it difficult to maintain eating limits, especially while dining out or interacting with people.

Earlier qualitative studies have highlighted that while many participants report initial enthusiasm and rapid weight loss with keto diets, they often face significant difficulties, including social isolation during meals, psychological strain due to food restrictions, and misconceptions about diet safety (Saslow et al., 2017).

Furthermore, people frequently used social media and online forums to build a strong community support system, which was essential for maintaining commitment and motivation. Numerous studies have reported emotional reactions to weight loss, including elevated self-esteem and decreased anxiety (Westman et al., 2020).

Understanding the psychological and contextual elements of diet adherence, such as motivation, obstacles, social impacts, and mental health implications, requires qualitative research. According to earlier research, subjective feelings, including satiety, energy levels, social acceptance, and psychological well-being, frequently have an impact on dietary adherence (Mansoor et al., 2016; Goday et al., 2016). Beyond clinical measurements, investigating people's opinions on keto diets provides a deeper, more complex picture of why the diet works or doesn't over time.

Despite these revelations, there is still a dearth of qualitative studies that particularly examine how the obese population views and experiences the ketogenic diet. The majority of research that is now available either focuses on people in general or people with particular illnesses, such as type 2 diabetes or epilepsy. Because it provides specific insights into how obese people view and experience the ketogenic diet in their daily lives, this study is important in addressing a critical research gap (Hallberg, S. J., McKenzie, A. L., Williams, P. T. et al. (2018).

### **3. Research Methodology**

This study is based on a qualitative approach with an exploratory research design to explore individual experiences and perceptions related to weight loss on the ketogenic (keto) diet. To explore their real-life experiences and outcomes of following a keto diet, focusing on weight loss and health effects. This study was conducted in Islamabad, Pakistan.

Participants were selected by using purposive sampling. Participants included individuals who had followed the keto diet for at least 2-3 months. Eligible participants were adults (18+ years) who had tried the keto diet for weight loss. As carbohydrate intake decreases, body weight is also expected to drop. Data was gathered from fifteen participants, including males and females, and a nutritionist, all from Islamabad. The research employed a qualitative explanatory study using purposive sampling for keto diet followers and convenient sampling for nutritionists. Data was collected through semi-structured interviews from the nutritionists and through open ended questionnaires from keto diet followers. Each interview lasted approximately 15 to 20 minutes. An interview guide with open-ended questions was developed to explore participants' motivations, challenges, maintenance strategy, side effects, health providers and outcomes related to the keto diet. The study was guided by questions that explored participants' experiences with the keto diet.

Participants were informed about the purpose of the study and assured of satisfaction. Before each interview, participants provided a written or verbal agreement to participate, having been fully informed about the research and that the data collected were used for academic purposes and stored securely. This study was analyzed through thematic analysis.

### **4. RESEARCH INTERPRETATION AND ANALYSIS**

The research was designed to be qualitative and exploratory; thus, thematic analysis was employed to analyze the data.

Theme	Motivation		Health Provider			Maintenance Strategies	
Codes	Heath improvement	Weight loss	Medical Guidance	Online	Nutrition Support	Portion Control	supplements
Keto clients Interview percentage	42.85%	57.14%	16.66%	25%	58.33%	58.82%	41.17%
Keto nutritionist interviews percentage	33.33%	66.66%	50%	0	50%	100%	0
Overall percentage	34%		28%			38%	

**Table 4.1: Keto clients and Nutritionist Observations, Experiences and Perceptions during Ketogenic Diet**

Table 4.1 presents data collected from nutritionists and keto clients who have followed a ketogenic diet plan for at least three months. This data highlights the theme of the ketogenic diet among obese individuals. The "Weight Loss" category, reflecting their motivation to lose weight, accounts for 57% of the overall theme. The "Health Provider" category represents the highest percentage of nutritional support at 58.33%. Conversely, the "Portion Control" category indicates a significant weight loss in obese individuals, with a representation of 58.8%.

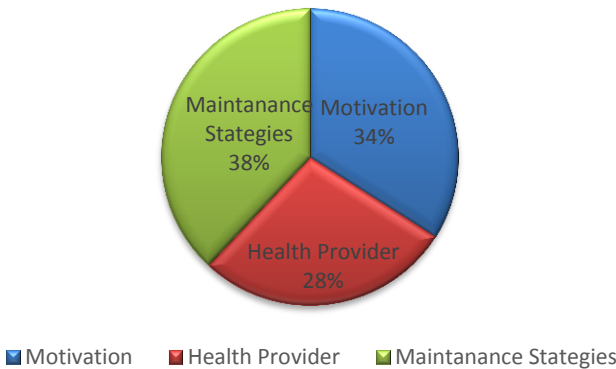
Overall, the data reveals that 34% of the interviews focused on motivation, 38% on maintenance strategies that help clients adhere to the keto diet, and 28% on the need for health provider support. These findings suggest that following a well-structured ketogenic diet can lead to notable health improvements and weight loss, empowering clients to perform daily tasks that may have been challenging due to obesity.

**Figure 4.1: Keto clients and Nutritionist Observations, Experiences and Perceptions during Ketogenic Diet**



Theme	Side effect		Challenges	
Codes	Keto flu	Nutrient Deficiencies	Headache	Sweet craving
Keto clients interviews percentage	50%	50%	40%	60%
Keto nutritionist percentage	40%	60%	100%	0
Overall percentage	64.70%		35.29%	

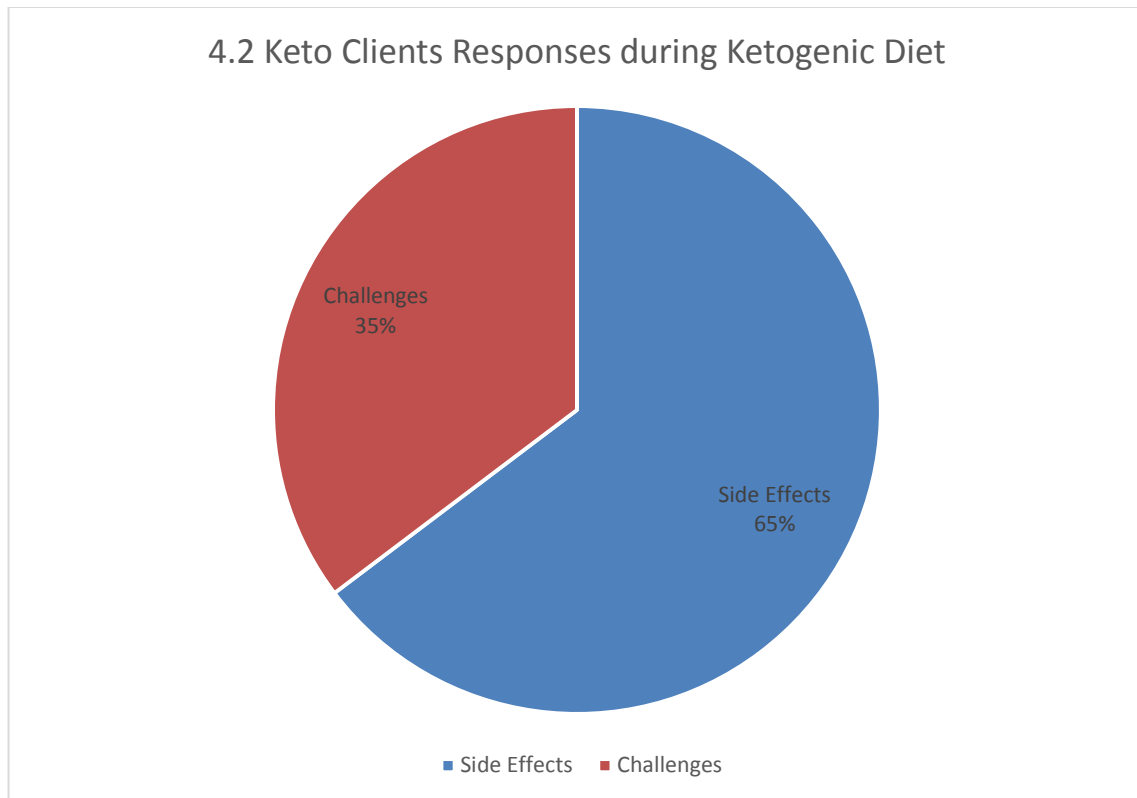
#### 4.1 Keto Clients Planed during Ketogenic Diet



**Table 4.2: Keto clients and Nutritionist Observations, Experiences regarding Side effects and Challenges during Ketogenic Diet**

Table 4.2 outlines the side effects and challenges faced by clients on the ketogenic diet, as well as the insights from nutritionists. It indicates that nutritional deficiencies are reported in 50% of cases; however, nutritionists believe these deficiencies are more prevalent than the keto flu. Overall, side effects occur in 65% of clients, which is more common than the challenges reported at 35%. Among the challenges, headaches are the most frequently observed issue. Adherence to the diet plans has shown significant weight loss and health improvements in a short period.

**Figure 4.2: Keto clients and Nutritionist Observations, Experiences regarding Side effects and Challenges during Ketogenic Diet**



**Figure 4.3: Extract (1) from client's interview**

**Question:** What motivated you to start a keto diet?

**Answer:** Weight loss motivated me to start a keto diet.

**Question:** Did you experience health improvements after starting keto?

**Answer:** Yes, I feel less appetite and more energy after starting keto.

**Question:** Did you experience headaches or "keto flu" symptoms?

**Answer:** Yes, in the beginning, I experienced keto flu symptoms, but usually, it goes away after some days.

**Question:** How strong were your sweet cravings?

**Answer:** Sweet cravings are strong at first, but they usually get better after a few days. Eating healthy fats can reduce them.

**Question:** What is the method of diet you followed? Portion control or interval?

**Answer:** I followed the portion control method of the diet.

**Question:** Did you adjust your meal frequency?

**Answer:** Yes, I adjusted my meal frequency in keto.

**Question:** What strategies helped you stay on track with keto?

**Answer:** Self-determination is the strategy that helped me to stay on track with the keto diet.

**Question:** How often do you track ketone levels or macronutrients?

**Answer:** I tracked ketone levels or macronutrients because I take multivitamins.

**Question:** Did you experience nutrient deficiencies?

**Answer:** No, I didn't experience nutrient deficiencies because I took multivitamins supplements.

**Question:** How did you address side effects like keto flu?

**Answer:** I drink plenty of water, add salt to food and take magnesium and potassium

**Question:** Did you consult a healthcare provider before starting keto?

**Answer:** Yes, I consult a healthcare provider before starting keto.

**Question:** Did professional guidance help you to stick to the diet?  
**Answer:** Yes, professional guidance helps a lot to stick to the diet.  
**Question:** How much progress have you made towards your goals?  
**Answer:** I lost 10kg weight in three months.  
**Question:** Would you recommend the keto diet to others? Why or why not?  
**Answer:** Yes, I recommend the keto diet to others because it helps in weight loss and health improvement and supports better sugar levels.

**Figure 4.4: Extract (2) from client's interview**

**Question:** What motivated you to start the keto diet?  
**Answer:** I have seen my sister lose weight, and it's motivated me.  
**Question:** Did you experience health improvements after starting keto?  
**Answer:** Yes, I feel health improvement; I feel active and light.  
**Question:** Did you experience headaches or "keto flu" symptoms?  
**Answer:** I experienced a headache but not a keto flu.  
**Question:** How strong were your sweet cravings?  
**Answer:** I don't have any sweet cravings during keto, but I feel sweet cravings without keto.  
**Question:** Was portion control challenging?  
**Answer:** Portion control was challenging at the start of keto, but when I was in ketosis. I did not feel hungry.  
**Question:** Did you need to adjust your meal frequency?  
**Answer:** Yes, I needed to adjust my meal frequency because, at the start, I reduced the meal frequency and then didn't take the meal before 24 to 36 hours.  
**Question:** What strategies helped you stay on track with keto?  
**Answer:** I took a lot of water and liquids. This was my strategy to stay on track on keto.  
**Question:** How do you manage cravings?  
**Answer:** I took nuts like peanuts that manage my craving  
**Question:** How often do you track ketone levels or macros  
**Answer:** I didn't check the ketone level; that's why I did not know about it.  
**Question:** What role did portion control play in your progress?  
**Answer:** Portion control helped me in ketosis and weight loss.  
**Question:** Did you experience nutrient deficiencies?  
**Answer:** I feel a nutrition deficiency; to overcome this, I took supplements.  
**Question:** How did you address side effects like keto flu?  
**Answer:** I would tolerate headaches. That's why I did not take any medicine. I did not have keto flu.  
**Question:** Were you advised to take supplements?  
**Answer:** I took supplements; if I did not take supplements, then I faced hair fall or sometimes felt itching in my body.  
**Question:** Did you consult a healthcare provider before starting keto?  
**Answer:** I didn't consult any healthcare providers, but I consulted Dr Burk through vlogs, who is a keto Doctor.  
**Question:** Did professional guidance help you stick to the diet?  
**Answer:** Obviously, professional guidance helped to get stuck in the diet, but self-determination helped to get stuck in the diet in a good way.  
**Question:** How much progress have you made toward your goals?  
**Answer:** I was making very good progress; I achieved 50 to 70 per cent of my goal. But the thing was still determination to achieve a goal.  
**Question:** Would you recommend the keto diet to others? Why or why not?



**Answer:** I recommend this diet to those people who understand its consequences and who are self-determined because it is a strict diet.

#### 4.1. Discussions

The ketogenic diet, characterized by high fat, moderate protein, and low carbohydrate intake, triggers a fasting-like metabolic state that produces ketone bodies. Beyond its established use in treating epilepsy, research suggests the diet may offer therapeutic benefits for a range of conditions, including obesity and cancer (Zhu et al.,2022). The ketogenic diet, introduced in the 1920s, limits daily carb intake to less than 50g. While it can lead to rapid weight loss, it may cause nutrient deficiencies and short-term side effects like nausea and fatigue, often referred to as the "keto flu." Long-term risks include kidney stones and excessive calcium in the urine (Jaime& Mank,2024).

The ketogenic diet improves blood lipid profiles. It reduces triglycerides and total cholesterol levels. HDL (good) cholesterol levels increase. This can contribute to better cardiovascular health. The diet's impact on lipids may lower disease risk. Overall, it promotes a healthier lipid balance. When the liver breaks down fatty acids, it produces ketone bodies, which can be used by the brain, heart, and muscles for energy. Ketone bodies provide an efficient source of energy, bypassing the usual glucose metabolism pathway. This process promotes mitochondrial function, leading to beneficial metabolic changes. In certain conditions, such as diabetic ketoacidosis, ketone body levels can become dangerously high (Zhu et al.,2022). When carbs are scarce, the body switches to burning fat for energy, producing ketones. This state, called nutritional ketosis, provides an efficient energy source for the brain, heart, and muscles. Ketones are a potent fuel, generating more energy than glucose, and may even offer antioxidant benefits (Masood et al.,2023). The ketogenic diet is effective for weight loss and improving overall health. It can help reduce obesity, improve blood sugar control, and lower cardiovascular risk factors. The diet may also have cognitive benefits and improve mood. By restricting carbohydrate intake, the body shifts to burning fat for energy, leading to weight loss and improved metabolic health (Zhu et al.,2022).

Healthcare providers should use evidence-based guidance when recommending the ketogenic diet for weight management, tailoring their approach to each patient's unique needs. A well-formulated low-carb diet can benefit individuals with metabolic syndrome, insulin resistance, and type 2 diabetes by improving glucose control, weight, blood pressure, and lipid profiles. However, LDL cholesterol may increase. The ketogenic diet shows promise for various health conditions, but long-term effects are unclear, and potential complications include dehydration, electrolyte imbalances, and low blood sugar (Masood et al.,2023).

The balance of gut bacteria, specifically the ratio of Firmicutes to Bacteroidetes, may be linked to obesity. Research shows that a ketogenic diet can positively shift this balance, potentially aiding in weight management and overall health, though protein sources may influence the extent of these changes (Dowis&Banga,2021).

The ketogenic diet's short-term effects are well-known, but its long-term impact is less understood. While some people may experience mild side effects like nausea and fatigue in the short term, potential long-term risks include nutrient deficiencies, digestive problems, kidney stones, heart disease, muscle loss, and possibly cognitive decline. The ketogenic diet is not suitable for everyone, particularly those with certain medical conditions, such as diabetes, pancreatitis, liver failure, or disorders of fat metabolism. Individuals with diabetes may need to adjust their medication to avoid low blood sugar. Additionally, the diet can cause false readings on breath alcohol tests (Masood et al.,2023).

#### 5. Conclusion

The findings revealed a consistent theme of "maintained strategies" and "health provider" among participants. Our study found that participants on the ketogenic diet experienced weight loss in 12 weeks and significant health improvement. The ketogenic diet gave more significant results in the short term with respect to long-term observation. Studies have revealed that strategically focusing on specific nutrients can catalyze remarkable improvements in various health conditions, such as elevated blood pressure, irregular cholesterol levels, kidney disease, and obesity. By honing in on vital micro- and macronutrients, we empower ourselves to make dietary choices that profoundly enhance our overall health and well-being. When embarking on a ketogenic diet, one might encounter a transient phase often referred to as the "keto flu." This period may come with a range of mild side effects, including stomach discomfort, a sense of fatigue that weighs you down, and occasional dizziness that leaves you feeling disoriented. Embracing these challenges is a step toward achieving a healthier lifestyle.

### 5.1 Implications of Research

Research on the keto diet bridges the gap between scientific knowledge and real-world application. Ongoing studies provide nutritionists with scientifically validated information, allowing them to design safe, effective, and personalized keto meal plans, particularly for individuals with specific health conditions such as obesity, diabetes, and epilepsy.

Followers of the keto diet gain access to updated, science-backed information regarding what to eat, what to avoid, and how to track their progress safely. Research helps individuals make informed choices by highlighting both the potential benefits—such as fat loss and increased energy—and the risks, including cholesterol elevation and nutrient deficiencies. This research information, shared through various media and communities, will build awareness and motivation and share learning among keto followers, leading to more sustainable lifestyle changes.

### 5.2 Recommendations for Future Research

Future studies should expand the understanding of the keto diet's role in managing neurological disorders such as Alzheimer's and Parkinson's disease, certain types of cancer, and metabolic syndromes like Type 2 diabetes and PCOS. The diet's anti-inflammatory and neuroprotective effects require deeper clinical exploration. While current research primarily focuses on short-term benefits, future longitudinal studies are essential to clarify the long-term health impacts, sustainability, and risks associated with prolonged adherence to ketogenic diets, particularly concerning cardiovascular health, kidney function, and nutrient adequacy. Future studies should investigate the adherence rates and health outcomes over periods exceeding one year. Conduct clinical studies on how the keto diet affects insulin, leptin, ghrelin, and other metabolic hormones in obese individuals. Examine the emotional and mental health aspects of following a restrictive diet like keto, especially about food cravings and social eating environments. Explore how age, gender, and socio-economic status influence the effectiveness and adherence to the keto diet. Study the effects of tailored keto plans (e.g., modified keto, cyclical keto) to accommodate individual preferences and health conditions.

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