ORIGINAL ARTICLE
The Perception towards Ketogenic Diet among General Population in Rawalpindi

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ABSTRACT
Objective: The aim of study is to determine the knowledge and perception towards ketogenic diet among general population, as a weight lowering technique for a shorter period of time.
Study Design: Cross sectional study
Place and Duration: The study was conducted on general public of Rawalpindi and the duration of study was of six months i.e from 15th Jan 2020 to 14th July 2020.
Methods: Data was collected through questionnaires and each question measured with the help of five Likert Scale (Strongly disagree, Disagree, Neutral, Agree, strongly agree). More than 10 questions were asked from the general public in Rawalpindi of all age groups and analyzed through Microsoft Excel. The questionnaire was distributed via internet-based google form. The respondents actively and willingly participated in the survey. Keeping in mind the current pandemic situation, it was difficult to reach out the people in person, so we used simple convenient sampling technique. Some of the data was collected by using snowball sampling technique. The respondents from Rawalpindi region were included in the study whereas all from other cities were excluded.
Results: There were 68 (81%) females and 16 (19%) males in this study. Most of the patients 36 (42.9%) were from <25 years of age, 29 (34.5%) patients were between age group 26-35, 18 (21.4%) were between 36-45 years of age and the rest were >46 years of age. Findings show that ketogenic diet is the most popular weight losing technique these days. While 47% of the people believe that the diet shall be followed under the supervision of a physician keeping in mind the risks associated with it.
Conclusion: Ketogenic diet is a popular weight loss diet these days. The general population somehow have the knowledge about the pros and cons of the diet. But still there is a dire need of health promotion and education regarding intake of ketogenic diet. The results are insignificant due to limited time and pandemic situation, so we are unable to gather significant amount of sample to know the actual reason behind younger population’s inclination towards ketogenic diet.
Key Words: Keto-diet, Ketogenic, Perception and Knowledge

INTRODUCTION
Keeping in mind the modern world, people have become tremendously conscious about their lifestyle. This includes their appearance, weight and overall fitness. A balanced and a healthy life includes a daily fitness routine with a healthy diet. With such hustle in life, it has become difficult to maintain this kind of lifestyle. Keeping the daily concerns in mind, the ketogenic diet seems to be rapidly blooming ‘fad diet’ in the market today, with a boost of quick and effective results. It is still vague that what actually happens to the body after the ketosis stage. It is also seen that the keto diet has temporary weight loss solutions and is making impressions. Popular FD utilized among young people which includes intermittent fasting, low-fat low-carb high-carbohydrate diets (Pritikin Diet), low-carb moderate-protein high-fat diets (KD and Atkins Diet), one or two food diets (Fiber or Fruit Diet), magic ingredient diets (Grapefruit or Magic Mayo Diet) and more (Crosser, 1985).
One of the most popular FD is the diet which is low-carbohydrate moderate-protein, high-fat diet which aims to use energy from fat metabolism other than carbs and utilization to induce fat loss (Paoli, 2014). The ketogenic diet is a high-fat, low-carbohydrate (<50g/day) with increased portion of proteins and fat which helps in making of ketone body through fat breakdown. The typical ketogenic diet is composed of a 4:1 ratio of fat to protein and carbohydrates. Types of ketogenic diet are:
1. Standard ketogenic diet (SKD): A very low-carb with a moderate-protein and high-fat diet. It typically contains 70% fat, 20% protein and 10% carbs.
2. Cyclical ketogenic diet (CKD): This involves periods of higher-carbs in between the ketogenic diet cycles, for example, five ketogenic days followed by two high-carbohydrate days as a cycle.
3. Targeted ketogenic diet (TKD): This allows adding additional carbohydrates around the periods of the intensive physical workout.
4. High-protein ketogenic diet (HPKD): More protein and the ratio around 60% fat, 35% protein and 5% carbohydrates.
5. High-Protein Ketogenic Diet (HPKD): It contains more protein diet. The ratio around 60% fat, 35% protein and 5% carbohydrates.
6. Lazy Ketogenic Diet: This diet has under 20g net carbs per day. While there is no tracking of calories and limited carb intake.
7. Dirty Ketogenic Diet: This diet is usually the same as the other diets with an addition of junk food.
Carbohydrate restriction can also increase energy expenditure, a major goal of obesity research.
conventionally sought with drugs and exercise.[7] In a 20-wk weight-loss maintenance feeding study with 164 participants, those assigned to a low- (20%) compared with a high- (60%) carbohydrate diet had higher energy expenditure (~200–250 kcal/d), with evidence of effect modification by insulin secretion as predicted by the carbohydrate-insulin model (8,9). Despite commonly voiced concerns about the safety of, and lack of supporting evidence for, this putative fad [10], the ketogenic diet has a long track record—not only in clinical medicine but also through human evolution—providing evidence for optimism in the search for more effective dietary prevention and treatment of chronic diseases.

Keto-diet had been considered to be a good diet for slimming down weight in a shorter period of time. The reason for popularity of this diet, is its already known effects to cut down weight at a rapid pace just in a short period of time. There have been seen a significant weight loss, improved blood glucose levels and improved lipid profiles (Castro et al., 2018; Moreno et al., 2016, Martin et al., 2011; Johnstone et al., 2008; Hussain et al., 2012). Strong evidence suggests that the use of keto diet in weight loss is very much effective (Paoli, 2014). Also, recent studies show people who followed the keto diet for weight loss have comparatively good results also with decreased adiposity (Castro et al., 2018; Moreno et al., 2016).

Despite such promising results from research, there is a little consensus regarding the perception of ketogenic diet usage among people of all age groups. With a limited amount of research, it is still controversial that how much the diet is useful in terms of weight loss. As it is difficult to stick to the diet for a longer period. This brings us to point to identify the research gap, that how people perceive the diet and what potential pros and cons are associated with it.

MATERIAL AND METHODS

A pilot cross sectional study was conducted to test the validity of the survey created. The study was conducted on general public of Rawalpindi and the duration of study was of six months i.e from 15th Jan 2020 to 14th July 2020. A questionnaire was distributed via internet-based google form to the people of all age groups. The respondents actively and willingly participated in the survey, knowing that their information will be kept confidential and will be used for academic research purpose only. Keeping in mind the current pandemic situation, it was difficult to reach out the people in person, so we used simple convenient sampling technique. Some of the data was collected by using snowball sampling technique. The respondents from Rawalpindi region were included in the study whereas all from other cities were excluded.

The survey was divided into two parts. The first part was to obtain the demographics of the respondents while the second part was composed of the questions related to the research, using a 5-point Likert scale.

RESULTS

There were 68 (81%) females and 16 (19%) males in this study. Most of the patients 36 (42.9%) were from <25 years of age, followed by 29 (34.5%) patients age group 26-35, 18 (21.4%) were from 36-45 years of age and the rest were >46 years of age. (Table 1)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency (n=84)</th>
<th>%age</th>
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</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Female</td>
<td>68</td>
<td>81</td>
</tr>
<tr>
<td>Age distribution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;25 years</td>
<td>36</td>
<td>42.9</td>
</tr>
<tr>
<td>26-35</td>
<td>29</td>
<td>34.5</td>
</tr>
<tr>
<td>36-45</td>
<td>18</td>
<td>21.4</td>
</tr>
<tr>
<td>&gt;45</td>
<td>1</td>
<td>1.19</td>
</tr>
</tbody>
</table>

Findings show that ketogenic diet is the most popular weight losing technique these days. While 47% of the people believe that the diet shall be followed under the supervision of a physician keeping in mind the risks associated with it. (Table 2)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Popular weight loss method</td>
<td>9(11%)</td>
<td>8(9%)</td>
<td>67(80%)</td>
</tr>
<tr>
<td>Guarantees weight loss</td>
<td>14(17%)</td>
<td>11(13%)</td>
<td>59(70%)</td>
</tr>
<tr>
<td>Too high in fat than in protein and carbohydrates</td>
<td>13(15%)</td>
<td>16(19%)</td>
<td>55(66%)</td>
</tr>
<tr>
<td>Has health benefits that outweigh health risks</td>
<td>30(36%)</td>
<td>19(23%)</td>
<td>35(41%)</td>
</tr>
<tr>
<td>Easy to follow</td>
<td>36(43%)</td>
<td>30(36%)</td>
<td>18(21%)</td>
</tr>
<tr>
<td>Safe enough to follow</td>
<td>51(61%)</td>
<td>9(11%)</td>
<td>24(28%)</td>
</tr>
<tr>
<td>Recommended by experts</td>
<td>12(14%)</td>
<td>8(10%)</td>
<td>64(76%)</td>
</tr>
<tr>
<td>It is dangerous</td>
<td>24(29%)</td>
<td>16(19%)</td>
<td>44(52%)</td>
</tr>
<tr>
<td>Causes nutrient deficiencies</td>
<td>19(23%)</td>
<td>16(19%)</td>
<td>49(58%)</td>
</tr>
</tbody>
</table>

DISCUSSION

The ketogenic diet has gained popularity in recent years all around the world, mostly as a weight-loss approach. [11,12] In this cross-sectional study 84 patients of both genders were presented. Majority of the patients 81% were females and from age group <25 years. These findings were comparable to the previous studies in which most of the female patients ages between 17-25 years gained ketogenic diet. [13,14] In previous study it was presented that this diet was thought to be mostly useful for weight loss since it alters the body's metabolism to rely on fats rather than carbohydrates for energy production. [15] Similar results observed in our study, 80% patients believed that it is a popular weight loss method. In current study we found that 76% cases were recommended by experts and causes nutrient deficiencies among 58% cases. 70% cases believe that it will be useful for weight loss or healthy method for it. Likewise, For effective and successful outcomes, stressed the necessity for a 5Rubric model of keto therapy, which includes rapport, realistic realization, reliability, readiness to change, and relationship, to be investigated and enhanced during the counseling process. It can help people reach their goals in a more efficient and healthier way, and it should be highlighted even more presented by Rosha et al.[16] In this study 52% respondents agreed that regular intake of ketogenic diet has adverse effects or would be dangerous. Our results demonstrated that 61% cases were not agreed to use because ketogenic diet is dangerous (i.e. increases a
person’s risk of developing diseases such as cardiovascular disease). 66% respondents believe that ketogenic diet recommendations are too high in fat and not enough in protein and carbohydrates.

We found that process of ketogenic diet was not easy to follow and most of the patients 43% were agreed on it because 61% cases believe that this technique is not safe.According to Yuen et al [16], the most prominent deleterious effect on the body owing to prolonged usage of the ketogenic diet is acidosis, which is consistent with the findings of the current study.Half of the participants stated that diet is more important than exercise, which was also underlined in a survey of college students in China.[17]

A ketogenic diet has sparked substantial interest for neurodegenerative and neuropsychiatric illnesses due to the powerful effects of ketones in the brain. According to preliminary data, patients with Alzheimer’s disease who have central insulin resistance improve clinically when given a ketogenic formula or exogenous ketones. [18,19] A ketogenic diet can also improve general mood after a brief transition period[20], though results vary between research. [21] A vegan diet without adequate attention to key micronutrients can cause growth retardation in children; a low-fat diet containing high amounts of sugar and other processed carbohydrates raises the risk of fatty liver and metabolic syndrome. Low-fat and plant-based diets are not discouraged in public health guidelines, but rather steps to encourage healthful versions of these eating patterns to reduce risk and increase benefits.[22]

We found that in these days, the ketogenic diet is a popular (80%) weight-loss program. The general public has some understanding of the diet’s benefits and drawbacks. However, there is still an urgent need for health promotion and education about the ketogenic diet.

CONCLUSION
Ketogenic diet is a popular weight loss diet these days. The general population somehow have the knowledge about the pros and cons of the diet. But still there is a dire need of health promotion and education regarding intake of ketogenic diet. The results are insignificant due to limited time and pandemic situation, so we are unable to gather significant amount of sample to know the actual reason behind younger population’s inclination towards ketogenic diet.

REFERENCES

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